APPENDIX F TRANSPORTATION TECHNICAL REPORTS

APPENDIX F.1 TRANSPORTATION IMPACT ASSESSMENT [REVISED]

Brisbane Baylands Transportation Impact Assessment Final

Prepared for:
City of Brisbane

December 2024

SF19-1036

FEHR PEERS

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Executive Summary

The transportation impact analysis (TIA) report presents the results of the CEQA transportation assessment of the Baylands Specific Plan (the "Project"), located in the City of Brisbane ("City"). This TIA presents the following information through eight chapters:

1. **Project Description** – The proposed land uses, phasing plan, transportation network changes, and transportation demand management program.
2. **Existing Conditions** – The surrounding roadway network, traffic conditions, transit service, pedestrian and bicycle facilities, emergency vehicle access, loading and parking conditions, and vehicle miles traveled.
3. **Regulatory Framework** – The state, regional, and local plans and policies that govern the proposed Project.
4. **Analysis Methodology** – The analysis scenarios and travel demand forecasting and operations approach.
5. **Project Travel Demand** – The methodology and results of the trip generation analysis, including the required TDM plan.
6. **Analysis Results** – The results of the VMT analysis, traffic operations that relate to the City's CEQA evaluation criteria, and a review of the site plan. The results of these analyses are used to inform the impacts and recommendations in the subsequent chapter.
7. **Impacts & Recommendations** – The CEQA significance criteria used to assess Project impacts, evaluation of the Project's impact on VMT, plan and policies, hazards, and emergency access, and recommendations to address the Project's impacts.

This report provides information which pertains to both transportation planning and environmental information. Consequently, not all information in this document is relevant to CEQA or VMT analysis. Additional technical information supporting the findings of this study are presented in the attached appendices.

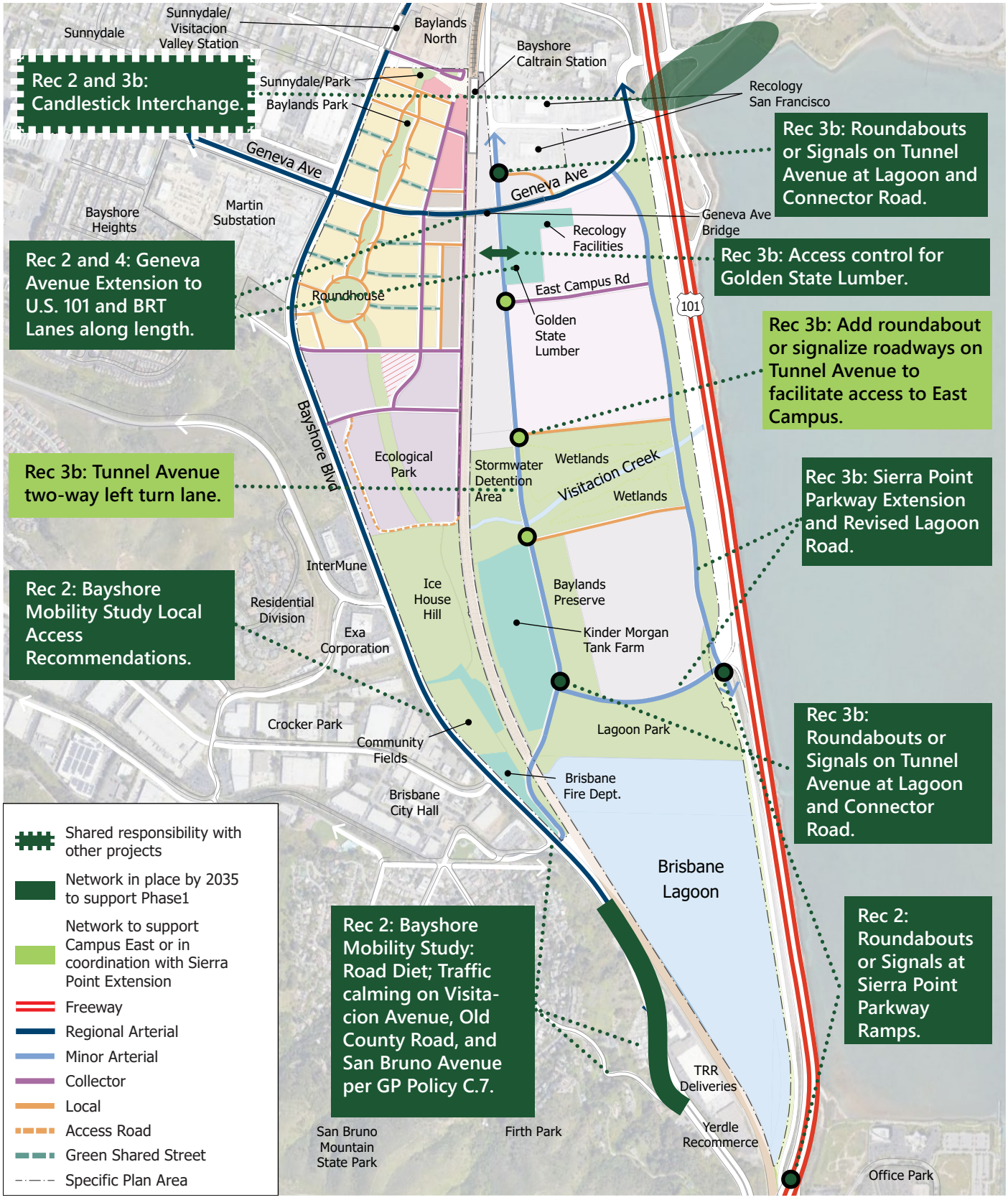
As presented in **Chapter 5**, at full buildout, the Project is estimated to generate approximately 46,000 daily vehicle trips and 28,000 trips by walking, bicycling, or transit. During the morning and evening peak hours, the Project is estimated to generate 5,000 to 5,600 peak hour vehicle trips on the surrounding roadway network.[1] The Project's geographic setting, mix of nearby land uses, neighborhood demographics, design of the pedestrian and bicycling environment, proximity to regional transit, and required transportation demand management (TDM) measures are estimated to reduce the amount of vehicle trips generated by these land uses by up to 40 percent compared to similar isolated, stand-alone land uses studied in the ITE Trip Generation manual.

[1] As described in Chapter 5, the trip generation values are presented in this report to support the CEQA assessments of traffic noise and traffic hazards relating to freeway ramp queues and the mixing of personal vehicles, transit vehicles, bicyclists, and pedestrians.

The proposed Project would result in **significant impacts** associated with consistency with plans and policies, hazards, and emergency access under mid-term and cumulative conditions. **Figure 1** presents a summary of the primary roadway infrastructure recommendations to address these impacts. Several recommendations would address the multiple significance impacts, as follows:

- Construction of the Geneva Avenue Extension and bridge over Caltrain with bus rapid transit (BRT) lanes to support the land uses in Phase 1 – As described in **Recommendation 4**, the Geneva Avenue Extension and bridge over Caltrain would allow the Project to be adequately served by emergency vehicle access, particularly with the addition of BRT lanes over the bridge as identified in **Recommendation 2** for compliance with the local and regional plans. This measure would also provide an additional east-west link through the area as called for in Brisbane's General Plan. Redesigning the touchdown of the Geneva Avenue bridge at Baylands Boulevard to remove the conflicting movements at the frontage roads would reduce hazards as identified in **Recommendation 3b**.
- Construction of a new Candlestick Interchange – As described in **Recommendation 2**, the Project's fair share contribution to the construction of a new Candlestick Interchange, in coordination with regional agencies, would support compliance with plans for a new BRT service and reduce the potential for the Project to worsen vehicle queues that extend back to the U.S. 101 mainline.
- Install roundabout or traffic signal at Sierra Point Parkway, Lagoon Road, and U.S. 101 ramps – As described in **Recommendation 2**, this improvement would be required to ensure that vehicle queues don't extend back to the U.S. 101 mainline at this location. The City of Brisbane prefers a roundabout, pending Caltrans approval.
- Add a two-way left turn lane or turn pockets and install roundabouts or traffic signals at all intersections along Tunnel Road – As described in **Recommendation 3b** and **Chapter 6**, future traffic volumes at these intersections would warrant these traffic controls to support the future traffic levels.
- Construction of off-site improvements to improve bicycle and pedestrian access to surrounding neighborhoods – For compliance with Brisbane's General Plan and Plan Bay Area 2050 (**Recommendation 2**) and to reduce the potential for hazardous conditions through the inadequate separation or mixing of people walking and bicycling with vehicles (**Recommendation 3b**).
- Implementation of the Supplemental Design Guidelines – As described in **Recommendation 3b**, the development and execution of plans designed to avoid or reduce hazards associated with construction or inadequate roadway design would be required to address the Project's impact to hazards.

With the implementation of these recommendations, the impacts of the proposed Project would be less than significant under project and cumulative conditions.



Rec = Recommendations that are from Transportation Impact Study

Figure 1

1. Project Description

The Baylands Specific Plan (the "Project") is located in the City of Brisbane and comprised of 641.8 acres of largely undeveloped land. In August 2018, the Brisbane City Council approved an amendment to the City's General Plan to rezone the project site for new mixed use, residential, commercial, and related campus uses. This amendment approved the development of 1,800 to 2,200 new dwelling units and 7 million square feet of commercial use. In November 2018, residents of the City voted in favor of Measure JJ, confirming that General Plan amendment. The Baylands Specific Plan implements the Brisbane General Plan and Measure JJ. The Project description is based on the Baylands Specific Plan dated March 2023.

Existing Site

The Baylands Specific Plan area (project site) is bounded by U.S. 101 to the east and Bayshore Boulevard to the west. The Caltrain right-of-way divides the project site in the north-south direction into two halves. To the northwest, the project site is bordered by the Visitacion Valley/Schlage Lock project (now known as Baylands North) in the City and County of San Francisco. To the northeast, the project site is bordered by Beatty Avenue and the Recology solid waste management facility. The site is currently occupied by small industrial facilities, storage uses, and the former Brisbane Landfill.

Proposed Land Uses

The Project as proposed would replace approximately 231,400 square feet of small industrial building area land uses with 2,200 residential units, 6.5 million square feet of office, 500,000 square feet of hotel (800 rooms), and 102,200 square feet of retail space. The Project is organized into five different districts, each with varying land uses and densities. **Figure 2** shows how the site was divided into these districts, as well as showing an illustrative land use plan. The land use totals by district used for this analysis are summarized in **Table 1**.

The Project includes a phasing plan that includes the buildout of three districts to the west of Caltrain in Phase 1 by 2035: Bayshore, Roundhouse, and Icehouse Hill. Many of the features in the Sustainability District would also be constructed concurrent to Phase 1. The full buildout of the Project would add the Campus East district to the east of Caltrain by 2040.



Figure 2

Proposed Land Use Plan

Table 1: Baylands Land Use by District

Land Use	Units	Planning Districts					Total
		Bayshore	Roundhouse	Icehouse Hill	Campus East	Sustainability	
Residential	Dwelling Units	733	1,467	0	0	0	**2,200**
Office[1]	KSF	525	0	3,372.8	2,500	0	**6,397.8**
Retail[2]	KSF	52	0	50.2	0	0	**102.2**
Hotel[3]	Rooms	800	0	0	0	0	**800**
Solar Farm / Infrastructure[4]	Employees	0	0	30	0	0	**30**

Notes: KSF = thousand square feet

1. Consistent with the *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022), the land zoned for office within the Bayshore district was evaluated as traditional office space while the office land use at Icehouse Hill and Campus East was evaluated as biotech, research and development (R&D), and low-density commercial.
2. The specific square footage and location for retail land use is based on the Specific Plan's intent to provide convenient retail services and was allocated to each zone based on 1) whether ground floor retail was permitted in a given block and 2) the estimated square footage available for ground floor retail, based on the district's FAR. Total retail square footage is from the *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022).
3. The Project plans specify that the Project would contain up to 500,000 SF of hotel space. The total number of hotel rooms is taken from the *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022).
4. Infrastructure employees were analyzed alongside office employees. Pre-existing nearby industrial land uses were excluded from the analysis described below as the trips generated by these land uses are included within the baseline conditions. Solar Farm employee estimates are from consistent with the *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022), which were evaluated as a part of the employees of the closest Phase 1 Planning District (Icehouse Hill) to these proposed facilities for inclusion in the trip generation estimates.

Source: Fehr & Peers, 2023; EPS, 2022.

The Baylands Specific Plan includes a variety of community-serving amenities and public facilities. This includes restoration of the historic Roundhouse building in the Roundhouse District, park facilities required as a part of the open space requirements, and sustainable infrastructure features (e.g., district water or power facilities) within the Sustainability District. Other facilities include a Middle School in the Icehouse District, a fire station in the Campus East District, and a potential library. The North County Fire Authority has identified the preferred location for this second fire station in the City of Brisbane as being adjacent to U.S. 101 between Beatty Avenue and the Geneva Avenue extension to serve the project site and other mid- and long-term land use growth, such as is occurring at Sierra Point to the southeast of the project site. All these community-serving amenities and public facilities serve the primary purpose as ancillary uses that support the primary land uses analyzed within this study. In general, ancillary public facilities have the effect of reducing external trips to the project site by providing on-site services that allow people living and working within the project site more convenient access to daily activities. Given these considerations, the trip reducing benefits are not quantitatively analyzed within this study, although the analysis presented in this report captures the potential effect of community serving features such as café's or other ancillary services are represented within the retail land uses presented in **Table 1**.

Proposed Phasing Plan

Development of Phase 1 is expected to be built out and operational by 2035. Phase 1 includes all land uses and transportation facilities west of the Caltrain tracks in the Bayshore, Roundhouse, and Icehouse Hill districts along with needed infrastructure, some of which is located east of Caltrain (e.g., water storage tank, water recycling facility, utility-scale battery storage, substation). The remaining land uses and transportation facilities east of the Caltrain tracks are expected to be built out by 2040, including the Campus East District and remaining portions of the Sustainability District. As a part of Phase 1, the segment of the Geneva Avenue extension west of the Caltrain tracks would be constructed. However, the Project does not propose to build the Geneva Avenue extension bridge over Caltrain and continue Geneva Avenue to U.S. 101 as a part of Phase 1. This segment of the Geneva Avenue extension is proposed in the Baylands Specific Plan to be completed concurrent with the Project's full buildout by 2040 in addition to the Sierra Point Parkway Extension and the relocation of Lagoon Road.

As the proposed Project would occur in increments over the course of 20 years, new TDM plans consistent with the City's TDM ordinance are proposed by the applicant to be created for each applicable site-specific development project during Planned Development Permit review in accordance with the Baylands TDM Program.

Proposed Transportation Changes

This section summarizes the transportation network changes proposed as part of the Project. Within the project site, changes are proposed to the roadway, bicycle, pedestrian, and transit network. The proposed parking, driveway, loading, and Transportation Demand Management (TDM) features are also described.

Roadway Network Changes

A summary of proposed street network changes is presented in **Table 2**. As shown in **Figure 3**, the Project proposes to extend portions of certain streets across the project site and remove sections of other streets. The most notable roadway network change is the eastern extension of Geneva Avenue from its current terminus at Bayshore Boulevard to Alana Way to connect the two halves of the project site and increase regional east-west local and regional connectivity. The Geneva Avenue Extension would be completed in two phases: Phase 1 would include Geneva Avenue from Bayshore Boulevard to Baylands Boulevard, while the full buildout of the Project would include the full extension. As a regional Arterial, Geneva Avenue Extension would include new traffic signals at each intersection, including at the ramp terminal of U.S. 101 southbound ramps / Alana Way / Beatty Avenue. The project would also extend Main Street from the current termini at Bayshore Boulevard to a new Frontage Road along the west side of the Caltrain tracks. All roadway network changes west of Caltrain would occur with the Phase 1 of the Project and all roadway network changes east of Caltrain would occur under the full buildout of the Project, as noted in **Table 2**. Pedestrian, bicycle, and transit facilities along these roadways are presented in the following sections.

Table 2: Proposed Roadway Network Changes

Classification	Roadway	Extents	Description
Regional Arterial	Geneva Avenue	Bayshore Boulevard to Beatty Avenue	Extension to Geneva Avenue to provide regional access to and through the project site.
Minor Arterial	Sierra Point Parkway	Lagoon Road to Geneva Avenue extension	Extension of Sierra Point Parkway north along eastern edge of the project site. Extension would connect with Geneva Avenue in tandem with the Campus East District land uses under the full buildout of the Project.
	Tunnel Avenue	Beatty Avenue to Lagoon Road	Existing roadway that would be rebuilt along a similar alignment to existing conditions, connecting to the Bayshore Caltrain station and Campus East District.
	Lagoon Road	Sierra Point Parkway to Tunnel Avenue	Realigned to the north at Tunnel Avenue to intersect with U.S. 101 southbound on- and off-ramps in tandem with the Sustainability District land uses under the full buildout of the Project.
Collector	Baylands Boulevard	Sunnydale Avenue to Campus Parkway	New roadway providing the main north-south route for vehicles and shuttles in the project site.
	Sunnydale Avenue	Bayshore Boulevard to Baylands Boulevard	Extension from existing Sunnydale Avenue to connect Visitacion Valley to the project site and the Caltrain Bayshore station.
	Main Street	Bayshore Boulevard to Frontage Road	Extension from existing east-west Main Street providing access to Roundhouse and Icehouse Hill Districts.
	Campus Parkway	Bayshore Boulevard to Frontage Road	New roadway providing access to the Icehouse Hill District.

Classification	Roadway	Extents	Description
	Frontage Road	Bayshore District to Access Road	New north-south roadway along the west side of the railroad tracks. Provides access to residential and office parking and services.
	East Campus Road	Tunnel Avenue to Sierra Point Parkway	New east-west roadway providing internal circulation in the Campus East District.
Local	East Park Street and West Park Street	One-way couplet from the north end of Baylands Park to Roundhouse Circle	New roadways providing north-south connectivity between the Bayshore and Roundhouse Districts.
	Roundhouse Circle	Connects to Baylands Park couplet and other streets in the Roundhouse District	New roadway providing a southern access point to the public open space and Roundhouse District.
	Other Local Streets	New residential streets in the Roundhouse and Bayshore Districts	New roadways providing local access.
	Visitacion Creek North and Visitacion Creek South	Tunnel Avenue to Sierra Point Parkway	New roadways providing internal circulation in the Campus East District.
Green Shared Street	Green Shared Streets	New residential streets in the Roundhouse and Bayshore Districts	New shared streets prioritizing pedestrians and bicyclists that provide access to residential areas.
Access Road	Access Road	Frontage Road to Campus Parkway	New roadway that would replace a portion of Industrial Way providing access to parking and services in Icehouse Hill District.

Source: Baylands Specific Plan, Fehr & Peers, 2023.



Figure 3

Roadway Network Classification

Pedestrian Network Changes

The Project would provide various improvements to the pedestrian network with the stated goal of creating a safe and comfortable experience. The following pedestrian facilities would be included within the project site:

- **Sidewalk:** Grade-separated pedestrian pathways that are adjacent to a roadway. In compliance with the Americans with Disabilities Act (ADA), sidewalks would be a minimum of five feet wide, with a three-foot minimum clear zone. Any changes in elevation would be gradual and clearly marked with curb ramps and tactile warning strips.
- **Green Shared Street:** Curbless, shared spaces where people walking and biking are given priority over people driving, with local vehicle access only. Green Shared Streets would include traffic calming features to slow vehicle speeds and may include enhanced landscaping with stormwater and ecological benefits, such as rain gardens or bioswales, in addition to sidewalks outside of the mixed travel lane.
- **Shared Use Path (Class I):** Paved paths for people walking and biking that are separated from roadways. Shared use paths would be a minimum of 10 feet wide.
- **Pedestrian Path:** Pedestrian routes that provide connectivity through open space, such as parks or promenades. Pedestrian paths may be paved or unpaved.

Figure 4 illustrates the proposed pedestrian network changes. All roads within the project would include either sidewalks or shared use paths. The Project would also provide planted streetscapes, enhanced pedestrian crossings at intersections, curb extensions and leading pedestrian intervals.



Figure 4

Proposed Pedestrian Network

Bicycle Network Changes

The Project would provide a network of protected bikeways, including Class I shared use paths, Class IV protected bike lanes and Class III shared streets that provide physical separation from moving vehicles, as presented in **Table 3**. Additionally, residential streets throughout the Bayshore and Roundhouse districts would have Green Shared Streets, curbless, slow speed shared spaces that prioritize people walking and biking while accommodating vehicular access. **Figure 5** illustrates the proposed bicycle network changes. Within the Project boundaries, proposed bicycle network improvements include:

Table 3: Proposed Bicycle Network

Facility Type	Roadway	Roadway Classification and Speed Limit	Proposed Separation (if applicable)
Shared Use Path (Class I)	Within Eco Park and Icehouse Hill	N/A	N/A
	Along both sides of the Geneva Avenue Bridge	Regional Arterial, 35 MPH	Vertical separation from traffic
	Adjacent to Visitacion Creek North, Visitacion Creek South	Local and Collector, 25 MPH	Varies, at least 8' of landscape buffer
	Adjacent to Lagoon Road and Sierra Point Parkway	Minor Arterial, 35 MPH	Varies, at least 8' of landscape buffer
Protected Bike Lane (Class IV)	Geneva Avenue	Regional Arterial, 35 MPH	1.5'
	Sunnydale Avenue	Collector, 25 MPH	1.5'
	East Park Street	Local, 25 MPH	2'
	West Park Street	Local, 25 MPH	2'
	Roundhouse Circle	Local, 25 MPH	2'
	Baylands Boulevard	Collector, 25 MPH	2' north of Main Street, 3' between Main Street and Campus Parkway
	Main Street	Collector, 25 MPH	2'
	Campus Parkway	Collector, 25 MPH	2'
	Tunnel Avenue	Minor Arterial, 35 MPH	2.5'
	East Campus Road	Collector, 25 MPH	2'
	Bayshore Boulevard along project frontage from Sunnydale Avenue to Main Street	Regional Arterial, 45 MPH	No Change to existing
Shared Street (Class III)	Local streets	25 MPH	None
Green Shared Street	Residential streets in Bayshore and Roundhouse Districts	25 MPH (given lack additional information)	None

Source: Baylands Specific Plan.



Figure 5

Proposed Bicycle and Micro-Mobility Network

Transit Network Changes

As shown in **Figure 6**, the Project proposes new fare-free shuttle routes that would integrate the Project into the existing Brisbane-serving routes. The proposed street network would also allow for the planned Geneva-Harney Bus Rapid Transit (BRT) along Geneva Avenue, except for the segment of Geneva Avenue on the bridge over the Caltrain tracks where only two mixed-flow lanes are provided in each direction.[2] However, such BRT Service would be operated by public transit agencies who have not made a final determination for providing this service in tandem with the Project, therefore its potential trip reduction benefits have not been accounted for in the Project analysis.

The shuttle expansion is planned in two phases. The first phase would coincide with the Phase 1 development and provide service to the western side of Baylands. The first phase would include a route connecting the Bayshore Caltrain Station and Downtown Brisbane via Baylands Boulevard, Campus Parkway, and Bayshore Boulevard and an internal Baylands circulator route on Baylands Boulevard, terminating at the Campus Parkway and the Ecological Park. The second phase of service would connect the Campus East District and Lagoon Park to downtown Brisbane and the Caltrain Station. As shown in **Table 4**, the shuttles would primarily provide weekday services. The internal circulator and second phase of service would be provided on-demand on weekends, with the option to convert to a fixed route if needed.

Table 4: Proposed Baylands Shuttle Routes

Proposed Baylands Shuttle Route	Weekday Service	Weekend Service
Bayshore Caltrain – Downtown Brisbane (Phase 1)	4:00 – 6:00 PM 1 shuttle per hour	No Service
Internal Baylands Circulator (Phase 1)	6:00 AM–8:00 PM Min 4 shuttles per hour	10:00 AM–5:00 PM On Demand
Campus East – Lagoon Park – Downtown Brisbane (Phase 2)	6:00–9:00 AM 4:00–6:00 PM 1 shuttle per hour	10:00 AM–5:00 PM On Demand

Source: Baylands Specific Plan.

Figure 6 presents locations for mobility hubs that would facilitate transfer between modes, such as a shuttle stop with bikeshare racks, and/or carshare stalls and thereby facilitate first/last mile connections to transit.

[2] The Specific Plan describes the inside lanes over the Geneva Avenue Bridge as "Shared BRT + Travel" lanes. Given the description that allows private vehicles to mix with transit services, these lanes are analyzed as mixed-flow travel lanes.



Figure 6

Proposed Shuttle Routes and Transit Network

Parking, Driveway, and Loading Access

Off-Street Parking

The Project would provide up to 11,000 off-street spaces, which would be the overall maximum limit for parking at the Project. The Project would also limit the maximum number of off-street parking spaces by district, as shown in **Table 5**, and by land use type, as shown in **Table 6**. Office and residential parking would be unbundled, and the site would include both market-rate parking and shared-use garages in each district. The allowable parking areas and street frontages where driveway access could be provided are presented in **Figure 7**.

Table 5: Maximum Off-Street Parking Spaces per Zone

District	Maximum Off-Street Parking Spaces
Bayshore	1,150
Roundhouse	1,200
Icehouse Hill	6,150
Campus East	2,485
Sustainable Infrastructure	15
Total	**11,000**

Source: Baylands Specific Plan.

Table 6: Maximum Off-Street Parking Spaces per ~~Land Use~~ Building Type

~~Land Use~~ Building Type	Unit	Maximum Off-Street Parking Spaces
Residential~~–A1~~: Multi-Family High	Stall / dwelling unit	1
Residential~~–A2~~: Multi-Family Mid	Stall / dwelling unit	0.75
Residential~~–A3~~: Multi-Family Low	Stall / dwelling unit	1.25
Residential~~–A4~~: Townhome	Stall / dwelling unit	1.25
Residential~~–A5~~: Duplex/Single Family	Stall / dwelling unit	1.25
Commercial~~– B1~~: TOD Commercial	Stall / 1,000 square feet	1
Commercial~~– B2~~: Campus Mid-rise	Stall / 1,000 square feet	2
Commercial~~– B3~~: Campus Low-rise	Stall / 1,000 square feet	2
Commercial~~– B4~~: Hospitality	Stall / 1,000 square feet	0.5
Amenity	Stall / 1,000 square feet	0.25

Source: Baylands Specific Plan.



This diagram presents an outdated site plan. However, the representative locations for driveways and parking would be the same for the current project description.

Figure 7

Allowed Off-Street Parking and Driveway Locations

On-Street Parking

The Project would permit on-street parking along the following streets:

- Baylands Boulevard (Main Street to Campus Parkway)
- East Park Boulevard
- West Park Boulevard
- Roundhouse Circle
- Local Streets

Other streets would not permit on-street parking on other streets to avoid conflicts with other facilities or roadway users.

Loading

The Project does not designate specific loading zones for passenger or freight loading but identifies the need to designate loading areas at on- or off-street locations for each site-specific development project. The Project notes the goal to provide sufficient loading spaces to ensure loading activities would not interfere with bicycle facilities or pedestrian walkways, roadway travel lanes, or parking garage entrances.

Bicycle Parking

The Project would require bicycle parking for all buildings to accommodate short-term and long-term storage. Short-term storage is designed for bicycles parked less than four hours and would be located within 50 feet of building entrances. Long-term storage for parking lengths over four hours would include greater security features, such as secure lockers and be placed within 100 feet of building entrances. The parking requirements for each development type are shown in **Table 7**.

Table 7: Bicycle Parking Requirements

Land Use	Bicycle Parking Requirements	
	Long-term	Short-term
Retail	1 every 12,000 sq. ft.	1 every 4,000 sq. ft.
Parks and Open Space	n/a	8 per acre
Transit Hub (Caltrain Station)	At least 20 either long or short-term	
Multifamily Residential	1 every 2 units	1 every 10 units
Office	1 every 4,000 sq. ft.	1 every 40,000 sq. ft.

Source: Baylands Specific Plan.

Transportation Demand Management

The Project will implement a Transportation Demand Management (TDM) Program covering all land uses within the specific plan area consistent with the Brisbane Municipal Code 10.52 and Mitigation Measure 4.N-13 (from the previous Baylands General Plan EIR). **Table 8** presents the TDM measures that the Project would be required to implement for compliance with Brisbane's TDM Ordinance, as well as additional measures proposed within the Specific Plan. As a whole, the Specific Plan qualifies as a Tier 3 project (the highest applicable tier of requirements) because it includes greater than greater than 50,000 square of office or R&D space, per Brisbane Municipal Code 10.52.060 that states that "Mixed-use projects are subject to the highest applicable tier for any single project component." However, not all required program elements would apply to the residential portions of the project, as shown in **Table 8**, because they are only applicable to employment land uses. Although individual buildings may have designated local TDM coordinators, one TDM coordinator will be responsible for overseeing all TDM activities within the Baylands Specific Plan, including coordination with individual building owners or tenants and the City of Brisbane, C/CAG, Commute.org, and other regional agencies. The Baylands Specific Plan TDM coordinator will be responsible for demonstrating the compliance of individual development sites with the overall Specific Plan TDM requirements to the City of Brisbane.

Table 8: Baylands Specific Plan TDM Measures

TDM Measures	Proposed by Specific Plan?	Required for Residential Land Use	Required for Commercial Land Use
Mandatory TDM Measures (Per Tier 3 of Brisbane TDM Ordinance, §10.52.070)			
A. Designated TDM Coordinator	Yes	**X**	**X**
B. Participation in Commute.org and/or Transportation Management Association	Yes	**X**	**X**
C. Bicycle and Pedestrian-Oriented Site Access	Yes	**X**	**X**
D. Bicycle Parking	Yes	**X**	**X**
E. Bicycle, Pedestrian, and Transit Infrastructure Upgrades	Yes	**X**	**X**
F. TDM Monitoring Checklist	Yes	**X**	**X**
G. Shuttle Participation	Yes	**X**	**X**
H. Pre-Tax Commuter Benefits	Yes		**X**
I. Encourage Telecommuting & Flexible Work Schedules	Yes		**X**
J. Right-Size Parking Supply	Yes	**X**	**X**
K. Shuttle Commitment (Sierra Point Only)	N/A		
L. Carpool/Vanpool Programs and Parking	Yes		**X**
M. Paid Parking or Parking Cash-out	Yes		**X**
N. Transit Pass Subsidies	Yes		**X**

TDM Measures	Proposed by Specific Plan?	Required for Residential Land Use	Required for Commercial Land Use
O. End-of-Trip Bicycle Facilities	Yes		**X**
P. Enhanced Monitoring: Survey & Counts	Yes		**X**
Potential Additional TDM Measures in the Specific Plan (Not required by §10.52.070 and not in analysis)			
Parking Management Measures	• Pickup/Drop-off Zones for improved loading		
Programs & Services	• Car share subsidies to residents to encourage the use of carshare programs such as ZipCar and Gig • Secure spaces for deliveries such as lockers • Biking incentives, such as vouchers, which encourage bicycle usage and on-site bike repair stations		
Physical Features	• Bikeshare or shared micromobility programs to increase use of biking and access to transit and surrounding land uses • Family TDM Amenities such as space for car seats, strollers or shared cargo bikes for residents to encourage alternatives to car ownership • On-site childcare facilities for residents		
Promotions & Activities	• Real-time transportation information for transit, ride-hail app and bikeshare availability • Transportation welcome packet and promotion, such as pre-loaded Clipper Cards at move-in		

Source: City of Brisbane (Municipal Code 10.52), Baylands Specific Plan

As the proposed Project would be constructed in increments over the course of 20 years, each applicable site-specific development project shall demonstrate compliance during Planned Development Permit review with the overall Baylands TDM Program. The overall Baylands Specific Plan TDM coordinator shall consolidate TDM compliance documentation for review by the City of Brisbane. Reporting and monitoring would be administered primarily through project tenant and employee surveys led by the Baylands TDM coordinator, following City of Brisbane and C/CAG guidance as shown in **Table 9**.

Table 9: Brisbane TDM Monitoring & Reporting Structure

TDM Plan Checklist Survey Reporting	Multi-Family Residential	Non-Residential
1-6 Years Post-Occupancy	Annual self-certification	Annual self-certification, surveys, and driveway counts
6+ Years Post-Occupancy	Not Required	Annual self-certification, surveys, and driveway counts

Source: City of Brisbane (Municipal Code 10.52).

2. Existing Conditions

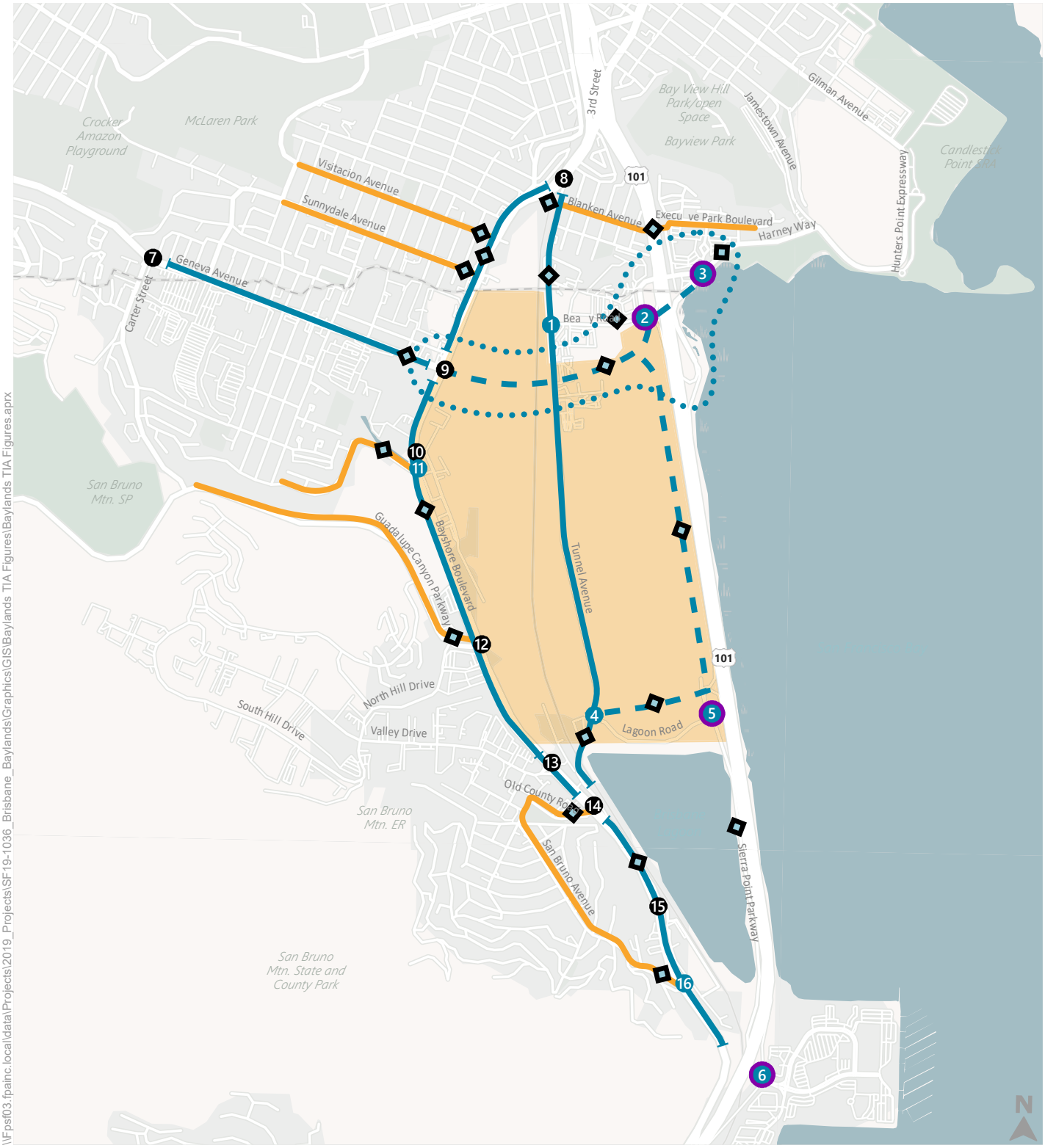
This section provides a description of the existing transportation and circulation setting near the project site. It includes descriptions of the existing roadway network, transit service, conditions for people walking and bicycling, intersection operating conditions, on-street loading, and emergency access. Intersection operations account for the existing land uses on the project site.

The following conditions were considered for this analysis:

- **Roadway Network:** Freeways and streets that provide access within the study area;
- **Motor Vehicle/Traffic Conditions:** Vehicle operations near the project site;
- **Pedestrian Facilities:** Facilities adjacent to the project site, as well as routes to and from nearby transit lines;
- **Bicycling Conditions:** Facilities adjacent to the project site, as well as routes to and from nearby transit lines;
- **Public Transit Conditions:** Muni operations within ¼ mile of the project site and connections to regional transit providers;
- **Emergency Vehicle Access:** Service conditions at and adjacent to the project site;
- **Vehicle Miles Traveled:** Existing vehicle miles traveled for the Project Site and region where the project site is located; and
- **Loading Conditions:** On-street commercial and passenger loading facilities near the site.

Roadway System

This section describes the freeways and streets that provide vehicle access and circulation within the study area (also shown on **Figure 8**). Apart from the regional freeways, each of the facilities described in this section also provides the primary means of bicycle and pedestrian circulation (described in greater detail in the sections describing travel by those modes). The facility types for each mode are organized by regional facilities, local facilities, and facilities that are within the project site or include substantial modifications proposed by the Project.



Study Intersections

- Signalized
- Unsignalized
- Ramp Terminal

- Travel Time Segments
- Cut-Through Routes
- Exisiting and Future Traffic Counts

- New and Realigned Roadways
- VISSIM Micro-Simulation Analysis Area
- Project Site

Figure 8

Transportation Study Area

Freeways

Regional vehicle access is provided by the two freeways that operate near the project site. Regional Arterials managed by local jurisdictions are presented in the Local Roadways section below.

U.S. Highway 101 (U.S. 101) is a facility that operates near the Pacific coastline between Los Angeles and Olympia, Washington. Near the project site, U.S. 101 is a limited-access eight-lane freeway that connects Brisbane and the Peninsula with San Francisco and Marin County to the north and San Jose to the south. U.S. 101 borders the eastern portion of the Project site and has southbound off-ramps to Bayshore Boulevard, Beatty Avenue, and Lagoon Way, and northbound off-ramps to Sierra Point Parkway and Harney Way.

Interstate-280 (I-280) is an eight- to ten-lane freeway that runs north-south, parallel to U.S. 101, between San Francisco and San Jose. I-280 is often used as a by-pass for travelers to avoid U.S. 101, as it does not pass directly through urbanized areas and therefore has less congestion. I-280 is located approximately three miles west of the proposed Project site and can be accessed via Geneva Avenue, U.S. 101, and I-380.

Roadways

Local access to the Project site is provided by arterial, collector, and local streets within Brisbane and the adjacent cities of San Francisco and Daly City.

Table 10 summarizes local roadways in the study area by street name, cardinal direction, typical number of lanes, General Plan, San Francisco's Vision Zero High Injury Network (HIN)[3] and C/CAG's Youth-Based High Injury Network (HIN)[4] designation, Functional Classification, and speed limit. A narrative description following provides additional details not covered in the table.

[3] The City and County of San Francisco adopted Vision Zero as a policy in 2014, with the goal of zero traffic deaths for all ways people travel, including people in vehicles, walking, and bicycling. The network identifies streets in San Francisco where most severe and fatal injuries are concentrated. The network helps the City target traffic safety investments to reduce severe and fatal injuries to people walking, bicycling, and driving in those locations. For more information, visit: http://visionzerosf.org/about/what-is-vision-zero/

[4] The San Mateo County Association of Governments (CCAG) developed a youth-based High Injury Network (HIN) based on roadway information about collision characteristics, crash patterns, and user types to develop a combined Safety Priority Index Score for each roadway. The report that shows the designated roadways listed as on the HIN based on the priority index from 2014-2020 is presented here: https://ccag.ca.gov/wp-content/uploads/2022/07/San-Mateo-County-SRTS_HIN-Report.pdf.

Table 10: Roadways

Street Name	Direction	Number of Through Lanes	City	Functional Classification[1]	High Injury Network[2]	Posted Speed Limit (MPH)
Bayshore Boulevard	North-South	4	Brisbane / SF / Daly City	Regional Arterial / Commercial Throughway (SF)	Yes	45 / 35 (in SF)
Geneva Avenue	East-West	4	SF / Daly City	Principal Arterial	Yes	35
Guadalupe Canyon Parkway	East-West	4	Brisbane / Daly City	Principal Arterial	-	45
Tunnel Avenue	North-South	2	Brisbane / SF	Minor Arterial / Neighborhood Residential (SF)	-	35 / 25 (in SF)
Beatty Avenue	East-West	2	Brisbane	Minor Arterial	-	25
Alana Way	North-South	3	Brisbane / SF	Minor Arterial	-	25
Harney Way	East-West	2-3	Brisbane / SF	Minor Arterial	-	40
Lagoon Road	East-West	2	Brisbane	Minor Arterial	-	35
Sierra Point Parkway	East West	2	Brisbane	Minor Arterial	Yes	25
Valley Drive	East-West	4	Brisbane	Minor Arterial	-	40
Old County Road	East-West	2	Brisbane	Minor Arterial	-	25
San Bruno Avenue	East-West	2	Brisbane	Minor Arterial	-	35
Main Street	East-West	2	Brisbane / Daly City	Local	-	25
Visitacion Avenue	East-West	2	SF	Neighborhood Residential	Yes	25
Sunnydale Avenue	East-West	2	SF	Neighborhood Residential	Yes	25
Blanken Avenue	East-West	2	SF	Neighborhood Residential	-	25
Executive Park Boulevard	East West	2	SF	Neighborhood Residential	-	25

Notes:

1. Roadway functional classifications are identified from the Brisbane General Plan and Better Streets Plan for streets in San Francisco. SF's Better Streets Plan map is shown here: https://www.sfbetterstreets.org/wp-content/uploads/2012/01/SF_Street_Types_35x48_Final.pdf. Bayshore Boulevard and Geneva Avenue are also identified as Principal Arterials in the City of San Francisco's General Plan.
2. Roadways in San Francisco County are identified from San Francisco's 2022 High Injury Network Database. Roadways in San Mateo County (Daly City) are from the C/CAG's Local Road Safety Plan.

Source: Baylands Specific Plan, Fehr & Peers, 2024.

Bayshore Boulevard is a four-lane regional arterial that flanks the west side of project site and parallels U.S. 101 between Cesar Chavez Boulevard in San Francisco and South San Francisco, where it becomes Airport Boulevard. Bayshore Boulevard is managed by Brisbane south of Geneva Avenue, Daly City between Geneva Avenue and the city/county border just south of Sunnydale Avenue, and San Francisco north of the city/county border. The road is designated as a Congestion Management Program (CMP) route in both San Francisco and San Mateo Counties, and connects Brisbane to San Francisco, Daly City, and South San Francisco. Bayshore Boulevard also provides a direct connection from the study area to the Third Street corridor in San Francisco. Muni T-Third Street light rail operates in the median of Bayshore Boulevard north of Sunnydale Avenue. The SamTrans 292 Caltrain Connection and 397 All-nighter run along Bayshore Boulevard for the length of the project site connecting to Sunnydale Muni Station as well as Caltrain and BART Stations. SamTrans School-day Only routes 24, 29, and 49 have stops on Bayshore Boulevard at Guadalupe Canyon Parkway, Geneva Avenue and Old County Road, respectively. There are Class II bike lanes along Bayshore Boulevard with six-foot-wide striped bike shoulders and rumble strips on the segment south of Geneva Avenue and Class II bike lanes without the buffer north of Geneva Avenue. Between San Bruno Avenue and Van Waters and Roger Way a mix of parallel and angled parking is permitted along the west side of the boulevard.

Bayshore Boulevard currently serves primarily as a route for regional traffic through Brisbane based on a study of existing travel patterns (See **Appendix A: Existing Traffic Conditions Memo** for additional detail). The results of the analysis found that:

- Approximately two-thirds to three quarters of existing weekday of travel and over 80 percent of existing weekend trips on Bayshore Boulevard are cut-through trips;
- 33 to 36 percent of all trips on Bayshore Boulevard are between San Francisco and cities to the south of Brisbane, representing the highest peak hour cut-through trip pattern;
- 17 percent of all trips on Bayshore Boulevard are between Daly City and cities to the south of Brisbane; and
- Less than three percent of all existing trips on Bayshore Boulevard were found to start or end at the Baylands site.

Geneva Avenue is a four-lane east-west regional arterial between I-280 (adjacent to the Balboa Park BART Station and the City College of San Francisco Phelan Campus) and Bayshore Boulevard, where it terminates adjacent to the project site. Geneva Avenue is a CMP route in San Francisco and San Mateo County. Proposed plans were identified in the San Francisco and San Mateo Bi-County Transportation Study (2001 and 2011 update) that would extend Geneva Avenue through the project site to a proposed interchange with U.S. 101 that would replace the current interchange at Beatty Avenue. The Bi-County Study also identified the need for a BRT service along Geneva Avenue. The Project proposes to complete the roadway extension but does not include the interchange replacement or BRT service, which are currently unfunded. Preliminary design studies for the interchange were conducted by Caltrans in the 2013 Project Study Report. SamTrans School-day Only routes 24 and 29 service Geneva Avenue within the study area. Class II and Class III bike lanes run east-west along the street, extending from Bayshore



Boulevard and beyond Balboa Park Bart Station. The north and south sides of Geneva Avenue have permitted parallel parking between Bayshore Boulevard and Carter Street.

Guadalupe Canyon Parkway is a four-lane east-west principal arterial near the project site that runs from Bayshore Boulevard over the hills to Daly City, where it becomes East Market Street. Guadalupe Canyon Parkway provides access to several office and residential developments within the City of Brisbane. There are Class II rumble strip protected bike lanes within the City of Brisbane. Parking is not permitted along Guadalupe Canyon Parkway.

Tunnel Avenue is a two-lane, north-south minor arterial. Tunnel Avenue connects to Bayshore Boulevard at both ends and provides both vehicle access and internal circulation for the project site east of the Caltrain tracks. There is a mix of Class II, Class III, and an unmarked bike route on Tunnel Avenue. Tunnel Avenue has permitted parallel parking from Bayshore Boulevard to just south of Beatty Avenue.

Beatty Avenue is a two-lane east-west minor arterial bordering the northern edge of the Project site. It provides access to the Recology SF Transfer Station site. It is less than half a mile long but serves as a key connection to U.S. 101 from Tunnel Avenue. Beatty Avenue serves as part of San Francisco Bicycle Route 805. Parallel parking is permitted on both sides of the street.

Alana Way is a two-lane east-west road that connects Harney Way in San Francisco with Beatty Avenue in Brisbane. The road provides access for those travelling between the project site and the Candlestick Point area of San Francisco. There are no on-street parking or loading zones provided on Alana Way.

Harney Way is a two-to-three lane north-south roadway on that runs on the shore of the San Francisco Bay and connects the U.S. 101 northbound ramps to Jamestown Avenue in San Francisco's Candlestick Point area and Alana Way on the eastern end of the project site. There is no on-street parking permitted on Harney Way. Harney Way is identified as a Green Connector Street in the San Francisco Green Connections Network.

Lagoon Road is a two-lane minor arterial that borders Brisbane Lagoon in the southern portion of the project site and runs east-west from Sierra Point Parkway to Tunnel Avenue. Lagoon Road has Class II bike lanes on the north and south sides of the road. No parking is permitted on Lagoon Road.

Sierra Point Parkway is a two-lane minor arterial running parallel to U.S. 101 and Bayshore Boulevard through the southern portion of the Project site. Southbound on- and off-ramps for U.S. 101 are located within the Project site (just north of the all-way stop controlled intersection with Lagoon Way), and northbound on- and off-ramps to U.S. 101 are located just south of the Project site. While the northbound on- and off-ramps to U.S. 101 were configured as a side-street stop when the transportation analysis was completed, a traffic signal opened in May 2024. Sierra Point Parkway also provides a connection with business parks in the Sierra Point Subarea and South San Francisco. Sierra Point Parkway has Class II bike lanes on the east and west sides of the road. No parking is permitted along Sierra Point Parkway.

Valley Drive is a four-lane east-west collector street between Bayshore Boulevard and West Hill Lane. The road connects Bayshore Boulevard to Crocker Industrial Park and Brisbane City Hall. Commute.org



Brisbane-Bayshore Caltrain Shuttle and Brisbane/ Crocker Park BART/ Caltrain Shuttle service Valley Drive within the study area. Parking is not permitted along Valley Drive.

Old County Road is a two-lane east-west road with a center turn lane that connects with Tunnel Avenue at Bayshore Boulevard. It ends at San Francisco Avenue and continues as Visitacion Avenue. The road provides access for those traveling between the project site and Brisbane Village. It is serviced by Brisbane-Bayshore Caltrain Shuttle and Brisbane/ Crocker Park BART/ Caltrain Shuttle. There is no parking permitted on Old County Road.

San Bruno Avenue is a two-lane east-west road that runs between Bayshore Boulevard and Old County Road and San Francisco Avenue. It provides access to the neighborhoods of Downtown Brisbane and Firth Park. Commute.org Brisbane-Bayshore Caltrain Shuttle and Brisbane/Crocker Park BART/Caltrain Shuttle run the length of San Bruno Avenue. San Bruno Avenue has permitted parallel parking on both sides of the avenue from San Francisco Avenue to Thomas Avenue.

Main Street is a two-lane east-west road that runs from Bayshore Boulevard near the future Roundhouse District to Linda Vista Dr in the Bayshore Heights neighborhood of Brisbane. The City of Brisbane added no parking signs to Main Street in 2024.

Visitacion Avenue is a two-lane primarily east-west roadway within San Francisco that runs from Bayshore Boulevard at the western end of the project site to Mansell Street to the north. There is also a non-contiguous portion of Visitacion Avenue that runs from Tunnel Avenue to Recycle Road within the project site. The portion of Visitacion Avenue within the project site is not maintained as a public street. No on-street parking is permitted on Visitacion Avenue and there are no bicycle facilities on the roadway.

Sunnydale Avenue is a two-lane east-west road north of Geneva Avenue that runs between Bayshore Boulevard and Persia Avenue and provides access to the Visitacion Valley neighborhood of San Francisco. Muni routes 9-San Bruno, 9-San Bruno Rapid and 56-Rutland service Sunnydale Avenue within the study area. Sunnydale Avenue has permitted parallel parking on the north and south sides of the avenue.

Blanken Avenue is a two-lane east-west roadway that connects Bayshore Boulevard at the northernmost portion of the project site and Executive Park boulevard east of U.S. 101. It provides access from the project site and the Visitacion Valley neighborhood of San Francisco to the areas east of U.S. 101. On-street parking is permitted on both sides of the street, and it is designated as a Neighborhood Residential street in the San Francisco Better Streets Plan.

Executive Park Blvd is a two-lane partial loop street east of U.S. 101 and northeast of the project site that runs between Alana Way and Harney Way in San Francisco's Candlestick Point area. Some on-street parallel parking is permitted on Executive Park Boulevard and there are landscaped center medians on the roadway between Blanken Avenue and Crescent Way.



Existing Traffic Conditions

Existing traffic counts were collected for the purpose of describing the existing conditions for the CEQA study related to the noise and hazards analysis at the study roadway segments and study intersections presented in **Figure 8** to inform the existing setting for the proposed Project. These study locations were selected based on their proximity to the proposed Project, regional importance, and the likelihood that that the Project could contribute a substantial number of vehicle trips to these locations. Counts at the study intersections were collected during the AM and PM peak period at the study intersections on Wednesday, May 1, 2019, Wednesday, March 11, 2020, and Tuesday, May 10, 2022. Counts at the study roadway segments were collected on Tuesday, May 10, 2022 and Tuesday, November 15, 2022. Traffic counts and site visits conducted in 2022 indicate that peak hour traffic volumes continue to be lower than 2019 and 2020 pre-COVID conditions by approximately 10 to 25 percent, depending on the location. Therefore, the counts collected in 2019 and the first two months of 2020 were used to establish a reasonably conservative existing condition.

Figure 9 illustrates existing roadway segment volumes and **Figure 10** shows the existing intersection lane configurations and volumes. Additional information regarding existing traffic conditions is presented in **Appendix A**.



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Roadway AADT

- < 4,000
- 4,001 - 10,000
- 10,001 - 15,000
- 15,001 - 65,000
- 65,001+

Figure 9

Existing Roadway Segment Volumes



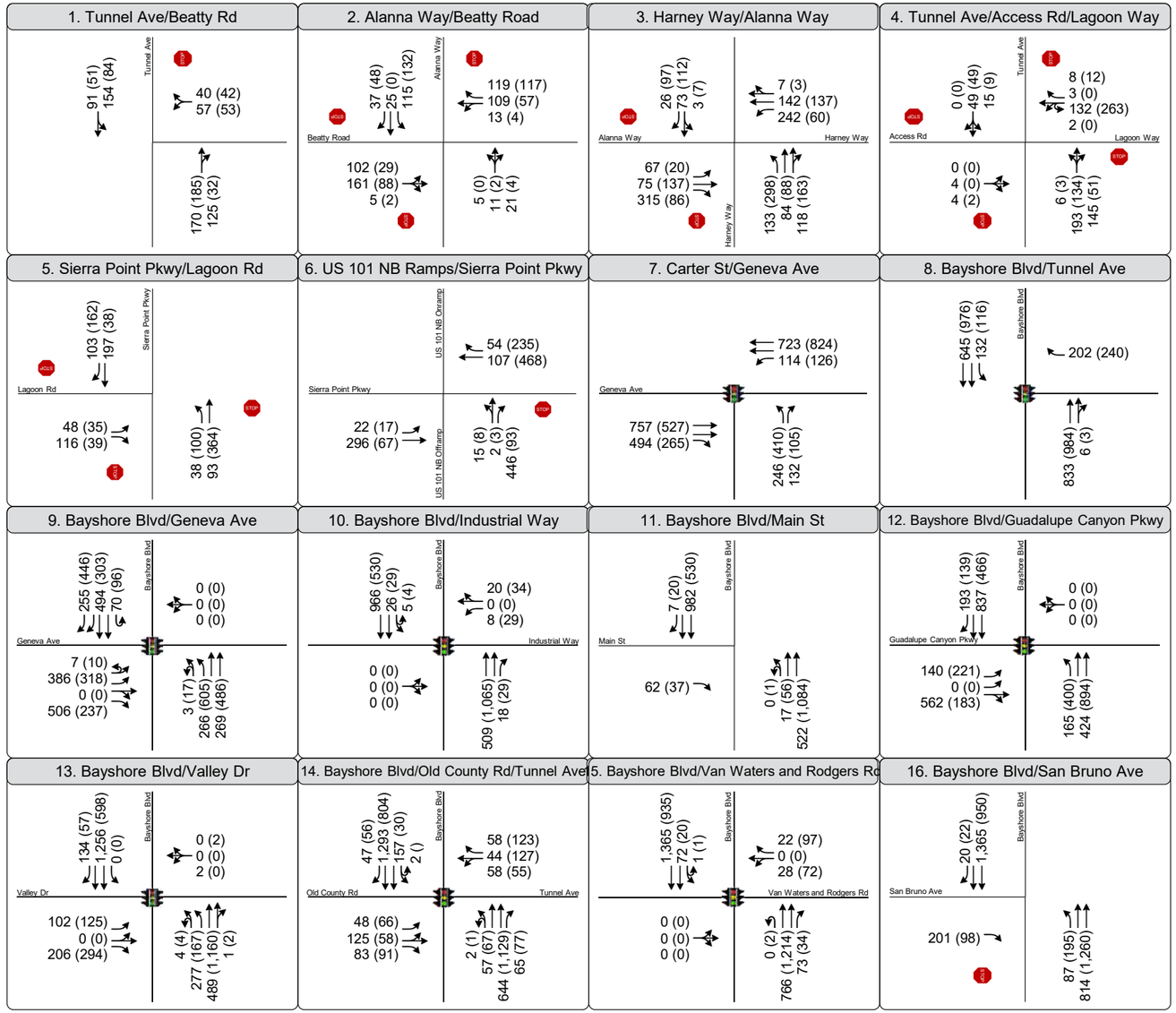


Figure 10
Turning Movement Volumes and Lane Configuration
Existing Conditions

Existing Transit Service

The following transit services, bus, rail, and ferry, operate within Brisbane, San Francisco, and South San Francisco and are accessible from the project site.

According to the 2017-2021 American Community Survey, an estimated 7.3 percent of Brisbane residents commute to work via public transportation on a regular basis, which is lower than the San Mateo County estimate of 8.6 percent, and lower than San Francisco at 27.8 percent and the 9 County Bay Area regional average of 9.6 percent. This data excludes shopping, recreation, school and other discretionary trips.

A summary of service provided by each public transit agency to the project site is provided in **Table 11** and shown in **Figure 11**, as of April 2023. As shown in **Figure 11**, the northern portions of the project site fall within ½ mile radius of the Bayshore Caltrain station or Muni's T-Third light-rail stations and thus qualify as a Transit Priority Area as defined in paragraph (7) of subdivision (a) of Section 21099 of the State of California's Public Resources Code.

Peninsula Joint Powers Authority (Caltrain)

Caltrain provides passenger rail service on the Peninsula between San Francisco and San Jose with stops in San Mateo County and Santa Clara County. Limited service is available south of San Jose. As of October 6th, 2022, Caltrain operates 52 roundtrips on weekdays and 16 roundtrip local services on weekends. The Bayshore Caltrain Station is in the northern quadrant of the Project site, north of Beatty Avenue, and includes a pedestrian overpass with elevators, ticket machines, and furnished waiting areas. The Bayshore Caltrain Station is served by hourly Local Service with one train in each direction. Following electrification, which is anticipated to be complete in 2024, service is planned to increase systemwide by 20 percent with an increase from one to two stops per hour at the Bayshore station. The 2040 Service Vision, adopted by the Caltrain Board in 2019, envisions 116 total weekday trains serving the Bayshore Station by 2040.

San Francisco Municipal Transit (Muni)

Muni provides bus and light rail service, primarily within the borders of the City and County of San Francisco, serving approximately 700,000 average weekday boardings pre-pandemic on the Muni system. Muni service near the Project site includes light rail and bus service that operates along the Third Street and Geneva Avenue corridors, connecting Downtown San Francisco, Mission Bay and southeastern San Francisco.

- There is currently no bus service provided within the borders of the Project site. Frequent bus and light-rail access is provided via the Sunnydale Muni Light-rail Station, located approximately 1,000 feet west of the Bayshore Caltrain Station at the intersection of Bayshore Boulevard and Sunnydale Avenue. The T-Third Street light rail service terminates at ~~Third Street~~ Bayshore Boulevard and Sunnydale Avenue. Muni Bus Routes 8-Bayshore, 8AX-Bayshore A Express, 8BX-Bayshore B Express, 9-San Bruno, and Route 9R-San Bruno Rapid, and 56-Rutland service the western border of the project site via the intersections of Bayshore Boulevard and San Bruno Avenue, Sunnydale Avenue, Geneva Avenue, MacDonald Avenue, Visitacion Avenue and Leland Avenue.

Table 11: Existing Public Transit Service Characteristics

San Francisco Muni Bus & Light-Rail Routes	Peak Hours Headway	Saturday Headway	Neighborhoods Served by Route
Route 8, 8AX, 8BX Bayshore: Local and Express Commuter Service	5 minutes (Local: AM SB, PM NB Only), 7-11 minutes (Express, Peak direction only)	7-10 minutes (Local) (12 minutes evenings)	Chinatown, Crocker Amazon Downtown/Civic Center, Excelsior, Financial District, Nob Hill, North Beach, Ocean View, Outer Mission, Russian Hill, South of Market, Visitacion Valley, West of Twin Peaks
Route 9, 9R San Bruno: Local and Rapid Route	10 minutes (Local) 12 minutes (Rapid)	10-11 minutes (Local) 15 minutes (Local evenings)	Bayview, Bernal Heights, Chinatown, Crocker Amazon, Downtown/Civic Center, Excelsior, Financial District, Mission, Potrero Hill, South of Market, Visitacion Valley, Western Addition
Route 56 Rutland	20 minutes	20 minutes	Bayview, Visitacion Valley
T-Third	10 minutes (20-minute evenings)	12 minutes (20-minute evenings)	Chinatown, Financial District, South of Market, Potrero Hill, Bayview/Hunters Point, Visitacion Valley
SamTrans Bus Routes	**Peak Hours Headway**	**Saturday Headway**	**Neighborhoods Served by Route**
Route 292 Caltrain Connection	30 minutes	30 minutes (60 minutes evenings)	San Francisco, Daly City, Brisbane South San Francisco, San Francisco International Airport, Millbrae, Burlingame, San Mateo
Route 397 All-Nighter	60 minutes	60 minutes	San Francisco, Daly City, Brisbane, South San Francisco, San Francisco International Airport, Millbrae, Burlingame, Hillsborough, San Mateo, Belmont, San Carlos, Redwood City, Atherton, Menlo Park, Palo Alto, East Palo Alto
Caltrain	**Peak Hours Headway**	**Saturday Headway**	**Neighborhoods Served by Route**
Bayshore Station (Local stops only)	60 minutes	60 minutes (Bus bridge on select weekends)	San Jose, northern Santa Clara County, San Mateo County, and Downtown San Francisco

Source: SFMTA, SamTrans, and Caltrain, Fehr & Peers, April 2023.

San Mateo County Transit District (SamTrans)

SamTrans provides bus service to locations in San Mateo County as well as limited service to select locations in San Francisco including the Salesforce Transit Center. SamTrans provides two bus routes, the 292 Caltrain Connection and 397 OWL that run along Bayshore Boulevard for the length of the project site, connecting to the Sunnydale Muni Station as well as Caltrain and BART stations. They both have stops at Arleta Avenue, Sunnydale Avenue, Geneva Avenue, Industrial Way, Guadalupe Canyon Parkway, Valley Drive, and Old County Road. SamTrans School-day Only routes 24, 29, and 49 have stops on Bayshore Boulevard at Guadalupe Canyon Parkway, Geneva Avenue and Old County Road, respectively.



SamTrans recently completed a redesign of the network called Reimagine SamTrans that was implemented in 2022.

San Francisco Bay Area Rapid Transit District (BART)

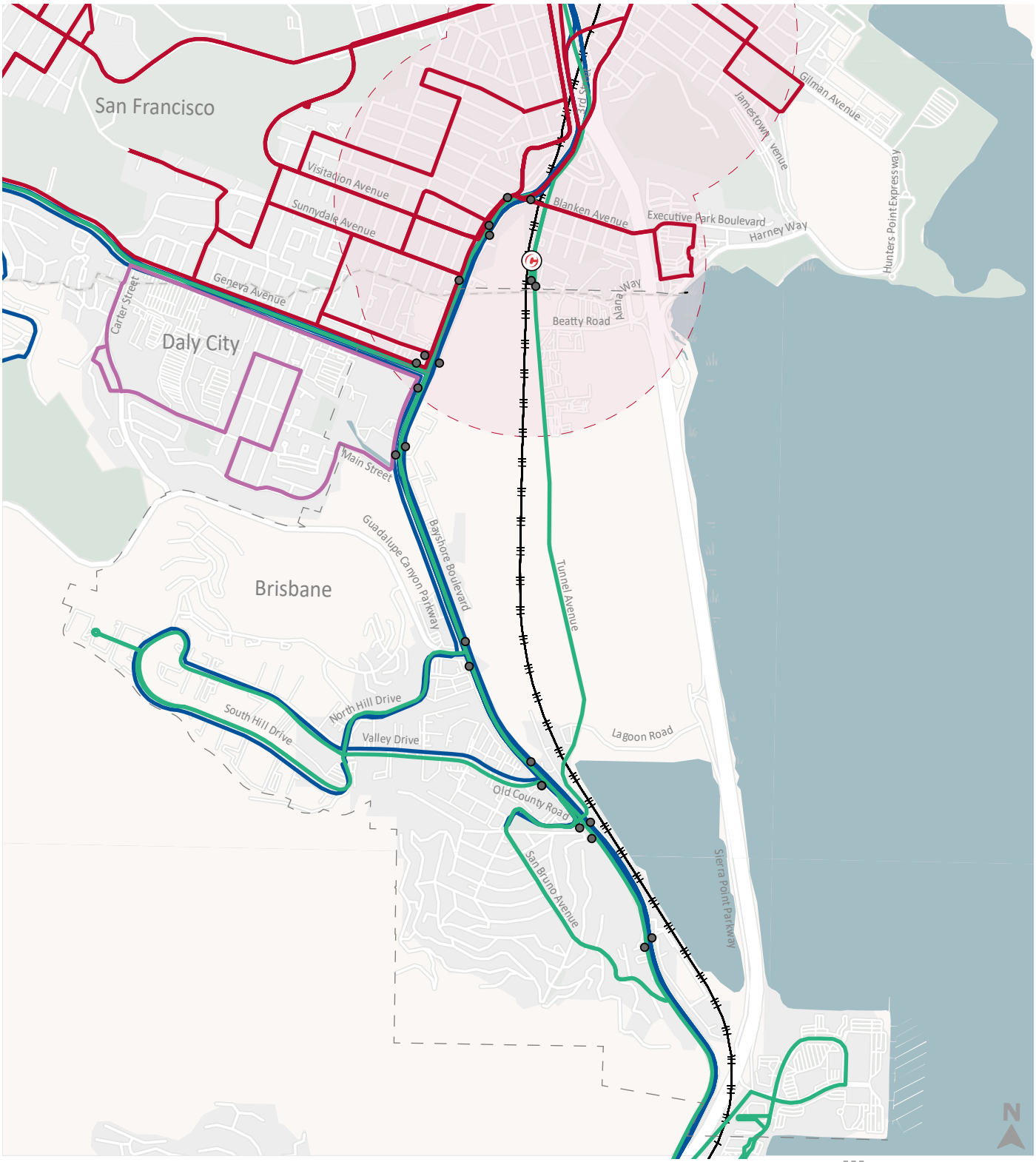
BART provides regional rail service between the East Bay (from Antioch, Richmond, Dublin/Pleasanton and the Berryessa neighborhood of San Jose), San Mateo County (from SFO Airport and Millbrae), and San Francisco, with operating hours between 5:00 AM and midnight on weekdays. During the weekday PM peak period, headways are generally 5 to 15 minutes for each line. The BART station most accessible to the project site is the Balboa Park Station, located 2.5 miles west of the Project site via Geneva Avenue. Local transit access is provided to the Balboa Park BART Station from the Project site by Muni routes 8-Bayshore, 8 Bayshore A Express and 8-Bayshore B Express as well as Commute.org Shuttle.

Water Emergency Transportation Authority (WETA)

WETA is a regional agency authorized by the state to operate a comprehensive San Francisco Bay Area public water transit system. WETA ferries provide service to between San Francisco and Alameda and between San Francisco, Oakland, and Vallejo from the San Francisco Ferry Building. The South San Francisco Stop is approximately 5 miles from the project site. Ferry routes operate with 30- to 60-minute headways, depending on time and day of the week.

Commuter Shuttles

Commute.org is San Mateo County's Transportation Demand Management Agency. It is a public agency whose mission is to reduce the number of drive alone vehicles traveling to, from or through San Mateo County. The Brisbane/Crocker Park BART/Caltrain Shuttle provides service operated by Commute.org between the Balboa Park BART Station, Bayshore Caltrain Station (PM only) and businesses and office buildings within Brisbane and the southern part of San Francisco during commute hours, Monday through Friday. The Brisbane-Bayshore Caltrain Shuttle provides service operated by Commute.org between Bayshore Caltrain Station and businesses and office buildings within Brisbane. There are numerous shuttle stops along the frontage of the Project site, as shown in **Figure 11**. The closest stops to the project site are at Bayshore Boulevard and Geneva Avenue and Tunnel Avenue and Recycle Road at the Bayshore Caltrain.



Transit Routes

- SFMTA Muni Routes
- SamTrans Routes
- Commute.org Shuttle Routes
- City-sponsored Shuttle

Transit Stops and Stations

- Caltrain Station
- Shuttle and Bus Stops along Baylands Frontage
- ½ mile radius from Caltrain and T Third Muni Light Rail Stations

Brisbane City Limits

Figure 11

Pedestrian Facilities

Due to the existing site's undeveloped and industrial land uses, pedestrian facilities within or adjacent to the Project site are limited. **Figure 12** illustrates the intersections and roadway segments within the Project site that lack crosswalks and curb ramps or sidewalks. Bayshore Boulevard and Tunnel Avenue are the primary north south roadways within the Project Site and lacks pedestrian facilities on much of their lengths. There are no sidewalks on the eastern end of Bayshore Boulevard south of Sunnydale Avenue and no sidewalks on either side of Bayshore Boulevard south of Geneva Avenue. Tunnel Avenue lacks sidewalks south of Recycle Road and the majority of its intersections do not contain crosswalks.

Types of pedestrian facilities include:

- Sidewalks along roadways;
- Curb ramps and crosswalks at intersections;
- Pedestrian signals at controlled locations;
- Pedestrian paths, including those that provide pedestrian circulation between buildings and within parking lots;
- Pedestrian bridges, such as the bridge that provides a pedestrian overpass that connects the east and west sides of the Caltrain station; and
- Accessible public transit stops with amenities such as benches and shelters.

Regional

The San Francisco Bay Trail is a regional facility that provides pedestrian access along the Bay shoreline. North of the Project site, at Candlestick Point in San Francisco, and south of the Project site, at Sierra Point in South San Francisco, a dedicated bicycle/pedestrian pathway is provided for the Bay Trail. However, due to a lack of pathway connections through the Project site, a gap currently exists in the trail facility between these existing facilities.

Local

Within the City of San Francisco and the developed areas of Brisbane, sidewalks are provided along most streets, and crosswalks are provided at many crossing locations. Key exceptions include segments of Bayshore Boulevard, which lacks sidewalks south of Geneva Avenue except to connect crosswalks to transit stops. There are dedicated pedestrian facilities in the form of crosswalks with push buttons at all crossings of Bayshore Boulevard with transit stops, including Geneva Avenue, Guadalupe Old County Road/ Tunnel Avenue, and Van Waters and Rodgers Road.

Project Site

Pedestrian paths are provided along the Brisbane Lagoon at the southern end of the Project site. The rest of the Project site currently lacks dedicated pedestrian facilities because it is largely undeveloped or has primarily served as an industrial site. Internal roadways provide vehicle and truck access within the site, and to/from the U.S. 101 freeway, but do not include sidewalks. As noted above, the Project site includes an existing gap in the San Francisco Bay Trail.

Public transit stops serving Bayshore Boulevard have varied characteristics. All stops along Bayshore Boulevard, except for the SamTrans stop at Bayshore Boulevard and Industrial Way, have shelters and benches. However, more than half of all transit stops on Bayshore Boulevard are not wheelchair accessible. Those that are accessible are further north and part of the Muni network, such as the Arleta Muni Station, Sunnydale Muni Station, the San Bruno Avenue and Bayshore Boulevard stops as well as the southbound SamTrans Bayshore Boulevard and Geneva Avenue stop.



Class I: Pathways
Class II: Bicycle Lanes
Class III: Bike Routes
Missing Sidewalks
Intersections with Missing Crosswalks Adjacent to Baylands

Data Source:
Brisbane Bicycle and Pedestrian Master Plan, 2017
San Francisco Bike Network Map, 2019

Figure 12

Existing Bicycle and Pedestrian Infrastructure

Bicycle Facilities

Bicycles may travel on all public roads except where they are specifically prohibited on designated highway or freeway segments. Dedicated bicycle facilities, known as "bikeways," are often provided to help facilitate bicycle travel. Bicycle facilities consist of bicycle roadway markings, bicycle lanes, and multi-use trails or paths. They are grouped into the following four categories:

- **Class I** facilities provide a completely separated right-of-way for the exclusive use for people walking and bicycling with crossflow minimized. Class I facilities consist of off-street bicycle paths that are generally shared with people walking. Class I facilities may be adjacent to an existing roadway or may be entirely independent of existing vehicular facilities.
- **Class II** facilities provide a striped lane for one-way travel on a street or highway. Class II facilities consist of striped bicycle lanes on roadways. These facilities reserve a minimum of four to five feet of space for bicycle traffic.
- **Class III** facilities provide for shared use with motor vehicle traffic. Class III facilities consist of designated and signed bicycle routes where bicyclists share the roadway with vehicles. They may or may not be marked with "sharrows," and they are usually signed.
- **Class IV** facilities provide a separated bikeway for the exclusive use of bicycles and include a separation between the bikeway and through vehicular traffic. This separation may include, but is not limited to, grade separation, flexible posts, inflexible physical barriers, or on-street parking. Another type of bikeway, not included in Caltrans classification standards, is the "bicycle boulevard." There is no standard definition for "bicycle boulevards," but in general, they are streets on which bicycles have priority over other modes. They can have several features such as forced right turns for vehicles (but not for bicycles and pedestrians), special signage, "flipped stop signs" (cross street stops instead of the street with the bicycle boulevard), and street closures. These measures are intended to minimize automobile volumes and speeds.

The project site in Brisbane is relatively flat, although Icehouse Hill creates substantial elevation changes along Bayshore Boulevard at Guadalupe Canyon Parkway. The Visitacion Valley and Little Hollywood neighborhoods of San Francisco near the northern portion of the site have primarily flat terrain. There is a mix of Class II and Class III bicycle facilities as well as San Francisco Bike Routes that connect with the Bay Trail. **Figure 12** shows existing bikeways within or near the Project site, including those on Bayshore Boulevard, Lagoon Road, Tunnel Avenue, and Sierra Point Parkway in Brisbane. The industrial land uses generate few passenger vehicles and do not promote cycling because there are few destinations and a higher proportion of heavy trucks.

According to the 2017-2021 American Community Survey, an estimated 0.5 percent of Brisbane residents commute to work by bicycle on a regular basis, which is lower than the San Mateo County estimate of 1.3 percent, and lower than San Francisco at 3.3 percent and the 9 County Bay Area regional average of 1.4 percent. This mode split does not include commuters that travel by bicycle to transit stations (such as the Bayshore Caltrain Station), which could have a substantial effect on the overall rate of bicycling because Brisbane neighborhoods, including the project site, are all located within convenient bicycling distance of

the Caltrain station. Because the Census data is based on the journey to work, it also excludes shopping, recreation, school, and other discretionary trips.

Bayshore Boulevard is the major bicycle route within the study area and the local roadway with the highest vehicle volumes as presented in the intersection counts in **Appendix A**. As such, the bicycle volumes on Bayshore Boulevard are higher than the other roadways within the study area. There was an AM peak hour volume of 20+ bicycles for most study intersections with Bayshore Boulevard). The PM peak hour bicycle volumes were slightly lower at the same intersections, approximately 10-15 bicyclists along Bayshore Boulevard. The intersection with the highest bicycle volumes during the PM peak hour was Lagoon Road and Tunnel Avenue with 22 bicycles.

Regional

The San Francisco Bay region enjoys one of the most extensive and interconnected bicycle networks in the nation. The key regional facility serving the Project site is the San Francisco Bay Trail, an interconnected, multi-use bicycle path that follows the Bay shoreline and will eventually encircle the Bay from San Jose in the south to Napa in the north. Bay Trail segments near the Project include Class I bicycle path segments at Candlestick Point to the north (connecting with Class III facilities that continue north to downtown San Francisco) and Sierra Point to the south (connecting with additional Class I and II facilities that circulate past the Genentech campus and through South San Francisco).

The northern portion of the Project site contains a gap in the Bay Trail network. Although bicyclists can travel west from the Bay shoreline and use Tunnel Avenue to travel north-south through the Project site, this alignment is not officially designated as part of the Bay Trail. Within the southern portion of the Project site, Class II bicycle lanes are provided for the Bay Trail segment on Sierra Point Parkway, south of Lagoon Way.

Local

The following roadways provide bicycle circulation near the Project site:

Bayshore Boulevard provides north-south bicycle circulation connecting Brisbane with San Francisco to the north and South San Francisco to the south. Bayshore Boulevard is striped with Class II bicycle lanes, with a small portion of the road marked with Class III just south of Geneva Avenue. Within Brisbane, relatively high travel speeds may discourage the use of Bayshore Boulevard by inexperienced bicyclists.

Guadalupe Canyon Parkway provides an east-west bicycle facility between Bayshore Boulevard and Mission Blue Drive, connecting with Bayshore Boulevard and newer residential developments in the Brisbane hills. While they are not marked as such, bicyclists treat the shoulder on either side of the parkway as a bicycle lane.

Geneva Avenue has a mix of Class II and Class III bicycle routes providing east-west circulation between Bayshore Boulevard and beyond Balboa Park BART Station. Class II bicycle facilities are provided on both sides of the roadway from Bayshore Boulevard to Rio Verde Street, after which the north side of the street



transitions to Class III, but the south side remains Class II. West of the Balboa Park BART Station, an additional east-west connection to San Francisco State University is provided by a Class III bicycle route on Holloway Street. Geneva Avenue has a mix of residential and commercial land use, which increases vehicle volumes and hazards for bicyclists, but also increases the use of bicycle facilities.

Sunnydale and Visitacion Avenues are not designated as bicycle routes but provide direct east-west connections west of Bayshore Boulevard to the Visitacion Valley and Excelsior neighborhoods of San Francisco.

Valley Drive is not a designated bicycle route, but as noted earlier, bicyclists are permitted to travel on all public roads unless specifically prohibited. Valley Drive provides the most direct connection for bicyclists traveling between Bayshore Boulevard, Brisbane City Hall, Crocker Business Park and Guadalupe Canyon Parkway.

Old County Road is not a designated bicycle route but provides the most direct connection for bicyclists traveling between the Project site (via Tunnel Avenue) and Brisbane Village.

San Bruno Avenue is not a designated bicycle route, but the two lane east-west road provides access from Bayshore Boulevard to the Downtown Brisbane and Firth Park neighborhoods.

Project Site

Sierra Point Parkway, which runs parallel to U.S. 101, is designated as part of San Francisco Bay Trail and connects with Bay Trail segments to the south of the project site in South San Francisco. Sierra Point Parkway has Class II bike lanes on the east and west sides of the road.

Beatty Avenue, an east-west collector street, while not marked with sharrows on the road, it serves as part of San Francisco Bicycle Route 805. Installation of a Class I bicycle path is planned as part of the San Francisco Bay Trail Regional Development Plan between Lagoon Way and Beatty Drive, to eliminate the current gap in the official Bay Trail alignment. The path would connect existing Bay Trail segments to the north and south of the Project site but is currently unfunded.

Lagoon Road, an east-west collector street, services the project site with Class II bike lanes on the north and south shoulders of the road.

Tunnel Avenue, a north-south collector street, serves the project site with Class II bike lanes from Bayshore Boulevard on the south and Lagoon Road on the north. It continues as an unmarked Class III facility until Beatty Avenue, north of which the roadway is marked as Class III.

Bicycle Support Facilities

Bicycle support facilities may include bicycle parking facilities (such as racks or secure enclosures) as well as shower and locker facilities to encourage bicycle commuting, and measures to facilitate bicyclists' utilization of transit. Near the Project site, regional support facilities include intermodal links with Caltrain rail service and Muni bus service. Local support facilities include bicycle racks at some local destinations

along Bayshore Boulevard, although such facilities are currently scarce. At the northwest edge of the Project site, the Bayshore Caltrain station includes bicycle lockers to facilitate bicycle commuting, and bicyclists are allowed on designated train cars.

Emergency Vehicle Access

Emergency transport vehicles in the area typically use major streets when heading to and from an emergency and/or emergency facility. Arterial roadways allow the emergency vehicles to travel at higher speeds and permit other traffic to maneuver out of the path of the emergency vehicle. Non-emergency vehicles are required to yield to emergency vehicles headed to the project site, as stated by the California Vehicle Code.[5]

Emergency vehicles would be able to access the residential and office and commercial areas of the project site via Bayshore Boulevard at Blanken Avenue, Leland Avenue, Sunnydale Avenue, Geneva Avenue, Main Street, Guadalupe Canyon Road, and Old County Road as well as via Tunnel Avenue at Geneva Avenue and Campus Parkway. The open space areas in the eastern portion of the project site would be accessed via U.S. 101 at Blanken Avenue, Beatty Avenue and Lagoon Road as well as via Tunnel Avenue at Blanken Avenue, Beatty Avenue, Geneva Avenue, Campus Parkway and Lagoon Road (as well as two new local roadways).

The closest fire stations to the project site are:

- North County Fire Station No. 81 (Bayshore Boulevard at Valley Drive) – Approximately 1 miles away in Brisbane
- North County Fire Station No. 93 (Martin Street at Rio Verde Street) – Approximately 1 mile away in Daly City
- South San Francisco Fire Station No. 65 (South San Francisco Drive and Hillside Boulevard) – Approximately 2.5 miles away in South San Francisco
- San Francisco Fire Department Fire Station No. 44 (Girard Street at Wilde Avenue) – Approximately 1 mile away

The Brisbane Police Department is located near the southern border of the project site (Valley Drive at Park Place) – Approximately 1.4 miles away

The San Francisco Police Department station closest to the project site is the Bayview Station (Williams Avenue at Newhall Street) – Approximately 2 miles away

[5] Per the California Vehicle Code, Section 21806, all vehicles must yield right of way to emergency vehicles and should remain stopped until the emergency vehicle has passed.

The hospitals providing emergency services closest to the project site are:

- CPMC Emergency, Mission Bernal Campus (Cesar Chavez Street at Guerrero Street) – Approximately 5 miles away
- Kaiser Permanente, South San Francisco (El Camino Real at Chestnut Avenue) – Approximately 6 miles away
- Seton Medical Center, Daly City (Sullivan Avenue at San Fernando Way) – Approximately 6 miles away

Loading Conditions

Existing loading conditions adjacent to the project site are non-existent due to the undeveloped and industrial nature of the surroundings. There are currently no commercial or passenger loading areas on Bayshore Boulevard or Tunnel Avenue and the existing industrial land uses accommodate all loading operations onsite.

Parking

In general, where on-street parking in the study area is permitted it is generally unrestricted (other than weekly street cleaning). Parallel street parking is permitted on Geneva Avenue, Sunnydale Avenue, Tunnel Avenue, Beatty Avenue and San Bruno Avenue. On the west side of Bayshore Boulevard, street parking is permitted north of Geneva Avenue and adjacent to the PG&E substation south of Geneva Avenue. Parking is not permitted on Sierra Point Parkway, Guadalupe Canyon Parkway, Valley Drive, and Lagoon Road.

Vehicle Miles Traveled

Vehicle miles traveled (VMT) is a measurement of the amount and distance that a person drives, accounting for the number of passengers within a vehicle. Many interdependent factors affect the amount and distance a person might drive. In particular, the type of built environment affects how many places a person can access within a given distance, time, and cost, using different ways of travel (e.g., private vehicle, public transit, bicycling, walking, etc.). Typically, low-density development located at great distances from other land uses and in areas with few alternatives to the private vehicle provides less access than a location with high density, mix of land uses, and numerous ways of travel. Therefore, low-density development typically generates more VMT per capita compared to a similarly sized development located in urban areas. In general, higher VMT areas are associated with more air pollution, including greenhouse gas emissions, and energy use than lower VMT areas. VMT is a combination of two factors, including the number of trips generated and the total distance of each of those trips. **Table 12** presents the existing VMT per capita generated for the nine-County Bay Area regional average based on the C/CAG-VTA Bi-County Transportation Model (C/CAG Model). Chapter 4 presents additional information about the C/CAG Model.

Table 12: Existing Daily Vehicle Miles Traveled Per Capita

Land Use	Bay Area Regional Average
Residential	12.8
Employment	15.0

Notes: Information about the C/CAG Travel Demand Model can be found at https://ccag.ca.gov/programs/travel-demand-model/
Source: C/CAG Travel Demand Model; Fehr & Peers, 2023.

3. Regulatory Framework

The following plans, policies, and regulations guide transportation planning in Brisbane.

State Plans and Policies

This section summarizes applicable State regulations guiding transportation planning in Brisbane.

Caltrans

Traffic Impact Study Guidelines

Caltrans is responsible for the maintenance and operation of State routes and highways. In Brisbane, Caltrans facilities include U.S. 101. Caltrans maintains a volume monitoring program and reviews local agencies planning documents (such as this EIR) to assist in its forecasting of future volumes and congestion points. The Guide for the Preparation of Traffic Impacts Studies published by Caltrans[6] is intended to provide a consistent basis for evaluating traffic impacts to State facilities. The City recognizes that "Caltrans endeavors to maintain a target level of service at the transition between LOS C and LOS D on State highway facilities;" however, Caltrans acknowledges that this may not always be feasible and recommends that the lead agency consult with Caltrans to determine the appropriate target level of service. Caltrans states that, for existing State highway facilities operating at less than the target level of service, the existing level of service should be maintained. Furthermore, Caltrans' vehicular congestion analysis is no longer used for the purposes of CEQA analysis. (Pub. Res. Code § 21099(b)(2).)

Caltrans released the *VMT-Focused Transportation Impact Study Guide* (May 20, 2020) that recommends use of the OPR recommendations for land use projects and plans.[7] For transportation projects, Caltrans has suggested that any increase in VMT would constitute a significant impact. This has been referred to as the "Net Zero VMT threshold." Caltrans also recently released the *Interim Land Development and Intergovernmental Review (LDIGR) Safety Review Practitioners Guidance* (July 2020) to provide guidance about the analysis of safety on the state highway system.[8]

Design Standards

Caltrans sets standards, policies, and strategic plans for the State's roadway system. The Caltrans Local Assistance Procedures Manual (LAPM), Chapter 11, describes the various procedures and establishes design standards required to process Federal and State funded local transportation projects. The Caltrans

[6] Caltrans, December 2002. *Guide for the Preparation of Traffic Impacts Studies.*
[7] https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-05-20-approved-vmt-focused-tisg-a11y.pdf
[8] https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf

Highway Design Manual, prepared by the Division of Design for Project Delivery, establishes uniform policies and procedures to carry out the highway design functions of Caltrans.

Local Development Intergovernmental Review (LDIGR) Safety Practitioners

In December 2020, Caltrans issued Traffic Safety Bulletin 20-02-R1 announcing the release of the "Interim Local Development Intergovernmental Review Safety Review Practitioners Guidance (LDIGR Safety Review Practitioners Guide).[9]" This new guidance material provides instructions to Caltrans personnel, lead agencies, developers, and consultants for conducting safety impact analysis for proposed land use projects and plans in compliance with the CEQA. The guidance sets expectations for Caltrans staff and lead agencies about what information and factors to consider in safety impact analysis with a focus on potential safety impacts affecting the California State Highway System (SHS). Integrating safety in the Caltrans land development and intergovernmental review process helps to solidify a culture of safety in California through the Safe System approach.

Caltrans recommends lead agencies use systemic safety plans, specifically Local Roadway Safety Plans (LRSPs), Systemic Safety Analysis Reports (SSARs), and Vision Zero plans, as models for safety analysis of the local transportation network. These plans can help local jurisdictions obtain resources to improve safety in their communities, and they will now be an input to assessing the potential safety impacts of new land use projects and land use plans. As presented under **Local Roadways** in Chapter 2, San Francisco and C/CAG have identified a high-injury network based on their systemic safety plans with several roadways in the study area.

Encroachment Permits Guidelines and Traffic Control Plans

Construction in facilities under Caltrans jurisdiction requires a Caltrans Encroachment Permit, which includes a Traffic Control Plan in compliance with the Manual on Uniform Traffic Control Devices (MUTCD).[10] As part of these requirements, there are provisions for coordination with local emergency services, training for flagmen for emergency vehicles traveling through the work zone, temporary lane separators that have sloping sides to facilitate crossover by emergency vehicles, and vehicle storage and staging areas for emergency vehicles. MUTCD requirements also provide for construction work during off-peak hours and flaggers.

Senate Bill 375

As a means to achieve the Statewide emission reduction goals set by Assembly Bill 32 ("The California Global Warming Solutions Act of 2006"), SB 375 ("The Sustainable Communities and Climate Protection Act of 2008") directs the California Air Resource Board (CARB) to set regional targets for reducing GHG emissions from cars and light trucks. Using the template provided by the State's Regional Blueprint program to accomplish this goal, SB 375 seeks to align transportation and land use planning to reduce

[9] Caltrans LDIGR Safety Review: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf
[10] Caltrans MUTCD Manual: https://dot.ca.gov/programs/safety-programs/camutcd



VMT through modified land use patterns. There are five basic directives of the bill: (1) creation of regional targets for GHG emissions reduction tied to land use, (2) a requirement that regional planning agencies create a sustainable communities strategy (SCS) to meet those targets (or an Alternative Planning Strategy if the strategies in the SCS would not reach the target set by CARB), (3) a requirement that regional transportation funding decisions be consistent with the SCS, (4) a requirement that the Regional Housing Needs Allocation numbers for municipal general plan housing element updates must conform to the SCS, and (5) CEQA exemptions and streamlining for projects that conform to the SCS.

Senate Bill 743

Senate Bill 743 (Stats. 2013, ch. 386) (SB 743) creates several statewide CEQA changes that are relevant to the project. First, it requires the Governor's Office of Planning and Research (OPR) to establish new metrics for determining the significance of transportation impacts of projects within transit priority areas (TPAs) and allows OPR to extend use of the metrics beyond TPAs. OPR selected vehicle-miles traveled (VMT) as the preferred transportation impact metric and applied their discretion to require its use statewide. Second, this legislation establishes that aesthetic and parking impacts of a residential, mixed-use residential, or employment center projects on an infill site within a TPA shall not be considered significant impacts on the environment. Third, the new CEQA Guidelines that implement this legislation, state that vehicle LOS and similar measures related to vehicle delay shall not be used as the sole basis for determining the significance of transportation impacts, and that as of July 1, 2020, this requirement shall apply statewide.

To aid in SB 743 implementation, the following non-binding state guidance has been produced.

- *Technical Advisory on Evaluating Transportation Impacts in CEQA*, California Governor's Office of Planning and Research, December 2018[11]
- *California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals*, California Air Resources Board, January 2019[12]
- *VMT-Focused Transportation Impact Study Guide*, Caltrans, May 20, 2020[13]
- *Final 2022 Scoping Plan Update*, California Air Resources Board, November 16, 2023[14]

In the *Technical Advisory on Evaluating Transportation Impacts in CEQA* (December 2018), OPR recommends that a per capita or per employee VMT that is 15 percent below that of existing development may be a reasonable threshold. This threshold is based on evidence that suggests a 15

[11] Technical Advisory on Evaluating Transportation Impacts in CEQA
http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf
[12] California Air Resources Board 2017 Scoping Plan
https://ww2.arb.ca.gov/sites/default/files/2019-01/2017_sp_vmt_reductions_jan19.pdf
[13] Senate Bill 743 Implementation
https://dot.ca.gov/programs/sustainability/sb-743/sb743-resources
[14] California Air Resources Board Final 2022 Scoping Plan Update
https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents

percent reduction in VMT is an achievable reduction at the project level in a variety of place types[15] and would help the State toward achieving its climate goals based on currently available information. OPR also recommends a number of screening criteria, designed to help jurisdictions determine types of projects for which a VMT impact is unlikely, such as adjacent to high quality transit services, in existing low VMT areas, or providing local-serving retail / public facilities (grocery store, neighborhood school, library, drug store, dry cleaners, gym, etc.) OPR also presents the types of transportation projects that would not lead to a substantial increase in VMT include those that reduce the number of through lanes or add pedestrian or bicycle facilities, among other minor transportation project types. Caltrans' *VMT-Focused Transportation Impact Study Guide* supports the use of the OPR recommendations for land use and transportation projects and plans.

The *California Air Resources Board 2017 Scoping Plan-Identified VMT Reductions and Relationship to State Climate Goals* recommended that a reduction in light-duty VMT of 16.8 percent is necessary to achieve the State's GHG reduction goals. The *Final 2022 Scoping Plan Update* indicates that to meet statewide greenhouse gas reduction goals, statewide VMT must decrease by 30 percent per capita.

Assembly Bill 2097

California Assembly Bill 2097, adopted in 2022, prohibits public agencies from imposing any minimum automobile parking requirement on most development projects located within a half-mile of a major transit stop. Major transit stops are defined as serving rail, bus rapid transit (BRT), or ferry service or the intersection of two or more bus routes with frequencies of 15 minutes or less during AM and PM peak commute periods.[16] This includes the Bayshore Caltrain Station and the Sunnydale Visitacion Valley station for Muni's T Third route. This transit definition differs from SB 743's transit priority area which is defined as proximity to a major transit stop or a fixed-route bus service stop along a high-quality transit corridor with frequencies of 15 minutes or less during peak commute periods. AB 2097 does not apply to certain land uses such as hotels and does not affect electric vehicle (EV) or accessible parking requirements.

Senate Bill 922

California Senate Bill 922, adopted in 2023, made permeant Senate Bill 288 that exempts bike, pedestrian, light rail and bus rapid transit projects from CEQA. This applies to transportation projects that make streets safer for walking and biking or improve transit services that are located within the existing right-of-way, do not add automobile capacity, do not demolish affordable housing, and meet minimum labor requirements. In cases where projects are estimated to cost over $100 million, the lead agency must

[15] Place types refer to the context of a project, whether it is urban, suburban, or rural. The research is presented in the following report: CAPCOA (2010) Quantifying Greenhouse Gas Mitigation Measures, p. 55, available at http://www.capcoa.org/wp-content/uploads/2010/11/CAPCOA-Quantification-Report-9-14-Final.pdf

16 A "Major transit stop" is as defined in California Public Resource Code §21064.3 as a site containing any of the following: (a) An existing rail or bus rapid transit station, (b) A ferry terminal served by either a bus or rail transit service, (c) The intersection of two or more major bus routes with a frequency of service interval of 15 minutes or less during the morning and afternoon peak commute periods.



expand public participation, prepare a business case, and conduct a racial equity and displacement analysis to avoid disproportionate impacts.

Regional Plans and Policies

This section summarizes regional regulations guiding transportation planning in the City of Brisbane. Regional planning in Brisbane is guided by the Metropolitan Transportation Commission (MTC), the City/County Association of Governments (C/CAG) of San Mateo County, and the San Mateo County Transportation Authority (SMCTA).

Plan Bay Area

The Metropolitan Transportation Commission (MTC) is the transportation planning, coordinating, and financing agency for the nine-county San Francisco Bay Area. It is responsible for developing the regional transportation plan and prioritizing regional transportation projects for State and federal funding.

Plan Bay Area is the Bay Area's Regional Transportation Plan and Sustainable Communities Strategy as required by Senate Bill 375 (SB 375) (Stats. 2008, chapter 728). Plan Bay Area 2050 is a state-mandated, integrated long-range transportation and land use plan intended to meet greenhouse gas reduction targets.

A core element of Plan Bay Area is a Regional Growth Framework designed to coordinate transportation, housing, and land use planning across all Bay Area communities to make the best use of available resources. The five elements of the Regional Growth Framework include:

- *Priority Conservation Areas (PCA)* – Locations designated for the protection of natural habitats and the preservation of open space for future generations.
- *Priority Development Areas (PDA)* – Places near public transit that are planned for new homes, jobs, and community amenities. MTC has designated two types of PDAs: Transit-Rich PDAs that have high-quality transportation infrastructure already in place, and Connected Community PDAs which offer basic transit services and have committed to policies that increase mobility options and reduce automobile travel.
- *Priority Production Areas (PPA)* – Industrial areas prioritized for the preservation and expansion of businesses that are essential to the region's economy.
- *Priority Sites* – Places that are planned for a large number of homes that are affordable to households with a wide range of incomes. The plans also include essential services, green space, and local and regional destinations.
- *Transit-Oriented Communities Policy* – Prioritizing housing development that is near to transportation, putting public transit in reach for more people and improving the quality of life in the Bay Area.

The San Francisco / San Mateo Bi-County Area PDA encompasses the entire project site.[17] Development within these PDAs should be supportive of multimodal transportation access and a mode shift away from non-automobile travel and given the location adjacent to Caltrain and light-rail services.

MTC Complete Streets Policy (Resolution 4493)

Plan Bay Area 2050 Strategy T8 calls for development of a Complete Streets Network, enhancing streets to promote walking, biking and other micromobility options through sidewalk improvements, car-free slow streets, and 10,000 miles of bike lanes or multi-use paths. [18] MTC's Active Transportation Plan (AT Plan) defines an Active Transportation Network (AT Network), made up of regionally significant segments of local active transportation networks and regional trails, based on traffic safety, user comfort, equity and connectivity to transit, Priority Development Areas, Equity Priority Communities, and Mobility Hubs.[19] To acknowledge and allow for context sensitive implementation at the local level, jurisdictions can determine how best to advance AT Network implementation, such as choice of roadway(s), trail alignment, and facility type within AT Network corridors. Projects on the AT Network shall incorporate design principles based on designing for "All Ages and Abilities," contextual guidance provided by the National Association of City Transportation Officials (NACTO), and consistent with state and national best practices.

MTC Transit-Oriented Communities Policy (Resolution 4530)

MTC's Transit-Oriented Communities (TOC) Policy, adopted in 2022, is an implementing action for Plan Bay Area 2050 that seeks to support the region's transit investments by creating communities around transit stations and along transit corridors that not only support transit ridership, but that are places where Bay Area residents of all abilities, income levels, and racial and ethnic backgrounds can live, work and access services, such as education, childcare, and healthcare. As noted in MTC's Administrative Guidance: Transit-Oriented Communities Policy ("MTC's TOC Administrative Guidance", September 2024), "To ensure eligibility for OBAG 4 funding and any other discretionary funding that may be linked to TOC Policy compliance, jurisdictions should anticipate demonstrating compliance prior to adoption of OBAG 4, expected in 2026."[20]

[17] For more information, see MTC's Priority Development Areas (PDAs) webpage: https://mtc.ca.gov/planning/land-use/priority-development-areas-pdas

[18] See MTC Resolution No. 4493 at https://mtc.ca.gov/sites/default/files/documents/2022-05/Resolution-4493_approved.pdf

[19] MTC's Regional AT Network includes the Bay Trail corridor through Brisbane, as shown here: https://mtc.maps.arcgis.com/apps/mapviewer/index.html?webmap=8c0efbb322804b06ba8820f1672bd79f

[20] MTC Administrative Guidance: Transit-Oriented Communities Policy, September 2024. Accessed by Fehr & Peers on October 18, 2024 at: https://mtc.ca.gov/planning/land-use/transit-oriented-communities-toc-policy.

MTC's TOC policy addresses areas within a half-mile of existing and planned fixed-guideway transit stops and stations serving regional rail, commuter rail, light-rail transit, bus rapid transit, and ferries.[21] Within Brisbane, this includes the areas within one-half mile of the Bayshore Caltrain station and T Third Muni stops shown on **Figure 11**. As presented in MTC's TOC Administrative Guidance, Brisbane's TOC area must meet all the requirements for a Tier 3 stop/station, except for the minimum residential density, which may use Tier 4 requirements.[22] Other SamTrans or Muni bus stops do not qualify as fixed-guideway transit with a separate right-of-way (as would be present for bus rapid transit) and therefore do not qualify for MTC's Transit-Oriented Communities designation. MTC has not included the planned Geneva Avenue bus rapid transit route identified in the 2011 San Francisco / San Mateo Bi-County Transportation Study as a TOC community as of October 2024.[23]

MTC's TOC policy establishes parameters for the following elements within applicable areas by January 2027:

1. Minimum required and allowed residential and/or commercial office densities for new development;
2. Policies focused on housing production, preservation and protection, and commercial anti-displacement and stabilization;
3. Parking management, including parking maximums, shared parking, and TDM plans; and
4. Transit station access and circulation.

Tier 3 Transit-Oriented Communities such as the qualifying area of Brisbane include the following transportation requirements:

- Parking maximum of one space per unit or lower for residential buildings and 2.5 spaces per 1,000 square feet or lower for commercial buildings[24];
- A minimum of one secure bicycle parking space per dwelling unit;
- A minimum of one secure bicycle parking space per 5,000 occupied square feet for office commercial;
- Allow unbundled parking;
- Allow shared parking between different land uses;

[21] The TOC policy provides the following definition: "Fixed guideway means a public transportation facility that uses and occupies a separate right-of-way or rail line for the exclusive use of public transportation and other high occupancy vehicles, or uses a fixed catenary system and a right of way usable by other forms of transportation. This includes, but is not limited to, rapid rail, light rail, commuter rail, automated guideway transit, people movers, ferry boat service, and fixed-guideway facilities for buses (such as bus rapid transit) and other high occupancy vehicles." (49 CFR § 611.105)

[22] As shown in Table 1, Tier 3 TOC areas in jurisdictions with 30,000 residents or fewer may use Tier 4 standards for residential density. All other requirements must meet Tier 3 standards.

[23] As presented in MTC's map of TOC communities and list of station areas and jurisdictions on MTC's TOC website, accessed here by Fehr & Peers on October 18, 2024: https://mtc.ca.gov/planning/land-use/transit-oriented-communities-toc-policy

[24] The MTC TOC policy notes that the "standards may apply to individual projects or may be met through creation of a parking district that provides shared vehicle parking for multiple land uses within an area."

- Adopt policies and design guidelines to comply with MTC's Complete Streets Policy;
- Complete access gap analysis for station access within a 10-minute walk;
- Identify opportunities to implement mobility hubs at locations identified by MTC.[25]

C/CAG Congestion Management Program

The City/County Association of Governments (C/CAG) is the Congestion Management Agency (CMA) for San Mateo County and is responsible for administering the state-mandated Congestion Management Program (CMP), setting state and federal funding priorities for improvements affecting the San Mateo CMP, and preparing the Countywide Transportation Plan. The C/CAG-designated CMP roadway system in Brisbane includes U.S. 101 and Bayshore Boulevard.[26]

Transportation Demand Management Guidelines

In January 2022, C/CAG adopted a new transportation demand management (TDM) policy to reduce the number of new vehicle trips generated by new land development. The policy generally applies to developments that generate 100 or more average daily trips. Developments that meet the threshold must develop and implement a TDM plan using a land use-specific C/CAG checklist identifying appropriate strategies and their corresponding trip reduction credits. The trip reduction credits used in C/CAG's TDM policy are intended for CMP compliance.

As described further under Local Plans and Policies, the City of Brisbane recently updated its TDM ordinance to align with and implement C/CAG's TDM requirements. As discussed in the City's TDM Ordinance "Projects which are consistent with the City's TDM Program are considered consistent with C/CAG's CMP TDM Policy." (Proposed BMC § 10.52.010(J).)

Countywide Local Roadway Safety Plan

C/CAG published a draft Local Road Safety Plan (LRSP) in April 2024 with the goal to improve safety on roadways across San Mateo County.[27] This plan identified areas that are most in need of design improvements and provided a list of draft priority location maps which show the different priorities areas within a vicinity broken down by travel mode and road type. The draft plan identifies the intersections of Bayshore Boulevard and Main Street and Bayshore Boulevard and Industrial Way as priority locations along the corridor. The LRSP identifies a set of engineering countermeasures that should be implemented across the City and specifically at these locations. The LRSP is expected to be adopted by the County of San Mateo in 2024.

[25] Potential mobility hub locations adjacent to the project site include the Bayshore Caltrain station and other sites along Bayshore Boulevard north of Geneva Avenue: https://mtc.ca.gov/mobility-hubs/universe-bay-area-mobility-hubs

[26] C/CAG sets LOS standards for the CMP network, but these LOS standards do not apply to CEQA per SB 743.

[27] ttps://ccag.ca.gov/wp-content/uploads/2024/04/28717_CCAG-Countywide-LRSP-Brisbane-Chapter.pdf

2013 Candlestick Interchange Project Study Report (PSR) and Bi-County Studies

The San Francisco / San Mateo Bi-County Transportation Study was originally undertaken in 2001 to anticipate and address development-related transportation challenges expected to occur over the next 20 years in San Francisco and San Mateo Counties. The study was updated in 2012 and released by the San Francisco County Transportation Authority (SFCTA), with the purpose of re-evaluating transportation improvements needed to address future growth demands. The study takes a broad look at the totality of proposed development with the purpose of identifying regional, multimodal transportation project investments that will be needed to support future growth and existing neighborhoods. It aims to build broad consensus on such a project list toward creating a multi-jurisdictional and shared public and private funding strategy and prioritization.

Developments included in the Bi-County Study were the Candlestick Point – Hunters Point Shipyard (CPHPS), Executive Park, Visitacion Valley/Schlage Lock (now known as Baylands North), and Brisbane Baylands. HOPE SF Sunnydale and the Recology Expansion were assumed to be captured by background growth in MTC's regional travel demand model. Transportation projects evaluated in the Bi-County Study included the U.S. 101 Candlestick Interchange Re-Configuration, Geneva Avenue Extension, T-Third 'Segment S' Light Rail Transit Extension, Geneva Avenue Transit Preferential Streets Study, Oakdale Station Study, Bay Trail, High Speed Rail, and Bayview Transportation Improvement Project.

The Bi-County funding strategy determined "fair-share" contributions from public and private entities involved in the Bi-County Transportation Study Area. The public share of responsibility was comprised of growth in background trips (the difference between 2030 and 2005), while the private share of responsibility was determined based on the anticipated number of trips generated by each new development.

In 2013, the City of Brisbane completed a Project Study Report (PSR) for the Candlestick Interchange that considered reconfiguration of the interchange into a compact diamond, with Geneva Avenue as a six-lane local roadway with bike lanes.

San Mateo County Comprehensive Bicycle and Pedestrian Plan

The San Mateo County Comprehensive Bicycle and Pedestrian Plan was developed by C/CAG with support from SMCTA to address the planning, design, funding, and implementation of bicycle and pedestrian projects countywide. The following lists relevant goals and policies:

Goal 2: More People Riding and Walking for Transportation and Recreation

> **Policy 2.6**: Serve as a resource to county employers on promotional information and resources related to bicycling and walking.

Goal 4: Complete Streets and Routine Accommodation of Bicyclists and Pedestrians

> **Policy 4.1:** Comply with the complete streets policy requirements of Caltrans and the Metropolitan Transportation Commission concerning safe and convenient access for bicyclists and pedestrians, and assist local implementing agencies in meeting their responsibilities under the policy.
>
> **Policy 4.5:** Encourage local agencies to adopt policies, guidelines, standards, and regulations that result in truly bicycle-friendly and pedestrian-friendly land use developments, and provide them technical assistance and support in this area.
>
> **Policy 4.6:** Discourage local agencies from removing, degrading or blocking access to bicycle and pedestrian facilities without providing a safe and convenient alternative.

The San Mateo County Comprehensive Bicycle and Pedestrian Plan (Countywide Bicycle and Pedestrian Plan) identified a countywide backbone bicycle network that links regionally significant destinations across local jurisdictions with the goal of addressing gaps between city boundaries and providing continuous, low-stress bikeways across the county.[28] This backbone network includes Sierra Point Parkway as a part of a north-south connection via the Bay Trail and an east-west connection via Guadalupe Canyon Parkway, Bayshore Boulevard, Tunnel Avenue, and Lagoon Road. The Countywide Bicycle and Pedestrian Plan identifies that Class I pathways along Lagoon Road and Sierra Point Parkway are medium priority projects to address the existing high stress roadway segments for bicyclists that create gaps in the low-stress backbone network.

Bay Trail Regional Plan

The San Francisco Bay Trail is a planned 400-mile recreational corridor that will encircle the waterfront region of the San Francisco and San Pablo Bays. The Bay Trail consists of a network of hiking and bicycling trails that will connect the shorelines of all nine Bay Area counties. ABAG adopted the Bay Trail Regional Development Plan in 1989 in response to Senate Bill 100.

The 2005 Gap Analysis Study prepared by ABAG for the entire Bay Trail area attempted to identify the remaining gaps in the Bay Trail system; classify the gaps by phase, county, and benefit ranking; develop cost estimates for individual gap completion; identify strategies and actions to overcome gaps; and present an overall cost and timeframe for completion of the Bay Trail system. Within the Project Site, the 2005 Gap Analysis Study proposes to connect existing Bay Trail segments that are located within and north of the Project Site by completing the trail from its current southern gap terminus at Sierra Point Parkway, along the eastern edge of the Project Site and then extending the trail along the waterfront of Candlestick Point State Recreation Area.

[28] San Mateo County Comprehensive Bicycle and Pedestrian Plan 2021, C/CAG. Accessed here by Fehr & Peers October 14, 2024: https://ccag.ca.gov/programs/transportation-programs/active-transportation/

San Francisco General Plan and Related Policies

The Transportation Element of the San Francisco General Plan is composed of objectives and policies that relate to the nine aspects of the citywide transportation system: General, Regional Transportation, Congestion Management, Vehicle Circulation, Transit, Pedestrian, Bicycles, Citywide Parking, and Goods Management. The following specific policies are related to the proposed project.

Transit First Policy

In 1973, the San Francisco Board of Supervisors declared that public transit be given priority over other vehicles on San Francisco streets. In 1998, the San Francisco voters amended the City Charter (charter article 8A, section 8A.115) to include a transit first policy. The general plan incorporates the policy and the policy requires all city boards, commissions, and departments to implement principles that, among others, encourage the use of public rights-of-way by people walking, bicycling, and riding public transit above the use of the personal automobile.

Vision Zero

In 2014, the San Francisco Board of Supervisors adopted a resolution to implement an action plan to reduce traffic fatalities to zero by 2024 through engineering, education, and enforcement (resolution 91-14). Numerous San Francisco agencies responsible for the aforementioned aspects of the action plans adopted similar resolutions. In 2017, the Board of Supervisors amended the Transportation and Urban Design elements of the general plan to implement Vision Zero[29] (ordinance 175-17). Vision Zero has a new monthly fatality report[30] that presents collision data from police calls and hospital admissions. Within the study area, Bayshore Boulevard, Visitacion Avenue, and Sunnydale Avenue are on the City's 2022 high-injury network.

Transportation Impact Analysis Guidelines

The City of San Francisco adopted Transportation Impact Analysis guidelines in 2019[31] that outlines the approach to analyzing the impacts due to construction and operations of projects. The City of San Francisco considers the impacts to project operations associated with potentially hazardous conditions, accessibility of people walking or bicycling, inadequate emergency access, public transit delay, VMT, and loading or parking deficits that cause secondary impacts.

Visitacion Valley and Portola Community Based Transportation Plan (CBTP)

Visitacion Valley and Portola are located in the southeast corner of San Francisco, immediately northwest of the proposed Project site. The Visitacion Valley and Portola CBTP was completed in 2023 after a two-year planning effort, and identifies needs, priorities, and values for improving physical mobility, access,

[29] http://visionzerosf.org/about/what-is-vision-zero/
[30] http://visionzerosf.org/maps-data/
[31] San Francisco Transportation Impact Analysis Guidelines were published in October 2019 to provide guidance for city staff and consultants in the preparation of transportation impact studies.

and quality of life for residents.[32] The plan identified $25.3 million worth of improvements, including streetscape projects, traffic calming, new bikeways, lighting, and Muni stop improvements.

Daly City General Plan

The Daly City General Plan, adopted in 2013 and updated in 2015, identifies policies to ensure that transportation facilities in Daly City provide adequate service for existing and planned land uses, with a focus on the following areas: traffic improvements, public transit, bicycle facilities, and strategies to mitigate the impacts of individual developments. The following policies relate to aspects of the proposed project:

- **Policy CE-1:** Use the City's traffic model and environmental review process outlined by the California Environmental Quality Act (CEQA) to ensure that the City's existing roadway network is relatively free flowing during peak traffic periods.
    - **Task CE-1.6:** Require that a minimum LOS D be maintained at all principal intersections.
- **Policy CE-2:** Minimize impacts on collector and local streets by moving traffic with origins and destinations outside of Daly City efficiently to area freeways and major arterial streets
    - **Task CE-2.1:** Review new development projects in adjacent jurisdictions and make every reasonable effort to ensure that these projects do not degrade traffic conditions at Daly City's principal intersection to Levels of Service identified in Daly City's Local Thresholds of Significance Guidelines.
    - **Task CE-2.2:** Support efforts by the City of Brisbane to establish an extension of Geneva Avenue, connecting with the Candlestick Highway 101 Interchange, as a part of the Baylands Specific Plan implementation, to the extent that any pass-through traffic originating from the new interchange can be effectively dissuaded/mitigated.
    - **Task CE-2.3:** Ensure that the Bi-County Transportation Study provides for an infrastructure phasing plan which ensures that Daly City roadways and intersections are not onerously impacted for significant periods of time.
- **Policy CE-4:** Proactively plan for roadway network improvements by using the City's Capital Improvement Program (CIP) to prioritize necessary traffic improvements and identifying the funding sources necessary to construct these improvements.
    - **Task CE-4.4:** As part of the comprehensive infrastructure plan for the Geneva Avenue Corridor identified in Task LU-3.2, develop a infrastructure enhancement fee program specific to new development in the Bayshore area which provides funding for any necessary circulation, utility, and joint-benefit projects planned in this area.

[32] Vis Valley & Portola Community Based Transportation Plan, Final Plan – February 2023, SFMTA. This plan can be accessed here: https://www.sfmta.com/reports/draft-plan-visitacion-valley-portola-community-based-transportation-plan

- In addition, the Daly City Circulation Element includes the following tasks specific to the project study area under policies aimed towards improving transit, walking, and bicycling and integral elements of the transportation system:
    - **Task CE-7.3:** Participate in efforts by MUNI to extend the T-Third light rail line and construct a multimodal Bayshore transit station.
    - **Task CE-7.4:** Support efforts to enhance MUNI and SamTrans service in the Bayshore neighborhood.
    - **Task CE-13.1:** As part of the comprehensive infrastructure and streetscape plan for the Geneva Avenue Corridor (see Task LU-3.2), ensure that both public and private improvements provide significant accommodation of both pedestrian and bicycle transportation modes.
    - **Task CE-14.1:** As part of any City involvement in or comments provided for the Geneva Avenue connection with the Candlestick Highway 101 Interchange, work toward the inclusion of the both pedestrian and bicycle transportation modes that, at a minimum, extend those identified in the Geneva Avenue infrastructure plan, and/or Daly City Bicycle Route Map.

Local Plans and Policies

City of Brisbane General Plan

The Brisbane General Plan, adopted in 1994, as amended through 2022, is the blueprint for development in the City and addresses all aspects of development, including land use, housing, traffic, natural resources, open space, safety, and noise. The Circulation Element was amended in September 2015 and January 2020. Circulation goals, policies, and programs related to transportation impacts related to the proposed Project are included below. These circulation policies are not fundamental mandatory policies, and the City can balance competing policy interests in the General Plan.

Roadway Performance

- **Policy C.1** Design the City's roadway system to emphasize mobility for Brisbane residents and businesses, accommodate bicycle and pedestrian in addition to vehicular movement, and provide for comfortable and safe travel within the community to shopping, employment, and recreation, as well as to transit and the Highway 101 freeway.
    - Program C.1.a Consult with Caltrans, the Metropolitan Transportation Commission, San Francisco Transportation Authority, San Mateo County Transportation Authority, C/CAG, and others to develop and fund programs including physical improvements, enhanced use of transit, and transportation demand management, to maximize the ability of the 101 freeway to accommodate regional through traffic.
    - Program C.1.b Develop design plans for Bayshore Boulevard, the Geneva Avenue extension, and interchanges along the 101 freeway that address the effects of regional through traffic within Brisbane and enhances mobility for Brisbane residents and businesses through a combination of roadway and intersection, transit, bicycle, and pedestrian facility



improvements that would not cause a substantial increase in vehicle miles travelled (VMT) on Bayshore Boulevard or other routes through the City. As part of this design plan, evaluate (1) whether changes in design speeds along Bayshore Boulevard could improve mobility within the City; (2) the feasibility of shifting a portion of regional through traffic from Bayshore Boulevard onto other routes, such as Sierra Point Parkway by extending that roadway north to the 101 freeway interchange at Beatty Avenue, and (3) appropriate routing of trucks to and from the Crocker Park area.

- Program C.1.c Prepare, adopt, and implement a mobility improvement fee program to fund the multi-modal improvements called for in the design plan for Bayshore Boulevard and interchanges along the 101 freeway.
- Program C.1.d Rather than undertake multiple traffic impact analyses to evaluate individual intersections along Bayshore Boulevard, Geneva Avenue, and at intersections along the 101 freeway, require new development projects that would generate 50 or more peak hour trips at any intersection along Bayshore Boulevard, Geneva Avenue, or at intersections along the 101 freeway to comply with the design plan developed pursuant to Program C.1.c and either provide physical improvements consistent with the plan or pay established traffic impact fees as directed by the Public Works Director.

- **Policy C.2** The level of service objective for principal and minor arterial streets within the City is LOS "D."
- **Policy C.3** Design turning movements and traffic signal timing at intersections so as to avoid the queueing of vehicles at intersection from backing up and adversely affecting operations at another intersection. Design turning movements and traffic signal timing at freeway interchanges cause queueing of vehicles from the intersection onto the freeway mainline.

North-South and East-West Corridors

- **Policy C.4** Plan for an additional east-west corridor to redirect non-destination traffic away from Bayshore Boulevard and to provide more direct access to Highway 101.
  - Program C.4.a Pursue an extension of Geneva Avenue, connecting with the Candlestick Highway 101 Interchange that provides for bus rapid transit and connection to the Bayshore Caltrain station.
  - Program C.4.b Consult with Caltrans in the design of the Candlestick Highway 101 Interchange to assure the best connection with the Geneva Avenue Extension.
  - Program C.4.c Require that all east-west corridor rail crossings are grade-separated (i.e., not at-grade) to the extent permitted by law.
- **Policy C.5** Continue to upgrade north-south arterial and collector streets while providing the appropriate level of service.
  - *Program C.5.a Require the upgrade of Tunnel Avenue to current codes and safety standards.*

- **Policy C.7** Investigate and pursue traffic calming features for Visitacion Avenue, Old County Road, and San Bruno Avenue to provide for greater pedestrian comfort and safety at street crossings.

Street Standards

- **Policy C.8** Implement established City street standards to provide for adequate traffic flow and safe vehicular, bicycle, and pedestrian movement along both existing and new streets.
- **Policy C.17** Maintain traffic flow and continue to improve arterial streets to accommodate vehicular, bicycle, and pedestrian movement.

Complete Streets

- **Policy C.21** The City shall provide for the development of Complete Streets consistent with Government Code Sections 65040.2 and 65302 and subsequent applicable Complete Streets legislation) to meet the needs of all users of "streets, roads and highways". Such users include bicyclists, children, youth, families, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, seniors, and first responders.
- **Policy C.22** Integrate Complete Streets infrastructure and design features, such as sidewalks, bikeways and transit stops, into street design and construction to create safe and inviting environments for people to walk, bicycle and use public transportation.
- **Policy C.23** Seek to retrofit existing roadways to create Complete Streets.
- **Policy C.24** For new multifamily, mixed use or commercial development projects subject to discretionary review that would affect the public right-of-way, incorporate and implement Complete Streets elements at each stage of the development process as determined reasonable and practicable by the City.

Bicycles & Pedestrians

- **Policy C.26** Continue to connect Brisbane's bikeway and pedestrian system to the County and regional networks.
- **Policy C.28** Maximize bicycle access to all areas of the City, as practicable.
    - Program C.28.a Identify areas of the City where bikeways may be constructed, as both recreational and transportation amenities, with the aim of connecting all areas of the City with a network of bikeways.
    - Program C.28.b Design and install bikeways to meet best current engineering practices.
- **Policy C.29** Provide for the safety of bicyclists by dedicating bikeways where practicable, by installing appropriate signing and striping, and by maintaining the pavement.
    - Program C.29.a Install as many bikeways as can safely be accommodated and are economically feasible.

- **Policy C.30** Require new development and redevelopment to plan for and construct bikeways and/or bicycle parking facilities, as determined reasonable and practicable by the City.
- **Policy C.31** All new arterial streets and any existing arterials that are improved should provide for bicycle transportation.
- **Policy C.32** Provide or require bicycle parking facilities at major destination points.
- **Policy C.33** Provide public information on bicycle transportation.
- **Policy C.34** Maximize safe pedestrian facilities and access to all areas of the City, as reasonable and feasible.
- **Policy C.35** Require pedestrian amenities with new development and expansion of existing uses, as appropriate.

Transit

- **Policy C.36** Seek opportunities to install and improve transit facilities, establish multi-modal connections, and increase the service network.
    - Program C.36.d Cooperate with San Mateo County Transit District (SamTrans), and other appropriate agencies, to establish bus rapid transit (BRT) systems where practicable.

Transportation Management

- **Policy C.38** Continue participation in the efforts of subregional and regional transportation agencies to manage transportation systems.
    - Program C.38.a Continue active participation in the Congestion Management Program.
    - Program C.38.b Continue active participation in the Peninsula Traffic Congestion Relief Alliance Joint Powers Authority (Commute.org), as a means to cooperatively encourage residents and employees to reduce demand on transportation infrastructure.
    - Program C.38.c Provide information to citizens, employers, and employees on the alternatives to the single-occupant commute vehicle and the benefits of using the alternatives.
    - Program C.38.d Provide local incentives for participation in Transportation System Management (TSM) and Transportation Demand Management (TDM) programs and continue to implement same.
    - Program C.38.e Require Transportation System Management and Transportation Demand Management measures to help mitigate the traffic and parking impacts of development projects.

Parking

- **Policy C.41** Maintain an appropriate amount of off-street parking in commercial areas.
    - Program C.41.a Review the parking regulations for office, commercial and industrial uses and consider setting minimum and maximum parking standards where transit alternatives are readily available.

City of Brisbane Municipal Code

Transportation Demand Management Strategy

The City of Brisbane replaced its Transportation System Management program with a Transportation Demand Management (TDM) ordinance (Brisbane Municipal Code 10.52) in 2023 to prepare for land use and transportation changes and to align its policies with county and state requirements. The TDM strategy provides uniform guidance to project applicants to achieve consistency with the City's General Plan and CCAG's Congestion Management Program. The Proposed Project would be subject to the highest tier of compliance (Tier 3), and be required to implement all TDM measures presented in **Table 8**. In addition, the TDM ordinance outlines monitoring and reporting requirements, which includes submitting initial and annual self-certification reports and annually monitoring progress towards a target employee drive-alone mode share. The TDM Measures for the project have been designed to be consistent with the City's TDM Ordinance.

Encroachment Permits

Any encroachments into the City's right of way are required to comply with Brisbane Municipal Code Chapter 12.04 and 12.05 which provide procedures to promote traffic safety. Under these procedures all work shall be performed in a neat and workmanlike manner and so programmed as to cause the minimum of interference with traffic and inconvenience to the public. Free and unobstructed access shall be provided to all mailboxes, fire hydrants, water gates, valves, manholes, drainage structures and/or other public service structures and property as may be required for emergency use. Such public service structures or property shall not be removed or relocated without proper coordination with the properly constituted authorities charged with their control and maintenance. The working area shall be confined so as not to obstruct roadways and walks unnecessarily. Temporary roadways, driveways and walks for vehicles and pedestrians shall be constructed where required. (BMC Section 12.04.070, 12.05.040(A)(1).) During the performance of the work, the permittee shall provide and maintain fences, barricades, warning and directional signs, flares, red lights, watchmen and flagmen as may be required by existing laws and regulations and as deemed necessary in the opinion of the city engineer, to insure full and complete safety to the general public. (BMC Section 12.04.080.)

The City's encroachment applications further specify the contents of Traffic Control Plans, which require that no work will be performed during other than normal work hours of 8:00 a.m. to 5:00 p.m. Monday through Friday. Contractor's traffic control plan shall provide two-way traffic on all two-way streets at all times. If required to maintain two-way traffic, contractor shall provide flaggers with radios at each end of construction detour. The Plan also incorporated the guidance under Caltrans' MUTCD manual described above.[33]

[33] For additional details see the application at: http://www.brisbaneca.org/sites/default/files/Traffic%20Encroachment%20Permit%2001_13_2020.pdf and https://www.brisbaneca.org/sites/default/files/PERMIT_Encroachment_190305.pdf



Street and Parking Standards and Traffic Control Plans

The City of Brisbane Municipal Code Chapter 12.24 states that the City of Brisbane has adopted Caltrans standards for street design and sets conditions for general street design, such as maintaining a minimum 20 feet street width for streets without on-street parking. This chapter also sets standards for curb-cuts and driveways, including setting minimum residential curb cut widths of 12 feet for single-family home driveways and 18 feet for multi-family buildings in addition to standard 1.5 foot flares on each side.

The City of Brisbane Municipal Code Chapter 17.34 provides guidance on off-street parking requirements and sets minimum standards for the amount of parking spaces required for new developments; however, the Specific Plan sets standards for the maximum amount of parking that would be permitted consistent with AB 2097 and regional GHG emission reduction strategies and would not be subject to the City's minimum parking standards. AB 2097 prohibits public agencies from imposing any minimum automobile parking requirement on most development projects located within a half-mile of a major transit stop.

4. Analysis Methodology

This chapter includes a description of the analysis scenarios and methodologies used to forecast vehicular congestion traffic volumes, estimate VMT, and review the Project's land use and transportation features.

The analysis in Chapter 6 below uses two separate VMT methodologies including (1) and efficiency based metric (i.e. VMT per capita), and (2) Total VMT Traveled. Under either approach, OPR's Technical advisory allows reliance upon a comparison to baseline conditions. As discussed under OPR's Technical Advisory, "A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa." (OPR Technical Advisory p. 6.) OPR's Technical Advisory similarly notes that "When using an absolute VMT metric, i.e., total VMT…analyzing the combined impacts for a cumulative impact analysis may be appropriate." (OPR Technical Advisory, p. 6.) Consequently, while the analysis below provides future year cumulative scenarios, these are not required for the purposes of CEQA.

Analysis Scenarios

The transportation effects of the proposed Project are evaluated under several scenarios. Most scenarios includes specific assumptions about the surrounding land use growth and implementation of planned transportation improvements, as well as specific buildout assumptions for the project. As described below, the analysis scenarios are designed to account for the phased buildout of the proposed Project, including components that are anticipated to be completed and operational by 2035 (Phase 1) and by 2040 (Full Buildout).

The following scenarios are included in the report:

Scenario 1: Existing Conditions represent the conditions at the time of the project's notice of preparation (NOP) in 2023. Traffic counts collected in 2022 indicate that traffic volumes continue to be lower than 2019 pre-COVID conditions, and therefore still in a temporary lull. Therefore, to establish existing conditions that represents the potential for traffic to eventually return to pre-COVID conditions, this analysis utilized local traffic data collected in 2019 and the first two months of 2020. Existing conditions model calibration was based on the most recent population and employment information available from the American Community Survey (ACS) and Longitudinal Employer-Household Dynamics (LEHD data) from 2019. No major developments have since been completed in the immediate project area between 2019 and 2022 that might substantially affect traffic patterns. Detailed traffic count sheets and a comparison between 2019 and 2022 counts are presented in **Appendix A**.

Scenario 2: Mid-Term Without Project represents projected background conditions that would exist in 2035. Mid-Term Without Project Conditions were used to evaluate impacts of Phase 1 Baylands development taking into account land use, roadway, and traffic conditions surrounding the Baylands

through 2035 when site preparation and construction of the western portion of the Baylands (Phase 1) is projected to be complete. Thus, this scenario includes local and regional land use growth and transportation network changes that are reasonably foreseeable by 2035, as presented in **Appendix B**.

Scenario 3: Mid-Term Plus Phase 1 represents mid-term year conditions for the year 2035 consistent with local and regional growth, including buildout of Phase 1 comprising the west side of the proposed Project. As shown in **Table 13**, this scenario includes the roadway extensions proposed on the west side of the Caltrain tracks only but does not include the Geneva Avenue bridge over Caltrain and extension to the intersection of Alana Way and the U.S. 101 southbound ramps.

Scenario 4: Mid-Term Plus Phase 1 with Recommended Improvements represents mid-term conditions for the year 2035 consistent with local and regional growth, including buildout of Phase 1 comprising the west side of the proposed Project, and implementation of the recommendations described in Chapter 7.

Scenario 5: Cumulative Without Project Conditions represents cumulative year conditions for the year 2040 consistent with the Brisbane General Plan, regional growth associated with Plan Bay Area, and C/CAG's current future year model horizon year of 2040.[34] There would be no changes to the project site encompassed by the proposed Project compared to existing conditions. Cumulative conditions also serve as the environmental baseline for the full buildout of the proposed Project, including Phase 1 and growth to the east of Caltrain, to account for the remaining buildout of the project site anticipated to occur after 2035. The land use and transportation changes that are reasonably foreseeable by 2040 are presented in **Appendix B**.

Scenario 6: Cumulative Plus Project Conditions represents cumulative year conditions for the year 2040 consistent with local and regional growth, including full buildout of the proposed Project. As shown in **Table 13**, this scenario includes the roadway extensions proposed by the proposed Project but does not include the Harney / Candlestick Interchange.

Scenario 7: Cumulative Plus Project and Candlestick Interchange represents cumulative year conditions for the year 2040 consistent with the buildout of the Brisbane General Plan and regional growth associated with Plan Bay Area, including full buildout of the proposed Project. As shown in **Table 13**, this scenario includes the roadway extensions proposed by the proposed Project and includes the Candlestick Interchange as envisioned within the 2013 Project Study Report.

Scenario 8: Cumulative Plus Project with Candlestick Interchange and Recommended Improvements represents cumulative conditions for the year 2040 consistent with the buildout of the Brisbane General Plan and regional growth associated with Plan Bay Area, including full buildout of the proposed Project and implementation of the recommendations described in Chapter 7.

[34] Information about the C/CAG Travel Demand Model can be found at https://ccag.ca.gov/programs/travel-demand-model/



Descriptions of the land use and key infrastructure assumptions associated with each analysis scenario are summarized in **Table 13**.

Table 13: Analysis Scenario Summary

#	Scenario	Land Uses	Key Infrastructure				
			Geneva Configuration	Sierra Point Parkway	Lagoon Road Alignment	Bayshore Boulevard	Existing Alana / Harney or Proposed Candlestick Interchange
1	Existing	2022 conditions	Existing, with terminus at Bayshore Boulevard	Existing[1]	Existing	Existing	Existing
2	Mid-term Without Project	Projected background growth	Existing, with terminus at Bayshore Boulevard	Existing[1]	Existing	Existing	Existing + SF's Harney Way changes[2]
3	Mid-term Plus Phase 1	Proposed Baylands buildout west of Caltrain tracks, no land uses east of tracks; projected background growth	Partial Extension: Bayshore to Caltrain tracks, no Geneva bridge over Caltrain	Existing[1]	Existing	Existing	Existing + SF's Harney Way changes
4	Mid-term Plus Phase 1 with Recommended Improvements	Proposed Baylands buildout west of Caltrain tracks, no land uses east of tracks; projected background growth	Proposed in Specific Plan, including Geneva Avenue Bridge over Caltrain[4]	Existing + Extension Proposed in Specific Plan and Southbound U.S. 101 ramp terminal roundabout	Alignment Proposed in Specific Plan	Implementation of Bayshore Mobility Plan presented in **Appendix F**	Existing + New Candlestick Interchange from 2013 PSR
5	Cumulative Without Project	Cumulative buildout, existing Baylands	Existing, with terminus at Bayshore Boulevard	Existing[1]	Existing	Existing	Existing + SF's Harney Way changes
6	Cumulative Plus Project	Cumulative buildout + Full Baylands buildout	Proposed in Specific Plan	Cumulative Without Project + Extension Proposed in Specific Plan	Alignment Proposed in Specific Plan	Existing	Existing + SF's Harney Way changes + signalization of reconfigured southbound U.S. 101 ramp[3]

#	Scenario	Land Uses	Key Infrastructure				
			Geneva Configuration	Sierra Point Parkway	Lagoon Road Alignment	Bayshore Boulevard	Existing Alana / Harney or Proposed Candlestick Interchange
7	Cumulative Plus Project and Candlestick Interchange	Cumulative buildout + Full Baylands buildout	Proposed in Specific Plan[4]	Cumulative Without Project + Extension Proposed in Specific Plan	Alignment Proposed in Specific Plan	Existing	New Candlestick Interchange from 2013 PSR
8	Cumulative Plus Project with Candlestick Interchange and Recommended Improvements	Cumulative buildout + Full Baylands buildout	Proposed in Specific Plan[4]	Cumulative Without Project + Extension Proposed in Specific Plan and Southbound U.S. 101 Roundabout	Alignment Proposed in Specific Plan	Implementation of Bayshore Mobility Plan presented in **Appendix F**	New Candlestick Interchange from 2013 PSR

Notes: "Existing" refers to the current configuration for each roadway.

1. The City of Brisbane completed a new traffic signal in May 2024 at the U.S. 101 northbound ramp at Sierra Point Parkway after completion of the existing traffic analysis. This measure is considered an existing condition, although it was not included in the existing traffic analysis and was included in all mid-term and cumulative scenarios.
2. San Francisco has near-term plans to create a new signalized intersection at a reconfigured intersection of U.S. 101 northbound ramps, Alana Way, and Harney Way, and an adjacent signal at the intersection of Thomas Mellon Drive and Harney Way. These plans are required as a part of the land use growth that is included in the mid-term without project conditions, including Executive Park and Candlestick-Hunters Point. The City of San Francisco's latest plans are presented as a part of the Harney-101 Transit Crossing project: https://www.sfmta.com/projects/harney-101-transit-crossing-project
3. The proposed extension of Geneva Avenue to the existing intersection of U.S. 101 southbound ramps, Beatty Avenue, and Alana Way would, at a minimum, require this intersection to be signalized to accommodate the new intersection leg to accommodate the four mixed flow lanes and two bus rapid transit lanes on the Geneva Avenue extension. The Project does not propose any other changes to the geometry of the other legs of the intersection. Therefore, due to the lack of a second northbound receiving lane on Alana Way to accommodate two lanes of traffic from Geneva Avenue, the northbound approach of the Geneva Avenue extension was assumed to include one northbound through and one northbound right turn lane.
4. The Specific Plan does not show the connection between the Geneva Avenue extension and the new Candlestick Interchange, as identified in **Table 26** in the Consistency with Plans and Policies section. To analyze this scenario, Fehr & Peers assumed that the configuration of the Geneva Avenue extension east of Sierra Point Parkway matches the roadway configuration shown in the 2013 PSR.

Source: Baylands Specific Plan, Fehr & Peers, 2024.

Travel Demand Forecasting

These models represent how land use and the transportation network interact, and are built to show how changes in land use or transportation network inputs would change travel behavior. The memorandum *Travel Demand Model Review and Selection* (Fehr & Peers, January 24, 2020) presented in Appendix B contains a detailed assessment of the differences between the available travel models. These tools have not been adjusted to post-COVID-19 conditions given the high variability in travel conditions (including a potential return to normal traffic patterns) resulting from the pandemic. A review of the potential effects associated with the COVID-19 pandemic and other evolving trends is presented in **Appendix B**. Based on an assessment of level of detail and sensitivity within Brisbane, the City of Brisbane selected the C/CAG Model for use in assessing impacts for the Project.

The travel demand forecasting approach includes two models: the C/CAG-VTA Bi-County Transportation Model (C/CAG Model) and Brisbane's sub-area travel model. The C/CAG Model was used to estimate the regional travel patterns, including VMT, and the trip distribution inputs for Brisbane's sub-area travel model, which was then used to estimate vehicle travel times, daily and peak hour roadway volumes, and intersection LOS in the project study area. Additional information on the models used for this study is presented in **Appendix B** and summarized below.

C/CAG Travel Demand Model

The C/CAG Model is a trip-based regional travel demand model that considers regional land use patterns, approximated highway congestion, and connecting transit service within the nine-county Bay Area region. The C/CAG model was reviewed and updated through a series of diagnostic tests to assess the model's performance and reasonableness, and a series of refinements were made to the model inputs for land use, roadway network and transit service within Brisbane and adjacent communities. **Appendix B** includes the memorandum *Travel Demand Model Review and Selection* (Fehr & Peers, January 2020) that presents how these updates improve the C/CAG Model's effectiveness in reasonably estimating current travel patterns and changes in travel patterns in response to land use and transportation network changes. The publicly available information that C/CAG provides for the Travel Demand Model can be found at https://ccag.ca.gov/programs/travel-demand-model/.

Brisbane Subarea Model

Brisbane's sub-area model, developed with the PTV Visum software platform for this study, reflects origin-destination patterns consistent with the C/CAG Model and incorporates refinements to the level of detail in the local street network. The platform includes a combination of inputs from the macroscopic C/CAG regional model, the project travel demand outputs, and aspects of a detailed traffic micro-simulation model. This model accounts for more detailed factors than the C/CAG model, including roadway capacity, signal timing, traffic congestion, and local circulation networks, which allows for the assignment of traffic to local roadways and improved validation of traffic volumes on roadway segments and travel times compared to the regional C/CAG model. The sub-area roadway network includes most public streets and major driveways in the study area as shown in **Figure 3** and **Figure 8**.

Traffic Volume Forecasting

Future year traffic volume forecasts for mid-term and cumulative conditions were completed using the combination of the C/CAG and Brisbane Subarea Model noted above to assess off-ramp vehicle queues as described in **Chapter 6**. Each scenario described in the **Analysis Scenarios** section was coded into the C/CAG model and Brisbane's sub-area model to develop scenario specific peak hour traffic volume forecasts.

The future year C/CAG 2040 model was reviewed to confirm that the proposed Project was included. This model run represents the Scenario 6 - Cumulative Plus Project and Candlestick Interchange presented in **Table 13**. Therefore, development of the cumulative plus project scenario (Scenario 5) included replacing the future Candlestick Interchange with the existing interchange in the C/CAG Model. The without project scenarios included the removal of the proposed land uses and the reallocation of these land uses elsewhere in the region to maintain consistency with Plan Bay Area future year land use projections in the C/CAG Model. The region used to reallocate growth included San Francisco and San Mateo Counties to represent the Project's role in meeting market demand for the surrounding communities, while not changing the total amount of regional growth expected under this horizon year. Mid-term scenarios were coded with the proposed Project land uses and infrastructure network and other background model changes were made to reflect the 2035 conditions as presented in **Appendix B**.

The C/CAG model was used to develop the trip generation and trip distribution patterns for the Baylands Subarea Model, except for the proposed Project. C/CAG's trip distribution patterns for the project site were applied to the project trip generation results presented in **Chapter 5** in the Baylands Subarea Model to assign project-generated vehicle trips to the study roadway network for all plus project scenarios.

Vehicle-Miles Traveled Analysis

The methodology for assessing and estimating VMT for this study – in terms of potential screening opportunities and use of the C/CAG Travel Demand Model – is described below.

Potential Screening Opportunities

VMT screening is a process related to reviewing the location and operating parameters of land use projects and programs to determine if a project or program does not need to perform a VMT analysis because it is presumed to generate a low amount of VMT. OPR's *Technical Advisory* provides a number of potential screening criteria, including:

- Development in a low VMT generating area per the C/CAG travel model (relative to suggested CEQA impact criteria presented in the *Technical Advisory*);
- Development located within a one-half mile of an existing major transit stop or existing stop along a high-quality transit corridor;
- Development in infill locations that are (1) 100 percent affordable and (2) in an area where a jobs/housing imbalance exists such that the infill development would promote shorter commute trips;



- Small developments that generate or attract fewer than 110 trips per day;
- Local-serving retail, which tends to shorten trips and reduce VMT; or
- Minor transportation projects that that would not lead to a substantial increase in VMT, such as those that reduce the number of through lanes or add pedestrian or bicycle facilities.

Development projects within a high-quality transit corridor must include the following features to qualify for VMT screening:

- have a floor area ratio of more than 0.75,
- include no more than the minimum parking required by the City of Brisbane,
- be consistent with the Metropolitan Transportation Commissions' (MTC) Sustainable Communities Strategy (SCS), and
- the project cannot result in a reduction of affordable residential units.

Although components of the Project meet the above recommended screening criteria, such as the development within one-half mile of Caltrain or the T Third and locally serving retail or related uses such as hotels, the proposed Project as a whole does not meet the VMT screening criteria described above. As noted previously, screening only refers to an opportunity to bypass the need for a VMT analysis; a project not meeting screening criteria may be found to generate less-than-significant impacts (without or with recommendations).

Travel Demand Model Methodology

As noted above, a travel demand forecasting model is required to provide a complete estimate and accounting of VMT effects for land use projects and the C/CAG Model was selected for use in assessing impacts for the Project. Use of the C/CAG model for VMT purposes allows for accurate comparisons of the project's per capita VMT to the region as a whole, and also allows for an assessment of how the project would affect regional VMT, taking into account general shifts in land use patterns and travel demand. The C/CAG model allows for the evaluation of the following types of VMT:

- **Home-based VMT** only includes trips made by residents of the study area that begin or end at home.
- **Home-based work VMT** only includes trips made by employees that work in the study area that travel directly between home and work (such as a commute trip).
- **Total VMT** includes all trips within the selected geographic area, including those that are neither home-based nor work-based. Total VMT can be either based on project-generated VMT (VMT to and from the site or study area, including trips to or from outside the study area) or boundary VMT (all vehicle miles within the study area, including trips that are just passing through), as illustrated in **Figure 2**.
    - Project-generated VMT would address all trips to and from a specific project site such as the Baylands.

- Boundary VMT would include all trips within a specific geographic area, such as trips within the Baylands (including trips passing through the site on roadways such as Geneva Avenue extension), the City of Brisbane, San Mateo County, or the nine-County Bay Area region.

Home-based VMT and home-based work VMT per employee are the appropriate VMT metrics for the proposed Project to reflect its residential and employment uses. Home-based VMT reflects how close a residence is to jobs, shopping, and other amenities. Home-based work VMT per employee reflects how close a workplace is to employee residences. The home-based work VMT per employee is specific to work trips, which helps it compare office or other employment projects across different locations. This analysis focuses on the residential and employment trips because these are the dominant uses, while the potential for ground floor retail, hotel, and other supporting land uses are intended to provide a mix of land uses that provide the future residents, employees, and visitors a range of amenities that can reduce the need for driving longer distances for daily errands or activities.

This analysis also includes an evaluation of the full buildout of the project on total regional VMT within the nine-County Bay Area region. This VMT methodology is proposed by OPR and accounts for the effects of the proposed retail components of the Project and the combined effects of the proposed land use and transportation facilities that would support future residents and employees at the project site. This includes the effect land uses within the Project site that could be presumed to be less than significant due to their locally serving nature based on OPR's guidance, such as affordable housing, retail, hotels, or other community-serving amenities and public facilities, such as schools, libraries, parks, fire stations, and sustainable infrastructure. While OPR does not specify an approval for all of these land use types, for both retail and transportation facilities, OPR recommends the use of a total VMT metric to evaluate whether the project would increase total VMT. OPR recommends evaluating projects against regional VMT as the baseline because neither the local city or county level geographic area is robust enough to capture the full length of most trips or evaluate the interaction of the project in a regional setting. Therefore, the City has utilized the nine-county Bay Area region as the geographic boundary for the assessment, which reflects the regional nature of large projects such as this project, and particularly office employment in the Bay Area.

Brisbane has not formally adopted VMT policies, including identifying appropriate thresholds or screening criteria. However, the CARB Climate Change Scoping Plan is a document produced every four to five years that assesses progress towards the state's 2030 Greenhouse Gas Reduction Goal. The Final 2022 CARB Scoping Plan[35] indicates that to meet statewide greenhouse gas reduction goals, statewide VMT must decrease by 30 percent per capita by 2045. This is more conservative than the SB 743 technical guidance provided by OPR in December 2018, which recommended "per capita or per employee VMT that is 15 percent below existing development." (OPR Technical Advisory p. 10.) Thus, Brisbane currently expects that projects would need to generate VMT per capita levels at least 30 percent below the regional average to achieve a finding of less-than-significant impacts under CEQA. CARB has not established reduction

[35] California Air Resources Board Final 2022 Scoping Plan Update https://ww2.arb.ca.gov/our-work/programs/ab-32-climate-change-scoping-plan/2022-scoping-plan-documents

goals by individual land uses in a manner comparable to the OPR Technical Advisory. Therefore, the City has applied this threshold to all of the land uses. Considerations about the limitations to VMT impact analyses are presented in **Appendix B**.

Table 14 presents VMT per capita that represents 30 percent below the regional average based on the C/CAG model.

Table 14: Vehicle Miles Traveled Per Capita Threshold

Land Use	Bay Area Regional Average	30 Percent Below Regional Average
Residential	12.8	9.0
Employment	15.0	10.5

Source: C/CAG Travel Demand Model; Fehr & Peers, 2023.

Traffic Operations Analysis – Vehicle Queuing at Freeway Ramps

Fehr & Peers prepared a traffic operations analysis for the purpose of estimating the extent of vehicle queues at off-ramps in the study area to support the assessment of compliance with Brisbane's General Plan Policy C.3 "Design turning movements and traffic signal timing at freeway interchanges cause queueing of vehicles from the intersection onto the freeway mainline" and the potential for this condition to result in hazardous conditions in the study area. This fulfills the recommendation stated in Caltrans' LDIGR Safety Review Practitioners Guide (December 2020)[36] to review off-ramp queues when "Queuing at off-ramps resulting in slow or stopped traffic on the mainline or speed differentials between adjacent lanes." Traffic conditions at study locations were evaluated using methods developed by the Transportation Research Board (TRB), as documented in the *Highway Capacity Manual, 7th Edition* (HCM 7th Edition) for vehicles. The existing Alana and Harney Way interchange, Geneva Avenue extension, and future Candlestick / Harney Way interchange were analyzed using VISSIM, a microsimulation analysis tool that accounts for the congestion interactions between tightly spaced intersections. As congestion increases, use of deterministic traffic modeling tools may not fully reflect the extent of vehicular queuing and spillover effects between intersections. The other study intersections were analyzed through the Baylands Subarea Model using the Visum platform.

[36] Caltrans LDIGR Safety Review: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf



5. Project Travel Demand

Project travel demand refers to the new increase in vehicle, transit, pedestrian, and bicycle trips generated by the proposed Project and the assignment of Project-generated vehicles to the transportation network. The project travel demand estimates are presented in this report to support the CEQA assessments of traffic noise and traffic hazards relating to freeway ramp queues and the mixing of personal vehicles, transit vehicles, bicyclists, and pedestrians. The travel demand process follows the four-step model of estimating trip generation, mode split, trip distribution, and trip assignment. This chapter presents the Project's trip generation and mode split steps. The trip distribution for vehicle trips was completed using C/CAG's travel model and vehicle trips were assigned to roadways within the study area using the City's sub-area traffic assignment model as described in Chapter 4.

Due to the size and complexity of the project, Fehr & Peers developed a custom trip generation methodology that accounted for the location, size of the project with multiple districts, mix of land uses, and required TDM program elements. The first section of this chapter presents the trip generation and mode split methodology, followed by the results of this analysis in the following section. Additional information supporting the use of the methodology is presented in **Appendix C**.

Methodology

Transportation professionals typically estimate external vehicle trips using trip generation methodologies provided by the Institute of Transportation Engineers (ITE) Trip Generation Manual, 11th Edition (2021). The number of external vehicle trips is used in this study to support the CEQA assessments of traffic noise and traffic hazards as noted above. ITE provides estimated rates based on national data for daily trips and the AM and PM peak hours when traffic volumes are the highest on adjacent streets. The ITE trip generation methodology is based on the number of units and type for residential uses and building square footage or number of employees for commercial land uses and therefore does not account for projects that are compact, have a mix of uses within and near to the site, and are served by transit, such as the proposed Project. Therefore, the ITE trip generation methodology by itself would underestimate the amount of walking, bicycling, and transit trips and overestimate the amount of vehicle trips generated by this project. To better account for travel within the mixed-use project site and travel by non-automobile modes, this methodology has a two-step process that includes estimating the Project's Trip Generation using the ITE trip generation methodology followed by estimating the Project's Mode Split using the Environmental Protection Agency's (EPA's) MXD methodology[37] and the CAPCOA Handbook[38]. These two

[37] For more information on the MXD+ methodology please visit https://www.fehrandpeers.com/blog/mxd/ or see *Getting Trip Generation Right Eliminating the Bias Against Mixed Use Development* by the American Planning Association, May 2013. This is presented in **Appendix C**.

[38] California Air Pollution Control Officers Association (CAPCOA) *2022 Handbook for Analyzing Greenhouse Gas Reductions, Assessing Climate Vulnerabilities, and Advancing Health and Equity*

steps are presented below with additional detail substantiating this methodology presented in **Appendix C**.

Trip Generation

The methodology for the residential and commercial component is presented below followed by a description of the allocation of land uses between different mixed-use zones.

Residential

The residential component of the project was analyzed using trip generation rates per dwelling unit for attached single family (ITE land use code 215) and low-, medium-, and high-rise multifamily housing (ITE land use code 220 through 222). As presented in **Appendix C**, the type of residential land use was based on the Specific Plan description and the market study *Fiscal Impact Analysis of the Baylands Specific Plan* by EPS (January 2022).

Commercial

The number of employees was used to estimate the trip generation for the office, biotech campus, and low-density commercial, and the solar farm and utility scale battery land uses to account for the fact that traditional office space has more employees per square foot than biotech or other low-density commercial uses that include labs and other research facilities. This approach accounts for the most likely types of employment uses in the Specific Plan area as documented in the market study, *Fiscal Impact Analysis of the Baylands Specific Plan* by EPS (January 2022). Although EPS' study used 450 square feet per employee for the Biotech Campus and Low-Density Commercial land uses, which is typical of life science or biotech employment centers in the Bay Area[39], the trip generation analysis uses a higher density of 350 square feet per employee to present a conservative analysis of traffic conditions consistent with other recent studies in the City of Brisbane. The employee trip generation rates for ITE land use code 710 General Office was used as this category has the largest dataset for employment-based land uses and represents the trip generating characteristics for the broadest range of potential employment land uses.

The project proposes ground floor retail throughout the various planning districts, including station-centered retail and a "shopping street" concept in the Icehouse District. To reflect the combination of local-serving and regional retail, trip generation was calculated using ITE Land Use 820, for retail centers over 50,000 square feet but below 150,000 square feet (the Project as analyzed includes a total of 102,200 square feet of retail). Retail trip generation was calculated for the project as a whole and allocated among districts based on the proportion of total retail square footage.

The trip generation estimates for the proposed hotel component are based on the number of hotel rooms consistent with the market study, *Fiscal Impact Analysis of the Baylands Specific Plan* by EPS

[39] Life science and R&D buildings typically have an employee density of 1 per 400 to 450 square feet due to the additional space required for lab uses. Per the study *San Jose Market Overview and Employment Land Analysis*, Strategic Economics, January 14, 2016.



(January 2022). Additional information on the trip generation methodology used for commercial land uses is presented in **Appendix C**.

Land Use Allocation

While most mixed-use projects are of a size that can be analyzed as a single unit, Fehr & Peers allocated Baylands land uses into seven zones as presented in **Table 15** and displayed in **Figure 13** for the trip generation analysis for the following reasons:

- The Project is large enough that some areas would operate semi-autonomously.
- The total amount of office space proposed by the Project exceeds the size of any of the sample sites used to develop the ITE trip generation rates. Therefore, the size of the office space within each zone allows for greater consistency with the underlying trip generation data and helps prevent any potential outlier effects due to the development's size.
- Land uses in the districts to the west of Caltrain would benefit from the mix of land uses within adjacent land uses. For example, residents of the Roundhouse district are within walking distance to the office space and retail services in the Icehouse Hill district, and therefore this interaction should be reflected in the trip generation.

Each of the seven zones were designed to account for the above factors. The Bayshore district contains low to high density residential, a moderate amount of office, retail, and hotel, and therefore can serve as a zone. Adjacent land uses from the Roundhouse and Icehouse Hill districts were combined into "Main Street" zones to contain a mix of residential, office, and retail. Icehouse Hill was further divided into zones with office and ancillary retail to prevent underestimating vehicle trips when using ITE methods. The Campus East district was also subdivided into North and South zones due to the amount of office land use, although they each contain exclusively office space.

Table 15: Traffic Analysis Zone Composition

Traffic Analysis Zone	Specific Plan Development District
Bayshore	Bayshore
Main Street West	Roundhouse (western portion)
	Icehouse Hill (northwestern portion)
Main Street East	Roundhouse (eastern portion)
	Icehouse Hill (northeastern portion)
Icehouse Hill Southeast	Icehouse Hill (southeastern portion)
Icehouse Hill Southwest	Icehouse Hill (southwestern portion)
Campus East - North	Campus East (northern portion)
Campus East – South	Campus East (southern portion)

Source: Fehr & Peers, 2023.

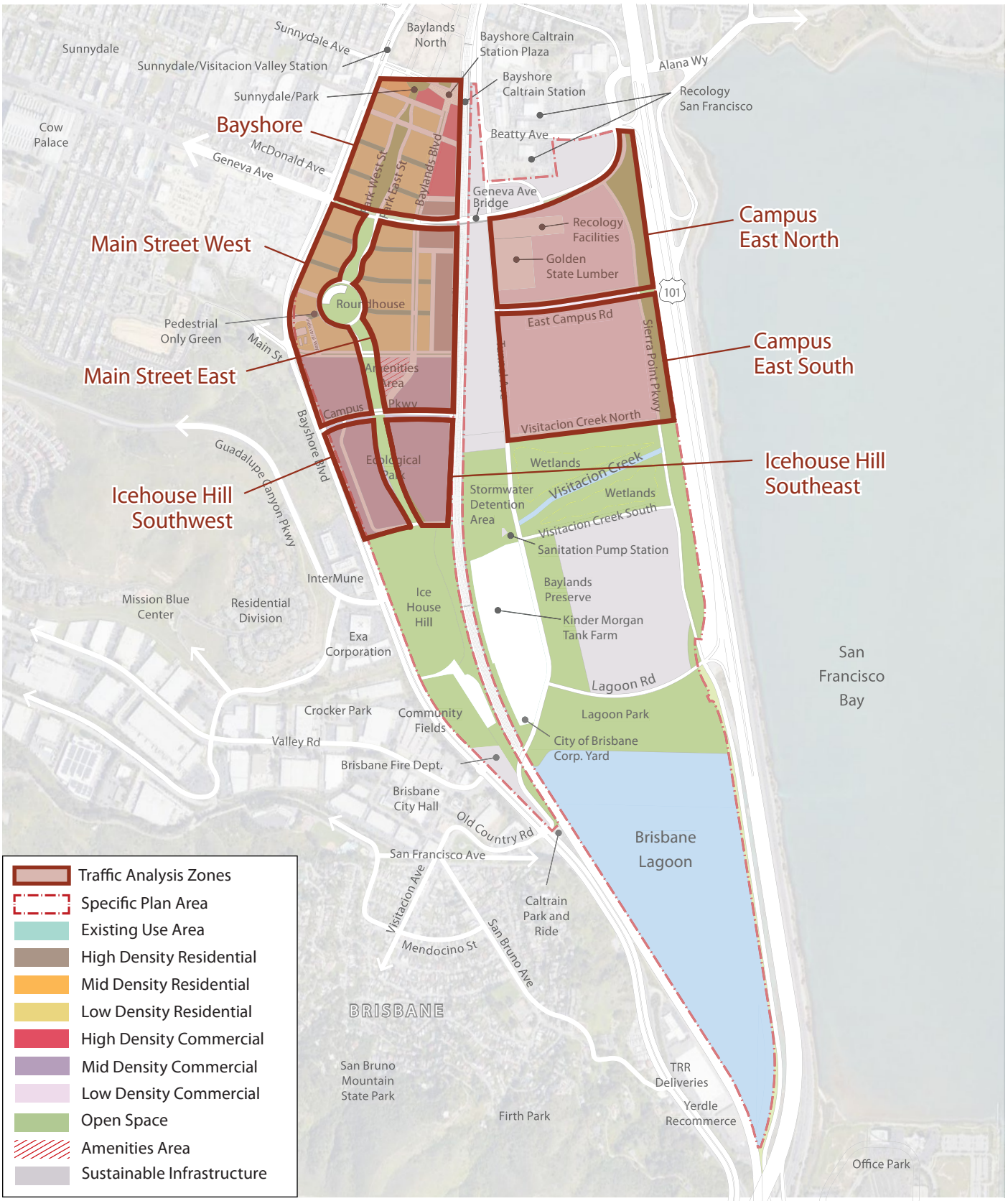


Figure 13

Trip Generation Zone Map by Site Plan

Land uses were allocated between trip generation zones based on the total number of dwelling units and commercial square footage presented in the *Fiscal Impact Analysis of the Baylands Specific Plan* prepared by EPS in January 2022. This approach accounts for the flexibility of the Specific Plan, which allows different build outs of localized areas within the overall maximum development envelope established through the maximum allowable density per block and per District shown in Chapter 3 of the Baylands Specific Plan. The land uses within each of the following zones are summarized in **Table 16**.

Table 16: Land Use by Traffic Analysis Zone

ITE Code	Land Use Category	Units	Phase 1					Full Buildout		Total
			Bayshore	Main Street West	Main Street East	Icehouse Hill Southeast	Icehouse Hill Southwest	Campus East North	Campus East South	
Residential Land Uses										
215	Attached Single Family	Dwelling Units	426	273	460	0	0	0	0	1,159
220	Multifamily Housing Low Rise	Dwelling Units	95	0	0	0	0	0	0	95
221	Multifamily Housing Mid Rise	Dwelling Units	102	0	245	0	0	0	0	347
222	Multifamily Housing High Rise	Dwelling Units	110	0	489	0	0	0	0	599
Non-Residential Land Uses										
710	General Office[1]	Employees (ksf)	1,694 (525)	2,049 (717)	1,869 (654)	3,087 (1,070)	2,662 (931.8)	3,203 (1,121)	3,940 (1,379)	19,509 (6,397.8)
820	Retail[2]	KSF	52	8	26.2	8	8	0	0	102.2
310	Hotel[3]	Rooms	800	0	0	0	0	0	0	800

Notes: KSF = thousand square feet

1. As presented in **Appendix C**, the office, biotech campus, and low-density commercial, and the solar farm and utility scale battery land uses are analyzed based on the number of employees using the ITE land use code 710 General Office to account for the trip generating characteristics of employees for the broadest range of potential land uses, including trips associated with parking.
2. The specific square footage and location for retail land use is based on the Specific Plan's intent to provide convenient retail services and was allocated to each zone based on whether ground floor retail was permitted in a given block, and using the retail square footage presented in the *Fiscal Impact Analysis of the Baylands Specific Plan (*EPS, January 5, 2022). As noted in the Project Description, this may include cafés or other active uses within the public facilities and open space components of the Specific Plan. These uses are consistent with ITE use 820 (Shopping Center).
3. The number of hotel rooms is based on estimates provided in *Fiscal Impact Analysis of the Baylands Specific Plan* by EPS (January 2022).

Source: Fehr & Peers, 2023.

Mode Split

The number of trips internal to the project site and by walking, bicycling, or transit are estimated using a combination of the EPA's MXD methodology for the Project's design features and the CAPCOA Handbook for the TDM measures required per the City's TDM Ordinance that are not captured within the MXD methodology.[40] The MXD methodology produces a more accurate trip generation estimates compared to the stand alone ITE published rates because it leverages data from local sources such as the California Household Travel Survey and regional model information to account for a project's geographic setting, mix of project site and nearby land uses, neighborhood demographics, design of the pedestrian and bicycling environment, and proximity to regional transit. The MXD methodology accounts for internalized trips (trips that occur within a mixed-use site between land uses) and non-automobile trips (trips that occur by walking, bicycling, or transit to nearby land uses or via regional transit) and subtracts these trips from the ITE trip generation estimates. The CAPCOA Handbook includes additional research about the effectiveness of TDM program features that are not accounted for in the MXD methodology nor are present in the existing communities surrounding the Project site. The result is an estimate of external vehicle trips to the project site accounting for the project's geographic setting, mix of nearby land uses, neighborhood demographics, design of the pedestrian and bicycling environment, proximity to regional transit, and TDM measures. This is consistent with the ITE *Trip Generation Handbook* (3rd Edition) which indicates that "studies have concluded that the vehicle trip generation data contained in the Manual overestimates vehicle trips generated by development and redevelopment in compact, urbanized areas where walking, bicycling, and transit are viable modes of transportation" and recommends against using unadjusted vehicle trip generation rates for such sites.[41]

The following sections present the MXD methodology and assessment of the TDM plan effectiveness.

MXD Methodology

The default internalization and the mode shift reduction for external vehicle trips in the MXD methodology is based on a nationwide study of developments in different geographic locations and urban and suburban contexts. However, those locations and contexts often differ from those surrounding the Project and therefore, the external mode shift is not specific to the Project's context. Additionally, there are several features of the Project that would allow for travel by walking, bicycling, or transit compared to the existing setting.

First, transit service near the Project is expected to increase before the Project opens. The Project is located near the Brisbane Caltrain station. While the Brisbane station is currently served by one train per hour, service levels will increase in the near future. Following the completion of the under construction Caltrain Modernization project in 2024, Caltrain service levels will increase to two trains per hour per

[40] For more information on the MXD+ methodology please visit https://www.fehrandpeers.com/blog/mxd/ or see *Getting Trip Generation Right Eliminating the Bias Against Mixed Use Development* by the American Planning Association, May 2013. This is presented in **Appendix C**.

[41] Institute of Transportation Engineers *Trip Generation Handbook, 3rd Edition* (2017), page 8.

direction at the Brisbane Station.[42] In the late 2020s, service at Brisbane is expected to further increase to a total of four trains per hour per direction, although this service expansion is not currently funded and is therefore not accounted for in the mode share adjustments for the Project. There will also be an increase in San Francisco's Muni service nearby through Muni Forward and the planned Southeast Muni expansion.[43] Under the full buildout of the project with the Geneva Avenue extension, the Project accommodates the potential for bus rapid transit along Geneva Avenue and has proposed shuttle services to connect areas throughout the site. However, these features are not included within the base mode share estimates for the Project, as presented in **Appendix C**.

Second, the Project is designed to support non-automotive modes of travel through the pedestrian- and bicycle-oriented design within the site and connecting to adjacent neighborhoods, such as Central Brisbane and Visitacion Valley in San Francisco. This is primarily represented through the intersection density that creates a walkable environment within the site and convenient connections to nearby neighborhoods.

The resulting combined transit, walk, and bicycle mode share by zone that accounts for the above factors is presented in **Table 17**. Based on a review of the following data sources, these mode share estimates were determined to be reasonable:

- American Community Survey 5-Year Estimates (2018) – includes mode share used for commute or work trips for census tracts within one mile of the Project site;
- California Household Survey (2012) – includes mode share for different trip types and directions based on a detailed travel survey for census tracts within one mile of the Project site; and
- San Francisco Travel Demand Guidelines – includes average mode share for different place types within San Francisco. Place Type 3 represents "urban low density" areas such as the adjacent Visitacion Valley and Bayshore neighborhoods. As these are adjacent to the Project site, Place Type 3 closely matches the context of the Project.

Additional information about the calculations and data sources for the MXD methodology are presented in **Appendix C.** It is important to note that these data sources do not reflect the effect of the Project's required TDM measures assessed in the following section, given that such programs are limited at existing land uses due to historic development patterns.

[42] For more information on Caltrain Electrification visit https://www.caltrain.com/projects/electrification, and how the Caltrain Business Plan with affect the City of Brisbane, please visit: https://caltrain2040.org/wp-content/uploads/CBP_CIA_R2_Booklet_Brisbane-2.pdf

[43] For more information on Muni expansion in southeast San Francisco, please visit: https://www.sfmta.com/projects/southeast-muni-expansion



Table 17: Adjusted External Vehicular Trip Reductions due to Transit/Walking/Biking Trips

Time Period	Bayshore	Main Street West	Main Street East	Icehouse Hill Southeast	Icehouse Hill Southwest	Campus East North	Campus East South
Daily	20%	22%	21%	23%	23%	23%	23%
AM	22%	23%	24%	23%	23%	23%	23%
PM	20%	22%	22%	23%	23%	23%	23%

Source: Fehr & Peers, 2023.

As noted above, the MXD methodology also accounts for the internalization of trips within a project to account for the mix of complementary land uses. For example, providing retail services within walking distance of homes or offices allows people to replace vehicle trips with walking trips compared to the suburban locations used to create the ITE Trip Generation manual. The default internalization in MXD is based on a nationwide study of developments in different geographic locations and urban and suburban contexts and is appropriate for this Project context. **Table 18** presents the internalization of trips that would not leave each traffic analysis zone based on the MXD methodology. Zones with the highest mix of uses, including the Bayshore and Main Street zones, would have the highest levels of internalization. Trips between different Baylands traffic analysis zones are not captured within this table although they would include walking, bicycling, and transit trips presented in **Table 17**. This approach to estimating internalized trips accounts for the size of the project site and the likelihood that trips within adjacent areas of the Project would occur by non-automobile modes, while some trips between farther destinations would include travel by automobile.

Table 18: Adjusted Trip Internalization Rate

Time Period	Bayshore	Main Street West	Main Street East	Icehouse Hill Southeast	Icehouse Hill Southwest	Campus East North	Campus East South
Daily	6%	5%	8%	2%	1%	4%	4%
AM	9%	6%	11%	2%	1%	4%	3%
PM	9%	5%	9%	1%	1%	3%	2%

Source: Fehr & Peers, 2023.

TDM Assessment

Table 19 presents the results of an evaluation of the required TDM measures for consistency with the City of Brisbane Municipal Code 10.52 using the CAPCOA Handbook. This assessment indicates that the TDM measures would reduce vehicle trip generation by an additional 16.4 percent beyond the estimates from the MXD methodology. As presented in **Appendix C**, design features that are incorporated within the MXD methodology are not included in the assessment of the TDM plan effectiveness to avoid double



counting of vehicle trip reductions. The Specific Plan proposed other TDM measures not listed in **Table 19** but are not included in the CAPCOA Handbook given the limited research supporting a quantifiable reduction, therefore quantitative reductions for these measures have not been taken in this analysis.

Table 19: TDM Plan Effectiveness

Features	Measures	Effectiveness
Land Use	• Affordable housing	1.1%
Transit	• Shuttle program • Transit incentives such as marketing or transit pass subsidies	6.3%
Active Transportation	• Low-stress pedestrian and bicycle facilities • Bicycle parking	2.2%
Parking & TDM	• Parking management strategies such as unbundled and priced parking • Other TDM strategies required by the City of Brisbane or C/CAG	7.9%
Total Vehicle Trip Reduction from TDM Measures Required by City of Brisbane Municipal Code 10.52		**16.4%[1]**

Notes:
1. Per the CAPCOA 2021 Handbook, the total TDM effectiveness is calculated by multiplying the effectiveness as follows to account for multiplicative dampening: 1-[(1-0.011) X (1-0.063) X (1-0.022) X (1-0.079)] = 0.164.

Source: Fehr & Peers, 2023.

Further reductions to single-occupancy vehicle travel may occur with planned transit facilities serving the proposed Project, such as the BRT service proposed in the Bi-County Study and additional Caltrain service as envisioned by the Caltrain Business Plan. However, quantitative credit for these reductions has not been included in the analysis. The full buildout of the Project would enable the BRT service by constructing a Geneva Avenue extension with BRT lanes. The required TDM program would support use of these modes through measures such as the transit incentives and parking management strategies.

OPR's December 2018 Technical Advisory on Evaluating Transportation Impacts under CEQA explains "When evaluating impacts to multimodal transportation networks, lead agencies generally should not treat the addition of new transit users as an adverse impact" (OPR Technical Advisory, p. 19). As also discussed in OPR's SB 743 amendment package transmittal letter "Legislative findings in Senate Bill 743 plainly state that CEQA can no longer treat vibrant communities, transit, and active transportation options as adverse environmental outcomes." Therefore, this study does not evaluate the effects of the Project on the crowding of transit vehicles.



Trip Generation Results

The Project's geographic setting, mix of nearby land uses, neighborhood demographics, design of the pedestrian and bicycling environment, and proximity to regional transit are estimated to reduce the amount of vehicle trips generated by these land uses by 25 to 30 percent compared to similar isolated, stand-alone land uses included in the ITE Trip Generation Manual. After accounting for the effectiveness of compliance with the City's TDM ordinance, the final vehicle trips would be approximately 40 percent lower than similar isolated, stand-alone land uses studied in the ITE Trip Generation Manual.

Table 20 presents the number of vehicle trips generated by the proposed Project on a daily basis and during the AM and PM peak hours. As presented in **Table 21**, the office land uses generate by far the largest amount of vehicle trips, with nearly 60 percent of daily vehicle trips and 80 to 90 percent of vehicle trips in the peak direction of the peak hours, which includes the inbound direction to the project site in the AM peak hour and the outbound direction from the project site in the PM peak hour. **Appendix C** presents the results by zone and land use and includes a comparison of the MXD trip generation results to other data sources, such as San Francisco's travel demand data and the results of the C/CAG model.

Table 20: Overall Trip Generation Results

Trip Type	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Phase 1 (West of Caltrain right-of-way)							
Total Trips (Unadjusted)	58,886	4,913	1,536	6,448	1,973	4,271	6,244
Internalized and Non-Auto Trips	-15,421	-1,401	-467	-1,868	-565	-1,177	-1,742
Sub-total	**43,465**	**3,512**	**1,069**	**4,580**	**1,408**	**3,094**	**4,502**
TDM Reductions (16.4% reduction)	-7,128	-576	-175	-751	-231	-507	-738
Total Phase 1 Vehicle Trips	**36,337**	**2,936**	**894**	**3,829**	**1,177**	**2,587**	**3,764**
Phase 2 (Campus East District east of Caltrain right-of-way)							
Total Trips (Unadjusted)	15,515	2,564	350	2,914	353	1,718	2,071
Internalized and Non-Auto Trips	-3,833	-692	-95	-788	-85	-417	-502
Sub-total	**11,682**	**1,872**	**255**	**2,126**	**268**	**1,301**	**1,569**
TDM Reductions (16.4% reduction)	-1,916	-307	-42	-349	-44	-213	-257
Total Campus East Vehicle Trips	**9,766**	**1,565**	**213**	**1,777**	**224**	**1,088**	**1,312**
Full Buildout							
Total Trips (Unadjusted)	74,401	7,477	1,886	9,362	2,326	5,989	8,315
Internalized and Non-Auto Trips	-19,254	-2,093	-562	-2,655	-650	-1,594	-2,244
Sub-total	**55,147**	**5,384**	**1,324**	**6,707**	**1,676**	**4,395**	**6,071**
TDM Reductions (16.4% reduction)	-9,044	-883	-217	-1,100	-275	-721	-996
Total Project Vehicle Trips	**46,103**	**4,501**	**1,107**	**5,607**	**1,401**	**3,674**	**5,075**

Source: Fehr & Peers, 2023.

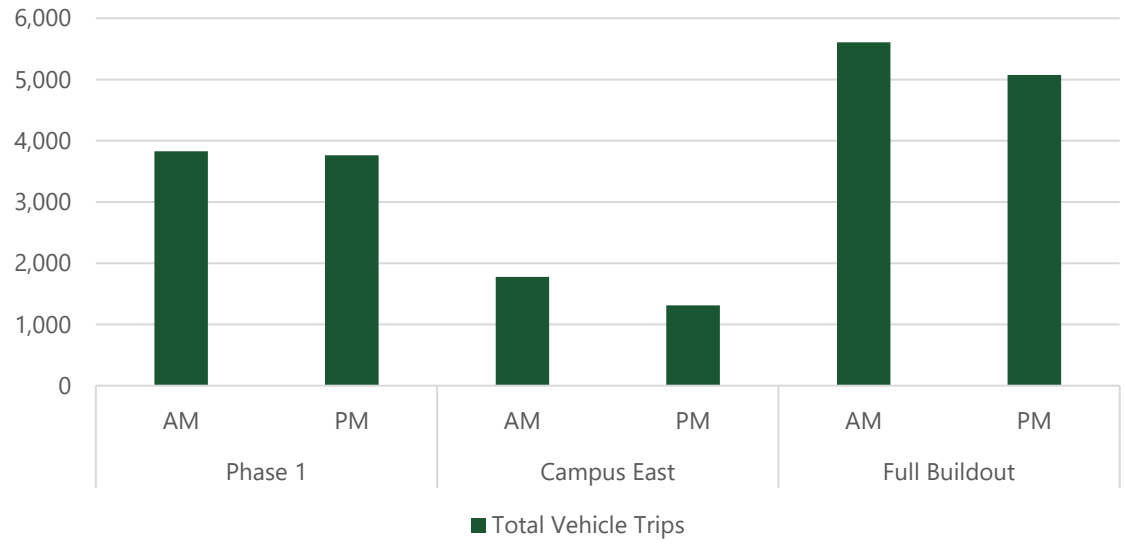
Table 21: Full Buildout Trip Generation Results by Land Use

Trip Type	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Total Vehicle Trips	**46,103**	**4,501**	**1,107**	**5,607**	**1,401**	**3,674**	**5,075**
Residential Vehicle Trips and Percent of Total Vehicle Trips	8,634	170	384	561	376	282	661
	19%	*4%*	*35%*	*10%*	*27%*	*8%*	*13%*
Office Vehicle Trips and Percent of Total Vehicle Trips	26,608	4,063	540	4,594	591	2,935	3,519
	58%	*90%*	*49%*	*82%*	*42%*	*80%*	*69%*
Retail Vehicle Trips and Percent of Total Vehicle Trips	5,749	135	81	217	261	288	551
	12%	*3%*	*7%*	*4%*	*19%*	*8%*	*11%*
Hotel Vehicle Trips and Percent of Total Vehicle Trips	5,111	132	102	235	173	169	344
	11%	*3%*	*9%*	*4%*	*12%*	*5%*	*7%*

Source: Fehr & Peers, 2023.

Figure 14 presents peak hour vehicle trip generation for Phase 1, Campus East, and the full project buildout.

Figure 14: Comparison of Peak Hour Project Vehicle Trips



Changes to Travel Patterns Associated with COVID-19

Fehr & Peers conducted a scenario planning exercise with Metis to evaluate how different COVID pandemic trends could affect VMT, trip generation, and transit ridership in the City of Brisbane. The purpose of this analysis was to account for potential travel demand changes associated with COVID that might affect the Baylands Specific Plan, such as changes to transit use and work from home activities. As presented in **Appendix B** in the October 2022 memorandum, *Baylands Specific Plan: COVID Scenario Planning Results* (Fehr & Peers), the results of this exercise indicated that total vehicle travel would likely decrease by five to 10 percent due to the combination of these factors. Given that these factors would likely slightly decrease total vehicle travel, Baylands trip generation estimates were not adjusted downward and thereby represent a conservatively high assessment of potential vehicle traffic for this transportation study.

6. Analysis Results

VMT Results

This section summarizes project-generated per capita VMT (**Table 22**) and the project's effect on regional VMT (**Table 23**) at full buildout. VMT was calculated using the methods discussed in **Chapter 4**, using the C/CAG travel demand forecasting model and the CAPCOA Handbook to estimate the effect of the required TDM measures. Use of the C/CAG model for VMT purposes allows for accurate comparisons of the project's per capita VMT to the region as a whole, and also allows for an assessment of how the project would affect regional VMT (i.e. displacement of existing trips), taking into account general shifts in land use patterns and travel demand.[44]

VMT per capita is represented as the home-based VMT per resident and the home-based-work VMT per employee as described in **Chapter 4**. **Table 22** indicates that the Project would generate slightly less VMT per capita under the cumulative plus project scenarios compared to the mid-term scenario, reflecting that as the city and region densify, residents and employees are, on average, generating less VMT.

The project's effect on VMT analysis compares the proposed Project to a cumulative without project scenario where the land use growth included within the project would be spread between San Francisco and the rest of San Mateo County. Cumulative with and without the project scenarios therefore maintain the same total regional land use growth consistent with Plan Bay Area, located in the two adjacent counties to the project site. **Table 23** indicates that the project results in a reduction in regional VMT compared to the no project scenario, both with and without construction of the proposed interchange.

[44] The MXD methodology for trip generation allows for disaggregating trips by land use, while using the C/CAG model for VMT allows for an accurate comparison with regional VMT rates. More information and a comparison of the two methods is included in **Appendix C-5**.

Table 22: Daily Vehicle Miles Traveled Per Capita

Land Use	Existing Bay Area Regional Average	Buildout of Phase 1 (Mid-Term 2035)	Full Buildout of Project (2040 No Interchange)	Full Buildout of Project (2040 With Interchange)
C/CAG Model Results				
Residential	12.8	9.8	9.6	9.5
Employment	15.0	11.2	11.0	11.0
Project VMT Results Accounting for Required TDM Measures[1]				
Residential	12.8	8.2	8.0	7.9
Employment	15.0	9.4	9.2	9.2

Notes:
1. While the C/CAG model accounts for the land use factors such as density of the project, diversity of land uses, and distance to transit that are accounted for in the MXD methodology, it does not account for the TDM measures. Therefore, the effect of the required TDM measures (16.4% reduction in VMT as presented in Chapter 5) is presented separately.

Source: C/CAG Travel Demand Model; Fehr & Peers, 2023.

Table 23: Total Daily Vehicle Miles Traveled

Land Use	Cumulative Without Project	Cumulative Plus Project Buildout 2040 No Interchange	Cumulative Plus Project Buildout 2040 With Interchange
Nine-County Bay Area	197,771,000	197,691,000	197,666,000
Change	--	-<0.1%	-<0.1%

Notes:
1. VMT results from C/CAG Travel Demand Model are presented in this table because the effect of the required TDM measures would further reduce VMT generated by the region but would be imperceptible for the results presented in this table at the scale of the nine-County Bay Area region.

Source: C/CAG Travel Demand Model; Fehr & Peers, 2023.

Traffic Operations Results – Vehicle Queueing at Freeway Ramps

Table 24 presents the vehicle queues at the U.S. 101 off-ramps for the mid-term and cumulative scenarios with and without the project. Vehicle queues are expected to exceed the off-ramp storage capacity and routinely cause vehicles to back up onto the freeway mainline while waiting to exit the freeway under most scenarios due to the land use growth and project-traffic increases through the study area by the mid-term 2035 conditions and worsen by 2040 cumulative conditions. Land use growth expected by mid-term 2035 without project conditions would increase traffic congestion on Alana Way under U.S. 101 and the northbound Harney Way off-ramp in the PM peak hour such that additional Project traffic would be added as vehicles queued on the northbound off-ramp, causing overall vehicle queues to routinely exceed the storage capacity of the northbound off-ramp at Harney Way. Vehicle queuing conditions would continue to worsen under cumulative 2040 conditions due to background land use growth.

The Candlestick Interchange as proposed through the Bi-County Study and 2013 Project Study Report would adequately serve the off-ramp volumes at this interchange and no queues are anticipated to routinely exceed the storage. However, vehicle queues on the Sierra Point Parkway southbound ramp would continue to exceed the ramp storage during both peak hours. The Project would shorten the storage length of the southbound off-ramp by relocating Lagoon Road north to a new four-way signalized intersection at the U.S. 101 ramps and Sierra Point Parkway. **Appendix D** presents the traffic volumes and vehicle queue information at these off-ramps.

Table 24: 95th Percentile Vehicle Queues at U.S. 101 Off-Ramps that Exceed the Ramp Storage Length and Extend to the Mainline

U.S. 101 Off-Ramp	Storage Length[1]	Mid-Term 2035		Cumulative 2040		
		Without Project	Plus Project	Without Project	Plus Project	Plus Project and Candlestick Interchange
Candlestick Interchange Southbound Off-Ramp[2]	1,275 (1,025)	Adequate storage	Adequate storage	Adequate storage	**Exceed** (AM and PM)	Adequate storage
Candlestick Interchange Northbound Off-ramp[2]	3,250 (2,500)	Adequate storage[3]	**Exceed** (PM Only)[3]	**Exceed** (PM Only)	**Exceed** (PM Only)	Adequate storage
Sierra Point Southbound Off-Ramp	1,370 (1,050)	Adequate storage	Adequate storage	Adequate storage[4]	**Exceed** (AM and PM)[4]	**Exceed** (AM and PM)[4]
Sierra Point Northbound Off-Ramp[5]	1,620	Adequate storage	Adequate storage	Adequate storage	Adequate storage	Adequate storage

Notes:

1. Storage length with the Project at Sierra Point Parkway or with the Candlestick Interchange are shown in parentheses.
2. Candlestick Interchange includes existing on- and off-ramps at Beatty Avenue, Alana Way, and Harney Way.
3. PM peak hour 95th percentile off-ramp queues would extend to the mainline but not exceed the gore point. Without the project, less than 75 percent of the vehicle demand would be served during the peak hour due to downstream local roadway congestion that limits the throughput of the off-ramp. The Project would increase the potential for off-ramp vehicle queues to routinely extend to the mainline by adding vehicles to the queues on the off-ramp and on Alana Way under U.S. 101 without the project.
4. Without the Project, 95th percentile queues would extend over 1,300 feet and fill the off-ramp but would not extend onto the mainline. The Project would relocate the stop control for this intersection from the existing Lagoon Road intersection to a new four-way intersection with Lagoon Road and Sierra Point Parkway (including the new northern leg for the extension) at the U.S. 101 southbound ramps. The Project would shorten the storage length for the off-ramp from 1,350 feet to approximately 1,050 feet in addition to adding the northern Sierra Point Parkway extension and signalizing the intersection.
5. The traffic signal that opened in April 2024 is included in the analysis of all future analysis scenarios. The worsening of vehicle queues at the Northbound off-ramp is associated with demand generated by land use growth at Sierra Point as the Project would contribute less than five percent of future traffic volumes, which does not represent a substantial contribution. Therefore, addressing these queues will be the responsibility of those pending but not approved projects.

Source: Fehr & Peers, 2024.

7. Impacts & Recommendations

This chapter presents the findings of the CEQA transportation impact analysis and recommendations to address the Project's impacts. This analysis includes site access and internal circulation for vehicles, pedestrians, bicycles, and emergency vehicles.

CEQA Significance Criteria

The following subsection outlines the CEQA significance criteria applied in the analysis.

CEQA Checklist Guidance

Appendix G of the *California Environmental Quality Act (CEQA) Guidelines* provides guidance on the elements of analysis to document the project's environmental effects on transportation. An affirmative answer to any of the following questions generally indicates a significant transportation impact would occur. Would the project:

- Conflict with a program plan, ordinance or policy addressing the circulation system, including transit, roadway, bicycle and pedestrian facilities?
- Conflict or be inconsistent with CEQA Guidelines section 15064.3, subdivision (b)?
- Substantially increase hazards due to a geometric design feature (e.g., sharp curves or dangerous intersections) or incompatible uses (e.g., farm equipment)?
- Result in inadequate emergency access?

The City of Brisbane has not formally adopted a standard set of thresholds of significance for transportation impact analyses. Based on Appendix G criteria and local considerations, the City has determined that the following thresholds will be used to determine whether the Project would have significant transportation impacts to inform recommendations presented in this transportation impact assessment.

Vehicle Miles Traveled

Although OPR provides recommendations for adopting new VMT analysis guidelines, lead agencies, such as the City of Brisbane, have the final say in designing their methodology to assess VMT and determine a relevant threshold. The significance threshold for VMT for this project is presented below, which accounts for both guidance from state agencies and the size and complexity of the proposed Project within the Brisbane context.

TRA-1: The Baylands Specific Plan would cause a significant impact if:

- Per capita VMT for home-based trips by Baylands residents would be greater than 30 percent below existing regional baseline per capita VMT for home-based trips by residents of the Nine-County Bay Area region;
- Per employee VMT for home-based trips to work by Baylands employees would be greater than 30 percent below existing regional baseline per employee VMT for home-based trips to work by employees within the Nine-County Bay Area region; or,
- Baylands development would result in an overall increase above existing conditions in regional (Nine-County Bay Area) or San Mateo County VMT.

These thresholds use two separate VMT methodologies including (1) and efficiency based metric (i.e. VMT per capita or per employee), and (2) Total VMT Traveled. Under either approach, OPR's Technical advisory allows reliance upon a comparison to baseline conditions as the project level and cumulative analysis. As discussed under OPR's Technical Advisory, "A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa." (OPR Technical Advisory p. 6.) OPR's Technical Advisory similarly notes that "When using an absolute VMT metric, i.e., total VMT…analyzing the combined impacts for a cumulative impact analysis may be appropriate." (OPR Technical Advisory, p. 6.) Consequently, while the analysis provides future year cumulative scenarios, these are not required for the purposes of CEQA.

Consistency with Plans and Policies

TRA-2: The Baylands Specific Plan would cause a significant impact if:

- Inhibit pedestrian or bicycle travel or use of transit.
- Conflict with plans related to the use of transit, bicycle, or pedestrian travel modes expressed in the following plans:
    - Brisbane General Plan
    - Plan Bay Area 2050
    - Bay Trail Regional Plan

Hazards

For purposes of CEQA, hazards refer to engineering aspects of a project (e.g., speed, turning movements, complex designs, distance between street crossings, sightlines) that may cause a greater risk of collisions that result in serious or fatal physical injury than a typical transportation facility. Greater risks could be due to the combination of high vehicle travel speeds and design features that will obstruct, hinder, or impair reasonable views by drivers traveling on the same street or restrict the ability of a driver to stop the motor vehicle short of a collision. This analysis focuses on hazards that could reasonably stem during



construction or routine operations of the proposed Project, and the potential for the proposed Project to exacerbate a baseline hazardous condition or create a new potentially hazardous condition to people walking, bicycling, or driving, or for public transit operations. This assessment is consistent with the Caltrans recommended guidance, LDIGR Safety Review Practitioners Guide. The significance threshold for hazards for this project is presented below.

TRA-3: The Baylands Specific Plan would cause a significant impact if it would result in hazards to vehicles, bicyclists, or pedestrians.

Emergency Access

TRA-4: The Baylands Specific Plan would cause a significant impact if:

- An inadequate number of access points were to be provided such that evacuation operations would interfere with emergency response; or
- Roadway or site design would hinder the ability of emergency service operators to access streets and buildings or to conduct operations within the Specific Plan area.

Project Impacts

This section describes the Project's impact with Phase 1 under mid-term buildout and with the full buildout of the Project, based on the significance criteria described in the section above. As noted in **Chapter 4**, given the long period required to prepare the site for the project buildout and then buildout of the project itself, 2035 represents the time that Phase 1 of the Project could reasonably be complete and fully occupied such that normal operating conditions would occur. 2040 represents the time that the full buildout of the Project could reasonably be complete and fully occupied such that normal operating conditions would occur. Full Buildout of the Project includes Phase 1 plus the land use growth to the east of Caltrain (Campus East District) and the roadway extensions of Geneva Avenue and Sierra Point Parkway. Comparing and assessing impacts of the proposed Project with current/existing conditions with respect to consistency with plans and policies, hazardous conditions, or emergency vehicle access would provide an inaccurate assessment and mislead the public and decision makers into believing that there would be no or few changes to existing conditions surrounding the project site during the site preparation and construction phases. The 2035 and 2040 cumulative scenarios include local and regional land use growth and transportation network changes that are reasonably foreseeable by these years, as presented in **Appendix B**. The assessment of the Project's contribution to cumulative impacts are presented in the subsequent Cumulative Impacts section.

Vehicle Miles Traveled

Executive Order N-2-24 acknowledges that "building housing on unused and underutilized infill sites, usually but not exclusively in urban areas, …provides many benefits including avoiding sprawl, reducing greenhouse gas emissions, and creating homes near community amenities, jobs and schools." The Project is a residential mixed-use development on underutilized property in the bay area. Most of the Project's

residential development is contained within a Transit Priority Area (TPA), including Bayshore, Main Street West, Main Street East, and portions of Icehouse Hill Southwest and Icehouse Hill Southeast (see **Figure 11** above). TPA's are defined as "an area within one-half mile of a major transit stop that is existing or planned." Under CEQA Guidelines Section 15064.3(b)(1) "projects within one-half mile of either an existing major transit stop or a stop along an existing high quality transit corridor should be presumed to cause a less than significant transportation impact." Nevertheless, additional VMT analysis was conducted below.

VMT per capita is represented as the home-based VMT per resident and the home-based-work VMT per employee. A significant impact would result if the project generated per capita VMT for home-based trips by Baylands residents or home-based work trips by Baylands employees would be greater than 30 percent below the Bay Area regional average for such types of trips. Thus, a significant VMT impact would occur if home-based trips by Baylands residents or home-based work trips by Baylands would be greater than 9.0 miles or 10.5 miles, respectively. As shown in **Table 25**, the proposed Project would not exceed the threshold for residential or employment land uses, and thus would not result in a significant VMT impact. Further, as shown in **Table 23** of Chapter 6, the Project would not increase regional VMT. Additional considerations about the limitations to VMT impact analyses are presented in **Appendix B**.

Table 25: Project Daily Vehicle Miles Traveled Per Capita Impact Assessment

Land Use	Threshold	VMT per Capita	Exceeds Threshold?
Project Phase 1			
Home-Based Trips By Baylands Residents	9.0	8.2	No
Home-Based Work Trips By Baylands Employees	10.5	9.4	No
Project Full Buildout (no Candlestick Interchange)			
Home-Based Trips By Baylands Residents	9.0	8.0	No
Home-Based Work Trips By Baylands Employees	10.5	9.2	No
Project Full Buildout (with Candlestick Interchange)			
Home-Based Trips By Baylands Residents	9.0	7.9	No
Home-Based Work Trips By Baylands Employees	10.5	9.2	No

Source: C/CAG Travel Demand Model; Fehr & Peers, 2023.

Impact 1: As discussed above, most of the Project's residential development is contained within a Transit Priority Area (TPA). Also, since Phase 1 and the full buildout of the proposed Project would generate VMT per capita and per employee at rates lower than 30 percent below the Bay Area regional average, and the Phase I and full buildout would result in a reduction on overall VMT the proposed Project would result in a **less-than-significant impact to VMT**. Further, the Project would not increase total regional VMT. Either methodology supports the conclusions that impacts would be less than significant.

Recommendation 1: No recommendations are provided.

Consistency with Plans and Policies

This section analyzes whether the Project would inhibit pedestrian or bicycle travel or use of transit and be consistent with transit, bicycle, or pedestrian travel policies expressed in the Brisbane General Plan, Plan Bay Area, and Bay Trail Regional Plan. The emphasis of the analysis is on plan inconsistency and potential conflicts between the Proposed Project and existing applicable land use or transportation plans, and whether any inconsistencies would inhibit pedestrian or bicycle travel or use of transit and represent a significant environmental effect. The Proposed Project is considered consistent with the provisions of the identified regional and local plans if it meets the general intent of the applicable plans. A given project need not be in perfect conformity with each and every policy nor does state law require precise conformity of a proposed project with every policy or land use designation. Courts have also acknowledged that general and specific plans attempt to balance a range of competing interests, and that it is nearly, if not absolutely, impossible for a project to be in perfect conformity with each and every policy set forth in the applicable plan. Additionally, in reaching such consistency conclusions, the City may also consider the consequences of denial of a project, which can also result in other policy inconsistencies. For example, Gov. Code Section 65589.5 explains that the potential consequences of limiting the approval of housing are reduced mobility, urban sprawl, excessive commuting, and air quality deterioration. While the analysis below reviews consistency with individual policies, a consistency conclusion is based upon review of the Plan as a whole.

The local plans are presented first, followed by the regional plan compliance. The proposed Project's compliance with **Table 26** presents a review of conflicts with transportation policies or programs within Brisbane's General Plan associated with Phase 1 or full buildout of the Project. Recommendations for ensuring compliance with local policies are provided. The proposed Project would be consistent with the types of development patterns envisioned by Plan Bay Area 2050 through the San Francisco / San Mateo Bi-County Area PDA encompassing the project site. As noted in **Table 27**, the transportation features of the proposed Project would generally be consistent with regional plans and policies, with several recommendations for compliance where the proposed Project may not meet compliance. Regional plans and policies related to local plan compliance issues are noted in **Table 26**.



Table 26: Local Plan and Policy Compliance

Policy	Relevant Local Policy Text	Is the Proposed Project consistent with these policies?	Recommendations to Ensure Compliance
Geneva Avenue BRT Policies C.4 and C.36, Programs C.4.a and C.36.d Other related plans and policies: Bi-County study	**Policy C.4** "Plan for an additional east-west corridor to redirect non-destination traffic away from Bayshore Boulevard and to provide more direct access to Highway 101." **Program C.4.a** "Pursue an extension of Geneva Avenue, connecting with the Candlestick Highway 101 Interchange that provides for bus rapid transit and connection to the Bayshore Caltrain station." **Policy C.36** "Seek opportunities to install and improve transit facilities, establish multi-modal connections, and increase the service network." **Program C.36.d** "Cooperate with San Mateo County Transit District (SamTrans), and other appropriate agencies, to establish bus rapid transit (BRT) systems where practicable."	Partially. Phase 1 includes approximately 75 percent of the proposed Project (based on trip generation from **Table 20**) without providing the supporting east-west corridor transportation facilities identified in the Brisbane General Plan. Consistency with the policy for an east-west corridor would be completed under the Full Buildout of the Project; however, the full buildout of Project lacks BRT lanes over Geneva Bridge. Construction of a Geneva Bridge without BRT lanes would inhibit the ability for regional agencies to provide BRT service as transit vehicles would be stuck in mixed flow traffic in both directions on the bridge, thus degrading the quality of transit service and conflicting with the local and regional plans for a BRT route.	Revise the Project to include the Geneva Avenue Extension over Caltrain with the buildout of Phase 1 and widen the Geneva Avenue bridge to include dedicated BRT lanes over Caltrain tracks.
Candlestick Interchange Policy C.3 and Program C.4b Other related plans and policies: Bi-County study	**Policy C.3** "Design turning movements and traffic signal timing at intersections so as to avoid the queueing of vehicles at intersection from backing up and adversely affecting operations at another intersection. Design turning movements and traffic signal timing at freeway interchanges cause queueing of vehicles from the intersection onto the freeway mainline." **Program C.4.b** "Consult with Caltrans in the design of the Candlestick Highway 101 Interchange to assure the best connection with the Geneva Avenue Extension."	Partially. The proposed Project would be responsible for the fair share responsibility for reconstruction of the Candlestick Interchange as identified through the Bi-County Study. In combination with regional growth, the Project contributes to worsening vehicle queues at the existing Candlestick Interchange off-ramps as presented in **Table 24** in a manner that is unlikely to be resolved through routine Caltrans ramp queue management. The Specific Plan does not provide for right-of-way for the future connection of Geneva Avenue to the future Candlestick Interchange. Related to the right-of-way at this future connection, the Specific Plan does not provide access to the Recology site nor the proposed open space and Bay Trail segment east of the Sierra Point Parkway extension.	Revise the Project to accommodate the connection of the Geneva Avenue Extension to the Candlestick Interchange, provide access to Recology and the proposed open space and Bay Trail segment east of the Sierra Point Parkway extension. As identified in the Bi-County Study and **Table 24**, the Project shall contribute fair share contribution to interchange improvements to support these regional plans. This would support east-west travel by people walking, bicycling, driving, and riding transit, including allowing implementation of the proposed BRT described above. See the Hazards assessment for additional information on ramp queues.
Sierra Point Parkway and Interchange Policy C.3, and Programs C.1.b and C.1.c	**Policy C.3** see above **Program C.1.b** "Develop design plans for Bayshore Boulevard, the Geneva Avenue extension, and interchanges along the 101 freeway that address the effects of regional through traffic within Brisbane and enhances mobility for Brisbane residents and businesses through a combination of roadway and intersection, transit, bicycle, and pedestrian facility improvements that would not cause a substantial increase in vehicle miles travelled (VMT) on Bayshore Boulevard or other routes through the City." **Program C.1.c** "Prepare, adopt, and implement a mobility improvement fee program to fund the multi-modal improvements called for in the design plan for Bayshore Boulevard and interchanges along the 101 freeway."	Partially. While the proposed Project reconfigures the off-ramp of Sierra Point Parkway at Lagoon Way and the southbound U.S. 101 off-ramps, in combination with regional growth, the Project contributes to worsening vehicle queues at the reconfigured Sierra Point southbound off-ramp as presented in **Table 24**. Similar to the Geneva Avenue extension described above, Phase 1 of the Project would not include the Sierra Point Parkway Extension to support north south circulation and relieve Bayshore Boulevard after building approximately 75 percent of the proposed Project land uses.	A roundabout, if approved by Caltrans, or a traffic signal with two off-ramp storage lanes if Caltrans does not approve a roundabout would be required to ensure vehicle queues don't extend back to the mainline. This improvement shall be completed with the buildout of Phase 1 and no later than the completion of the following related Project components: Lagoon Park, Bay Trail, Lagoon Road realignment, and Sierra Point Parkway extension. This is expected to occur no later than 2035. The City of Brisbane prefers a roundabout at this location, pending Caltrans approval. See the Hazards assessment for additional information on ramp queues.

Policy	Relevant Local Policy Text	Is the Proposed Project consistent with these policies?	Recommendations to Ensure Compliance
Bayshore Mobility Plan Programs C.1.b, C.1.c, and C.1.d	**Program C.1.b** In addition to above, the following text relates to this topic: "As part of this design plan, evaluate (1) whether changes in design speeds along Bayshore Boulevard could improve mobility within the City; (2) the feasibility of shifting a portion of regional through traffic from Bayshore Boulevard onto other routes, such as Sierra Point Parkway by extending that roadway north to the 101 freeway interchange at Beatty Avenue, and (3) appropriate routing of trucks to and from the Crocker Park area." **Program C.1.c** see above **Program C.1.d**" Rather than undertake multiple traffic impact analyses to evaluate individual intersections along Bayshore Boulevard, Geneva Avenue, and at intersections along the 101 freeway, require new development projects that would generate 50 or more peak hour trips at any intersection along Bayshore Boulevard, Geneva Avenue, or at intersections along the 101 freeway to comply with the design plan developed pursuant to Program C.1.c and either provide physical improvements consistent with the plan or pay established traffic impact fees as directed by the Public Works Director."	Partially. The Project would change the land use context along Bayshore Boulevard and would substantially change travel patterns for people driving, walking, bicycling, and riding transit within Brisbane, including along and across Bayshore Boulevard. While the Project would provide features such as sidewalks to meet the needs of future land uses, there would be gaps along Bayshore Boulevard as identified in **Figure 18** of the Hazards assessment that would inhibit pedestrian and bicycle travel.	The Project shall implement the recommendations of the Bayshore Mobility Plan as presented in **Appendix F**.
Off-Site Bicycle and Pedestrian Connections Policies C.21 through C.35	See *Local Plans and Policies* section in Chapter 3 relating to the policies relating to Complete Streets and Bicycles & Pedestrians relevant to off-site connections	Partially. As described in the assessment of Hazards there are gaps in the pedestrian and bicycle network that would inhibit travel to off-site destinations	Revise the Project to implement the recommendations presented in hazards assessment to provide adequate connections to off-site locations.
Street Standards	City of Brisbane Municipal Code Chapter 12.24 states that the City of Brisbane has adopted Caltrans standards for street design	Partially. The Project notes that streets will be designed to comply with Brisbane standards. This is discussed further in the assessment of Hazards.	Recommendations are presented in the Hazards section.
Parking Standards	City of Brisbane Municipal Code Chapter 17.34 provides guidance on off-street parking requirements	Yes. The Baylands Specific Plan establishes parking maximums and supersedes other City standards relating to parking minimums. The proposed Project will be subject to the City's other parking design standards, such as design of spaces and access to parking facilities.	No recommended changes.

Source: Baylands Specific Plan, Fehr & Peers, 2024.

Table 27: Regional Plan and Policy Compliance

Plan	Policy	Is the Proposed Project consistent with these policies?	Recommendations to Ensure Compliance
Plan Bay Area 2050[1]			
Parking	Parking maximums of 1 space per dwelling unit	Partially. A1 Multi-Family High and A2 Multi-Family Mid have maximum parking ratios of 1.0 and 0.75 respectively and are thus consistent. A3 Multi-Family Low and A4 Townhome, and A5 Duplex/Single-Family have parking ratios of 1.25. Proposed parking maximums per district could limit the parking to less than 1 space per unit. However, the MTC TOC policy notes that this "may be met through creation of a parking district that provides shared vehicle parking for multiple land uses within an area."	The Project shall not provide more parking within the Bayshore District in excess of 1 parking space per residential unit.
	Parking maximums of 2.5 spaces per 1,000 square feet	Yes. Included in proposed Project as shown in **Table 6**	None
	Secure bicycle parking of 1 space per dwelling unit and 1 space per 5,000 square feet	Yes. Included in proposed Project	None
	Unbundled parking	Yes. Included in proposed Project	None
	Shared parking between land uses	Yes. Included in proposed Project	None
Complete Streets	Adopt roadway standards consistent with MTC complete streets policy	Yes. Included in proposed Project as discussed within Hazards section	None
Station Access	Provide access for pedestrians and bicyclists to transit stations	Yes. Included in proposed Project through network of sidewalks, bicycle facilities, and connections to off-site pathways in adjacent neighborhoods	None
Mobility Hubs	Implement mobility hubs in locations identified by MTC	Yes. Included in proposed Project as noted in **Figure 11**	None
Other Regional Plans and Policies			
Bay Trail	The Bay Trail corridor is a part of MTC's regional Active Transportation Network[1], which per MTC's complete street policy should include facilities that are designed for all ages and abilities[2]	No, although the proposed Project does not obstruct attainment of this plan. Insufficient information to ensure Bay Trail continuity between existing and proposed segments to the north and south of the project site is designed for all ages and abilities, and thus could inhibit bicycle and pedestrian travel. To the south of the project site, the Bay Trail Plan acknowledges that the Class II facilities are a part of the Bay Trail; however, the proposed Bay Trail improvements would connect riders to a Class II facility with greater than 25 mph speed limit, which does not meet the criteria as designed for all ages and abilities.[3] The Bay Trail segment along Sierra Point Parkway from Lagoon Road to Marina Boulevard is identified as a part of the backbone bicycle network in the Countywide Bicycle and Pedestrian Plan with a Class I pathway as the appropriate pathway to provide all ages and abilities access.	Ensure the northern Bay Trail segment provides a continuous trail for all ages and abilities in coordination with the San Francisco improvements to Alana Way and Candlestick Interchange project. Design the Sierra Point Parkway southbound and northbound ramps to accommodate the Bay Trail crossing through features presented consistent with the Supplemental Design Guidelines to the satisfaction of the City of Brisbane and Caltrans. As noted in Table 6.2 of the Specific Plan, the Project shall create a protected path of travel along Sierra Point Parkway (either a two-way Class I shared use pathway per the Countywide Bicycle and Pedestrian Plan or protected Class IV bicycle facilities if the right-of-way for a shared use path to Bay Trail standards is infeasible), connecting to the proposed Bay Trail extension on the north side of Sierra Point Parkway at Marina Boulevard.

Notes:
1. Including MTC's Transit-Oriented Communities Policy (Resolution 4530) and Complete Streets Policy (Resolution 4493).
2. MTC AT network is accessible here: https://mtc.maps.arcgis.com/apps/mapviewer/index.html?webmap=8c0efbb322804b06ba8820f1672bd79f
3. See MTC Resolution No. 4493 at https://mtc.ca.gov/sites/default/files/documents/2022-05/Resolution-4493_approved.pdf
4. Guidance on bikeway types is presented on Page 7 of MTC's complete streets checklist: https://mtc.ca.gov/sites/default/files/documents/2022-06/Complete-Streets-Checklist-05-12-2022.pdf

Source: Baylands Specific Plan, Fehr & Peers, 2024.

Given the inconsistencies of the proposed Project with local and regional plans and policies presented in **Table 26** and **Table 27**, and the potential for these inconsistencies to inhibit implementation of the local and regional policies relating the circulation of people walking, bicycling, or taking transit as intended by these other projects, the proposed Project would result in a **potentially significant impact** by conflicting with these plans and policies.

> **Impact 2:** The proposed Project would be inconsistent with several local and regional policies, and thus would result in a **potentially significant impact** with Phase 1 and Full Buildout of the proposed Project.
>
> **Recommendation 2:** The project applicant shall update the Baylands Specific Plan to address the inconsistencies with local and regional plans and policies presented in **Table 26** and **Table 27**, through following the recommendations presented in these tables and the Bayshore Mobility Plan presented in **Appendix F** or preparing alternative plans that ensure consistency with the relevant plans prior to approval by the City of Brisbane of infrastructure or roadway designs. **Recommendations 3** and **4** would address the relationship between the Project's inconsistencies with local and regional plans and policies and the potential to create hazardous conditions or interfere with emergency vehicle access. Complying with the applicable local and regional plans and policies and completing **Recommendations 3** and **4** would reduce the project's impact to **less than significant levels with these recommended improvements**.

Hazards

The proposed Project would cause a significant impact if it would result in hazards to vehicles, bicyclists, or pedestrians. Significant impacts are evaluated for those associated with:

- Hazards during construction;
- Hazards related to the design of transportation facilities, such as through inadequate lane widths, sight distances, offset intersections, signage, or other geometric design features; or mixing or inadequate separation of personal vehicles, transit vehicles, bicyclists, and/or pedestrians so as to create a potential for collisions along roadways or trails.

This impact discussion is organized into sections that present the analysis followed by a discussion of the project's impacts and recommendations for construction hazards and then design features.

Construction Hazards

While construction activities are temporary conditions and do not result in permanent changes to the transportation network, they would be expected to occur over as long as a 20 year period for the proposed Project, extending throughout Phase 1 and full buildout of the Project. Construction of the proposed Project would require temporary use of the transportation-related public rights-of-way, including activities such as staging of construction materials or equipment within the sidewalk or adjacent parking and/or travel lanes. Construction-related vehicles traveling to and from the construction work area would share travel lanes with other vehicles and bicyclists. In general, increased construction traffic



from any project could result in potential conflicts between construction trucks (which have slower speeds and wider turning radii than automobiles) and automobiles, bicyclists, and people walking. In addition, construction activities from any project could result in physical obstructions or temporary changes to the public right-of-way that could conflict with other users of the public right-of-way. Conflicts during construction could occur if construction vehicles or activities block adjacent travel lanes, bicycle lanes, sidewalks, or crosswalks without accommodation for detours or maintenance of protected travel adjacent to the site or use of flaggers to direct construction vehicles adjacent to the site.

The project applicant would be required to apply for encroachment permits and prepare Traffic Control Plans for any construction activity that occurs within the City's right of way to comply with Brisbane Municipal Code Chapter 12.04. In addition, construction activities affecting state facilities, such as the U.S. 101 interchanges at Alana Way and Beatty and Sierra Point Boulevard are subject to California Department of Transportation (Caltrans) encroachment permits. The Project would also be subject to Mitigation Measure 4.N-12 from the *Brisbane Baylands Draft Environmental Impact Report* (June 2013, State Clearinghouse #2006022136). Mitigation Measure 4.N-12 addressed the potential for construction activities to result in significant impacts by interfering with personal vehicles, transit service, bicyclists, and pedestrians. Mitigation Measure 4.N-12 identified that in conjunction with all construction permits, site-specific development projects shall develop, submit for City review and approval, and implement Construction Management Plans that specify measures that would reduce impacts on motor vehicle, bicycle, pedestrian, and transit circulation. The Construction Management Plans shall include, but not necessarily be limited to, the following:

- Location of construction staging areas for materials, equipment, and vehicles.
- Notification procedures for adjacent property owners and public safety personnel regarding when major deliveries, detours, and lane closures will occur.
- Identification of haul routes for movement of construction vehicles that would minimize impacts on vehicular and pedestrian traffic, circulation and safety; and provision for monitoring surface streets used for haul routes so that any damage and debris attributable to the haul trucks can be identified and corrected by the project applicant.
- Provisions for removal of trash generated by construction activity.
- A process for responding to, and tracking, complaints pertaining to construction activity, including identification of an onsite complaint manager.

The 2013 *Brisbane Baylands Draft Environmental Impact Report* found that with the inclusion of Mitigation Measure 4.N-12, existing and cumulative construction-related impacts would be reduced to less than significant levels.

In general, construction-related activities typically occur Monday through Friday between 8:00 AM and 5:00 PM, and written authorization is required from the City for any construction activity occurring within the public right-of-way outside of these hours or on weekends. Further, as noted in the City's encroachment permit, select roadways have restricted work hours that restricts work before 9:00 AM or after 4:00 PM, including Bayshore Boulevard, Guadalupe Canyon Parkway, Valley Drive, North Hill Drive,



Tunnel Avenue, Lagoon Way, and Sierra Point Parkway.[45] Construction activity must allow for two-way traffic on all two-way streets and all traffic control, warning and guidance devices must conform to the California Manual on Uniform Traffic Control Devices (CA MUTCD).[46] Special provisions are required for roadways with designated bicycle facilities to ensure safety on these facilities. Any temporary facility closures would require a traffic control plan to accommodate detours or the use of flaggers to manage construction vehicles and direct general traffic.

The City's encroachment applications further specify the contents of Traffic Control Plans, which require that no work will be performed during other than normal work hours of 8:00 a.m. to 5:00 p.m. Monday through Friday. Contractor's traffic control plan shall provide two-way traffic on all two-way streets at all times. If required to maintain two-way traffic, the contractor shall provide flaggers with radios at each end of construction detour. The Plan also incorporated the guidance under Caltrans' MUTCD manual described above.

Given the size of the project site, most construction staging would occur within the project site to avoid obstructing transportation facilities unnecessarily, although it may occasionally need to occur on the adjacent sidewalks and/or parking lanes. Brisbane Municipal Code Section 12.04.070 notes that temporary roadways, driveways and walks for vehicles and pedestrians shall be constructed where required. To fulfill this requirement, in situations where sidewalks along site frontages are partially or fully closed for the duration of construction, either an accessible walkway must be provided on the remaining sidewalk or temporary walkways would need to be constructed in adjacent vehicular parking lanes. Temporary travel lane closures would be reviewed by the City Engineer and by the fire and police departments to ensure that emergency vehicle access is not impeded.

The City's encroachment permit process, Mitigation Measure 4.N-12 from the 2013 2013 *Brisbane Baylands Draft Environmental Impact Report,* and the CA MUTCD regulations establish traffic operations and management rules during construction for working safely and causing the least possible interference with people walking, bicycling, driving, or taking transit near the construction area. If project construction activities are not able to comply with the City requirements, the construction contractor must receive written permission from the City of Brisbane City engineer. During the performance of the work, BMC Section 12.04.080 states that "the permittee shall provide and maintain fences, barricades, warning and directional signs, flares, red lights, watchmen and flagmen as may be required by existing laws and regulations and as deemed necessary in the opinion of the city engineer, to insure full and complete safety to the general public." (BMC Section 12.04.080.)

[45] For additional details see the application at: https://www.brisbaneca.org/sites/default/files/fileattachments/public_works/page/6731/permit_traffic_220215.pdf and https://www.brisbaneca.org/sites/default/files/fileattachments/public_works/page/6731/permit_encroachment_220215.pdf

[46] California Department of Transportation, *California Manual on Uniform Traffic Control Devices*, 2014 Edition, Revision 6 (March 2021), https://dot.ca.gov/programs/safety-programs/camutcd/camutcd-files, accessed April 4, 2023.

During a project's construction period, temporary and intermittent traffic impacts would result from truck movements to and from development project sites. The site preparation phase would require the most intensive truck traffic, with trucks hauling soil materials from the east side of the Baylands to the west side following a 3.8-mile route using a combination of off-road haul routes and public streets indicated in **Figure 15**. The movement of these soils is anticipated to occur over a two-year, ten-month period. During peak times for site grading, approximately 640 daily round trip truck hauls would occur, including approximately 160 round trip truck hauls in the AM and PM peak hours. Truck movements during periods of peak traffic flow would have a greater potential to create conflicts than truck movements during non-peak hours because of the greater number of vehicles on the streets that would be affected by the slower moving vehicles during the peak hour. Nearly three trucks a minute during the peak hours could represent a substantial increase in the number of trucks on these roadways and increase the potential for hazards with people walking, biking, driving, and riding transit on these routes, particularly for roadways such as Tunnel Avenue that have unprotected bikeways and roadways such as Bayshore Boulevard that serve high-frequency transit services. As noted above, City requirements establish procedures and monitoring requirements to ensure construction activities cause the least possible interference with people walking, biking, driving, and riding transit, such as through detour routes, temporary signage, protection for other roadway users, and review by the City of Brisbane City engineer to ensure compliance with relevant regulations.

Therefore, construction of proposed Project would be conducted in compliance with city requirements to reduce the interference of construction activities to people walking, bicycling, or driving, including transit and emergency vehicles and would result in a **less-than-significant impact**.

> **Impact 3a:** Given the length of construction period through Phase 1 and the full buildout of the Project, and the number of trucks during the most intensive period of construction, the proposed Project would result in a **less-than-significant impact to construction hazards**.
>
> **Recommendation 3a:** No recommendations are provided.

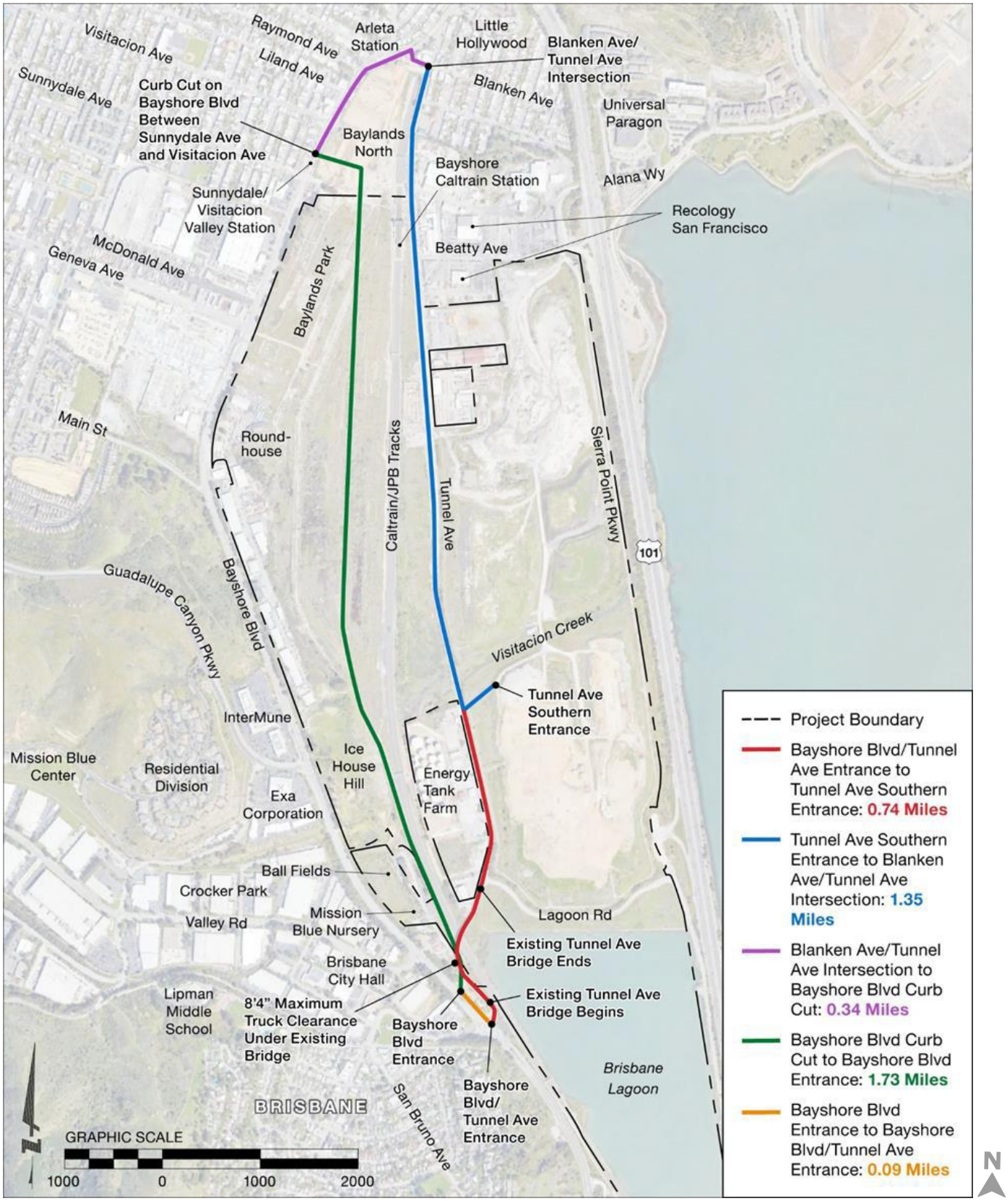


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Figure 15

Proposed Grading and Haul Routes

Design Hazards

The proposed Project would include a new network of roadways and other transportation facilities, including sidewalks, bikeways, and transit facilities. The design features proposed under Phase 1 and full buildout of the proposed project are similar and are therefore presented together in this section. The Specific Plan describes how the new transportation facilities would be consistent with the Federal Highway Administration (FHWA), Americans with Disabilities Act (ADA), California Highway Design Manual and MUTCD, and the MTC's Complete Streets Policy. This assessment is consistent with the Caltrans recommended guidance, LDIGR Safety Review Practitioners Guide. The City of Brisbane has adopted the California Highway Design Manual for street design standards. This section presents a review of the proposed Project with these standards to identify whether it would include geometric design features or inadequate separation of personal vehicles, transit vehicles, bicyclists, and/or pedestrians that would not meet these standards.

This section also considers the presence of baseline hazards conditions that the proposed Project could exacerbate. As noted in the **Chapter 2**, several roadways within the study area are identified as a part of the City of San Francisco's or C/CAG's high-injury network. This includes Bayshore Boulevard, Visitacion Avenue, Sunnydale Avenue, and Geneva Avenue. The City of San Francisco recently completed a Visitacion Valley Community Based Transportation Plan[47] that includes countermeasures to improve roadway safety on these streets. This includes traffic calming and pedestrian, bicycle, and safety improvement measures such as speed humps, raised crosswalks, and bikeway projects on Visitacion and Sunnydale avenues are anticipated to be complete by 2035. In general, the proposed Project includes similar land uses to those in the surrounding neighborhoods and does not propose changes to these roadways in San Francisco. The project thus would not introduce incompatible land uses nor substantially change the nature of how vehicles use these roadways in San Francisco through geometric changes. Therefore, the proposed Project would not worsen hazardous conditions on these roadways except where the Project would modify the geometry along Bayshore Boulevard or Geneva Avenue as discussed below.

This rest of this section is organized as follows:

- A general evaluation of the roadway designs and transportation features proposed by the Project,
- An evaluation of specific roadway features by facility type, and
- An evaluation of off-site connections for people walking and bicycling.

Proposed Roadway Designs and Transportation Features

The proposed Project has designated 25 mile per hour speed limits on local and collector streets and 35 mile per hour speed limits on arterial roadways. Travel lanes range from 10 to 12 feet, depending on the speed limit and type of facility. The proposed Project accounts for the needs of larger vehicles, such as

[47] Vis Valley & Portola Community Based Transportation Plan, Final Plan – February 2023, SFMTA. This plan can be accessed here: https://www.sfmta.com/reports/draft-plan-visitacion-valley-portola-community-based-transportation-plan

with 12-foot travel lanes for the BRT lanes on Geneva Avenue and for trucks on arterials connecting to on- and off-ramps with few abutting land uses, such as Sierra Point Parkway and Lagoon Road. Mixed-flow travel lanes on Geneva Avenue, Tunnel Road, and collector roadways are 11 feet wide, except for the inside lane on Geneva Avenue which would be 10 feet wide. Travel lanes on local streets and green streets would be 10 feet wide to meet minimum fire code access, with traffic calming features on the green streets to reduce speeds below 25 miles per hour. These lane widths are consistent with Caltrans design standards and reduce the potential for speeding and the creation of hazardous conditions through avoiding excessively wide travel lanes.

The mixing or inadequate separation of personal vehicles, transit vehicles, bicyclists, and/or pedestrians has the potential to create hazards along roadways or trails, particularly when the roadway design allows for vehicle speeds greater than 25 mph. For transportation facilities that provide shared space for people walking, bicycling, and driving, such as on the proposed green streets or on shared vehicle and bicycle facilities, design features to slow vehicle speeds and alert people driving to the presence of people walking and bicycling are required. The proposed Project includes many design features that are designed to reduce hazards for all roadway users, such as the following:

- Sidewalks that meet ADA standards,
- High-visibility crosswalks with curb extensions,
- Short block lengths and high intersection density with frequent pedestrian crossings that creates a walkable environment in pedestrian-oriented areas,
- Raised crosswalks at unsignalized intersections and leading pedestrian intervals at signalized intersections,
- Protected bicycle facilities, protected intersections, and bicycle boxes,
- Designation of pickup and drop-off zones to organize rideshare, taxi, and commercial deliveries into curbside or convenient garage spaces to minimize loading activity in travel lanes,
- Prohibition of driveways on regional arterials and roadways with protected bicycle lanes and pedestrian-oriented streets, and
- Center turn lanes on collector and arterial streets to facilitate and reduce conflicts between vehicles turning in and out of driveways.

While these general design features can reduce the potential for the creation of hazardous conditions, the below discussion presents a summary of specific roadway design issues that represent potentially hazardous conditions by roadway facility type.

The Specific Plan allows for flexibility for the buildout of subsequent buildings such that future site-specific designs, specifically the design of parking garage access or loading facilities, may not provide adequate site distances or incompatible uses within this framework. While driveways would be subject to City of Brisbane's design standards, improper driveway widths or the distance between driveways could introduce the potential for hazardous conditions if adequate site distance is not provided for the type of vehicles using the driveways. Further, while the Specific Plan notes that "each site-specific development



project shall provide sufficient loading areas in appropriate locations such that loading activities, including loading vehicle queuing, will not block bicycle or pedestrian facilities, roadway travel lanes, or parking garage access", the amount of passenger and freight loading required for each land use and the movement of trucks through a project site would depend on the final building uses and sizes. Loading activity occurs adjacent to individual buildings and therefore must be planned for at the building specific level. Loading activities involves the movement of large vehicles (commercial and freight deliveries, residential move-in and out, etc.) and therefore can introduce hazardous conditions to other roadway users due to sight lines or wide turning radii. The inadequate design of driveways and loading facilities for each building has the potential to create hazardous conditions on roadways within the proposed Project unless these factors are accounted for.

The Project proposes to modify existing roadways or create new roadways, and these modifications have the potential to introduce hazardous conditions if these designs do not meet the relevant standards. An assessment of the modified or proposed roadway facilities within or fronting the project site are presented below, by facility type.

Regional Arterials

Bayshore Boulevard: As noted in **Chapter 2**, Bayshore Boulevard currently serves as a route for regional trips and often can present a barrier to travel by walking and bicycling given the width of the road, the high speeds, and the limited locations with sidewalks or places to cross. Bayshore Boulevard is identified as a part of C/CAG's high-injury network prepared as a part of C/CAG's Countywide LRSP. and The proposed Project could exacerbate existing potentially hazardous conditions identified in the LRSP, including the combination of high vehicle travel speeds (35 to 45 mph speed limit) with driveways or unsignalized intersections with slow turning vehicles, cross traffic, transit stops, crosswalks, and unprotected bicycle facilities that could lead to improper mixing or separation of roadway users, particularly if people driving do not have adequate sight distance or people driving consistently exceed the posted speed limits due to inadequate design speeds. These are all roadway characteristics that are identified as important when reviewing access management per the Caltrans' LDIGR Safety Review Practitioners Guide (December 2020).[48]

The proposed Project would add multi-modal connections for the Project site to Bayshore Boulevard through intersections with collector, local, and green streets, and sidewalks along the length of the Project site frontage. The specific plan does not indicate the type of access that would be allowed at local or green streets. The Project would not modify the geometry and thus exacerbate the conditions described above on the existing high-injury network section of Bayshore Boulevard in San Francisco. While the proposed Project does not propose any driveways on Bayshore Boulevard segment in Brisbane, the green streets and local roadways that would have unsignalized access on Bayshore Boulevard. This has the potential to create hazardous conditions given the speed differential between through and turning vehicles and people walking and bicycling unless adequate sight distance is provided. Further, as presented on in **Figure 16,** the local

[48] Caltrans LDIGR Safety Review: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf

street between blocks A2 and A4 would be off-set across Bayshore Boulevard from the existing SFMTA lot, which could worsen these hazardous conditions for an unsignalized intersection with an off-set on a regional arterial.

The proposed Project would also provide vehicle access to the project site through new or revised signalized intersections at Geneva Avenue, Main Street, and Campus Parkway, with signalized access and left-turns allowed into and out of the project site. As shown on **Figure 17**, the proposed extension of Main Street includes a new traffic signal on Bayshore Boulevard approximately 200 feet south of the existing traffic signal at Industrial Way and a new signal less than 200 feet east of Bayshore Boulevard. These short distances would require signal coordination and would create complex off-set intersections that could be detrimental for circulation, with the potential for vehicle queues extending between intersections and limited sight distances between people driving and other roadway users.

Geneva Avenue: As presented on in **Figure 16,** the proposed Geneva Avenue bridge and one-way frontage roads include several potential safety hazards. The western touchdown of the Geneva Avenue bridge over Caltrain at Baylands Boulevard includes conflicting eastbound automobile and bicycle movements that create the potential for a safety hazard by requiring bicyclists traveling east onto the bridge to cross automobile traffic traveling at the posted speed limit of 35 miles per hour in the middle of the intersection. The automobile traffic could go onto the bridge or go onto the frontage road, which would require crossing the pathway for people bicycling. The Project does not propose protected intersection features to transition bicyclists between the Class IV facilities to existing Class II facilities and the separation of Class IV bikeways does not meet NACTO guidance for separated bike facilities on roadways with 35 miles per hour speed limits, as recommended for use by MTC's Complete Streets Policy.

Finally, in combination with regional growth, the Project contributes to vehicle queues that would routinely extend back to the U.S. 101 mainline at the existing Candlestick Interchange off-ramps at the terminus of the Geneva Avenue extension and at the northbound off-ramps at Harney Way, as presented in **Table 24**. As stated in Caltrans' LDIGR Safety Review Practitioners Guide (December 2020)[49] "Queuing at off-ramps resulting in slow or stopped traffic on the mainline or speed differentials between adjacent lanes." These vehicle queues are unlikely to be resolved through routine Caltrans ramp queue management given the vehicle queues that would extend along Geneva Avenue, Alana Way, and Harney Way.

Minor Arterials

Tunnel Avenue: The existing Recology and Golden State Lumber facilities include large, slow moving industrial vehicles that require turning movements on, off, and across Tunnel Avenue. The existing Golden State Lumber parking lot also includes perpendicular parking spaces and drivers must back up directly onto Tunnel Avenue to exit. The existing low-speed industrial vehicles turning on, off, or traveling across Tunnel Avenue may conflict with a substantial number of project-generated vehicles traveling at higher

[49] Caltrans LDIGR Safety Review: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf

speeds on Tunnel Avenue, including those entering and exiting Project driveways. Tunnel Avenue has a 35 miles per hour speed limit and would have greater than 10,000 vehicles per day under 2035 or 2040 conditions with the Project but does not provide turn lanes for project driveways. Further, there are numerous intersections and driveways along Tunnel Avenue, as presented on **Figure 18**, and intersections with collectors or local roadways would meet warrants for traffic signals or roundabouts to facilitate safe access to connecting roadways. The combination of the increased traffic volumes, slow moving trucks and high travel speeds, and existing parking conditions that necessitate cars to back into the roadway when existing has the potential to create potentially hazardous conditions on Tunnel Avenue.

Sierra Point Parkway: Vehicle queues under 2040 plus project conditions would exceed the Sierra Point Parkway southbound off-ramp storage at Lagoon Way and routinely extend onto the U.S. 101 mainline, creating the potential for slow or stopped traffic on the mainline as presented in the Traffic Operations section. As presented on **Figure 18**, Sierra Point Parkway is proposed to have two-lanes between the Geneva Avenue Extension and Lagoon Road and provide access to Campus East parcels through East Campus Road and Visitacion Creek North. Traffic volumes on this segment of Sierra Point Parkway are not expected to exceed 10,000 vehicles per day under 2035 or 2040 conditions with the Project. Sierra Point Parkway would have lower traffic volumes and fewer driveways indicated under the Specific Plan so a two-way left turn lane will not be needed; however, the Specific Plan does not indicate traffic controls at intersections along Sierra Point Parkway.

Collectors

Main Street and Campus Parkway: As shown on **Figure 17**, the Project does not propose protected intersection features to transition bicyclists between the proposed Class IV facilities to existing Class II facilities. This creates a potentially hazardous situation where bicyclists would improperly mix with vehicles turning between Main Street and Campus Parkway and Bayshore Boulevard, which is a regional arterial with high-speed vehicle travel.

Local

Roundhouse Circle and East and West Park Boulevard: As shown on **Figure 17**, the proposed Roundhouse Circle and East and West Park Boulevard would include one-way traffic, with a single 11-foot travel lane, 8-foot parking lane, and 9-feet Class IV bike lane, including the buffer. The Brisbane Municipal Code notes that 20 feet of clearance must be provided for emergency vehicle access, and additional clearance may be required to accommodate the turning radius of emergency vehicles around curved roadways such as Roundhouse Circle. This does not typically include for the raised buffer and Class IV bike lane proposed by the Project, and therefore these roadway typologies do not meet the City standards for fire access.

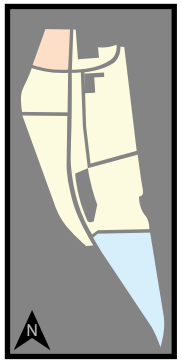
Green Streets

The City of Brisbane General Plan does not have design standards for this street category, which introduces the potential for conflicts between people driving, walking, and bicycling within the same roadway if there are excessive vehicle speeds or inadequate sight distances. According to the FHWA, these streets should encourage low motor vehicle speeds and low motor vehicle volumes.[50] Appropriate traffic volumes and speeds as expressed by FWHA or other agencies with shared streets, such as San Francisco[51], include setting targets for no more than 1,000 vehicles per day with median vehicle speeds of 15 miles per hour or less. The short lengths of the Green Streets proposed by the Project and design features such as vertical deflection (e.g., raised crossings), horizontal deflection (e.g., chicanes), textured paving (e.g., cobbles), as well as the physical and visual narrowing of the field of vision for drivers would encourage slow speeds. These would also limit the number of vehicles that would be expected to use these streets to access the residential land uses fronting each Green Street. The Project does not identify where specific driveways would be located, but all the development blocks fronting green streets include at least two block faces where driveways could be located. If multiple blocks were to have vehicular access from one Green Street, the daily vehicle trip generation could exceed 1,000 vehicles per day for blocks with the highest potential number of residential units.[52]

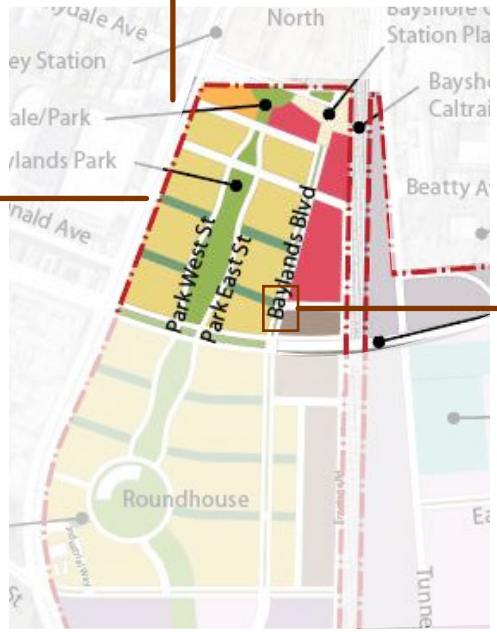
[50] FHWA, *Accessible Shared Streets,* October 2017. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/accessible_shared_streets/.

[51] SFMTA's *Slow Streets Evaluation 2023* report includes evaluation metrics of maintaining fewer than 1,000 vehicles and vehicle speeds less than 15 miles per hour or less. This report indicates that collisions on Slow Streets have decreased by 48 percent compared to their implementation: https://issuu.com/sfmta_marketing/docs/2023_slow_streets_evaluation_report_20230502

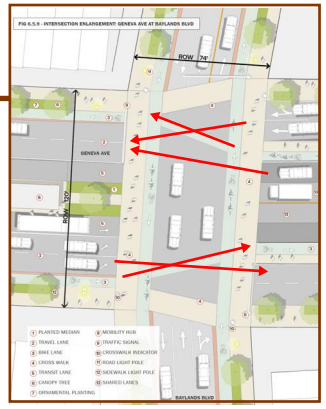
[52] The highest number of potential residential units fronting a green street are the streets between blocks B4 and B7 and between blocks B7 and B11 (225 and 245 units respectively, as shown in Table 3.4 and Figure 3.9. Based on the average trip generation rate, including the required TDM plan, for the attached single-family units of 4.64 vehicle trips per day, these streets would have 1,045 and 1,137 vehicle trips per day. All other streets would include less than 1,000 vehicles accessing the abutting land uses using this analysis approach.



Bayshore/Local Street and SFMTA Lot:
The Project shall allow continued access to the SFMTA lot and not allow left-turns into project site unless a traffic study is completed demonstrating that this can be adequately through a site distance and operations analysis.



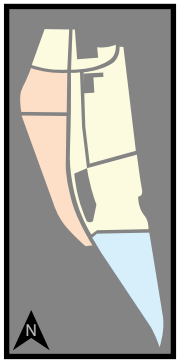
Bayshore/Local Streets and Bayshore/Green Streets:
All intersections on Bayshore with local and green streets shall be Right-in and Right-out only. A sight distance analysis shall be prepared to demonstrate adequate sight distance for transition between high speed and low speed roadway with features presented in Supplemental Design Guidelines, such as the addition of turn pockets or other signage and striping features.



Geneva Bridge:
Remove conflicting movements between automobile and bicycle traffic, such as through the removal of the Geneva Avenue Frontage Road. Removal of the frontage road will also reduce the severity of the bottleneck at this intersection by reducing the required number of signal phases.

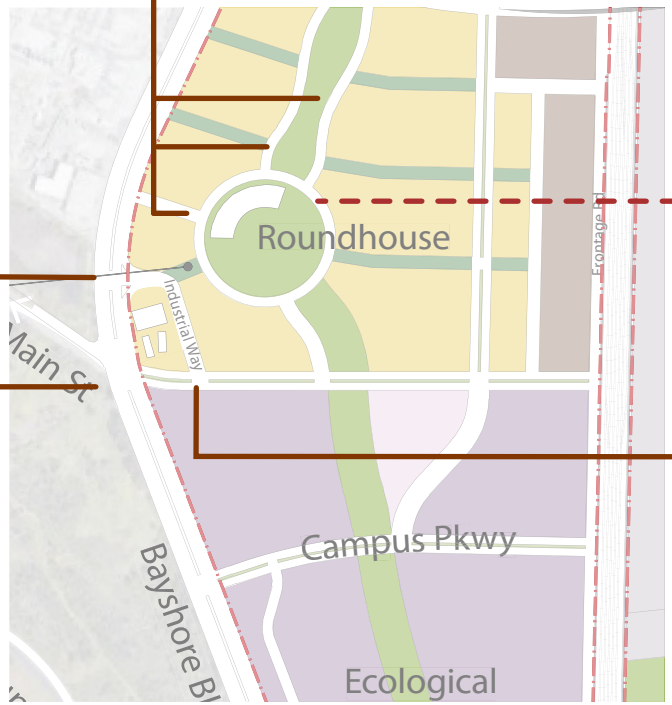
Figure 16

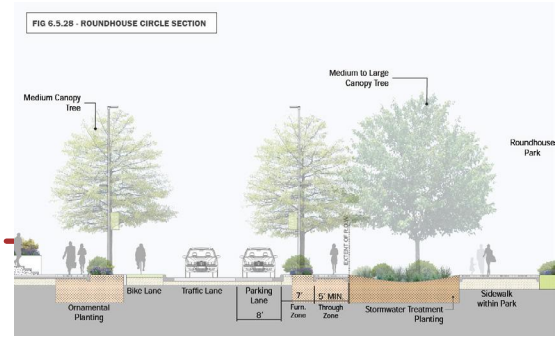
Transportation Facility Review:
Bayshore District



Roundhouse Park, East Park Boulevard, and West Park Boulevard:
Roadway cross-sections for Roundhouse Circle as well as East and West Park Boulevard shall be modified so as to provide a continuous 20-foot-wide fire access as approved by the North County Fire Authority. Intersections on Roundhouse Park shall be stop controlled rather than yield-controlled.

Main St and Industrial Way Signals:
The Project shall remove the Industrial Way signal and convert to a side-street stop with southbound left-turns prohibited to remove inadequate spacing between signals.



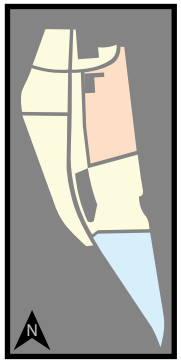


Main St and Campus Parkway:
The Project shall provide protected intersection features to allow bicyclists to comfortably connect between the existing Bayshore Boulevard Class II bicycle lanes and the proposed Class IV bicycle facilities.

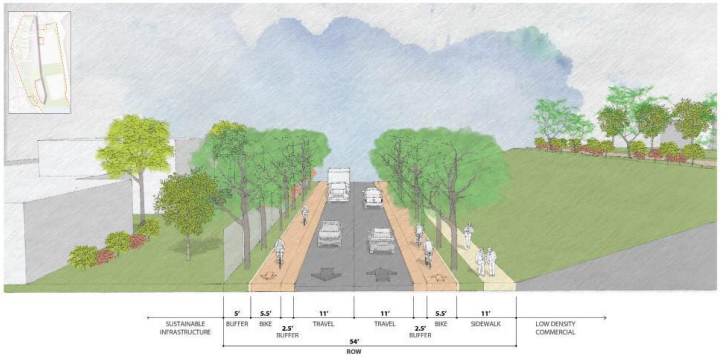
Signalized Intersections with Main St:
The Project shall remove the Main Street signal and convert to a side-street stop with westbound left-turns prohibited to remove inadequate spacing between signals.

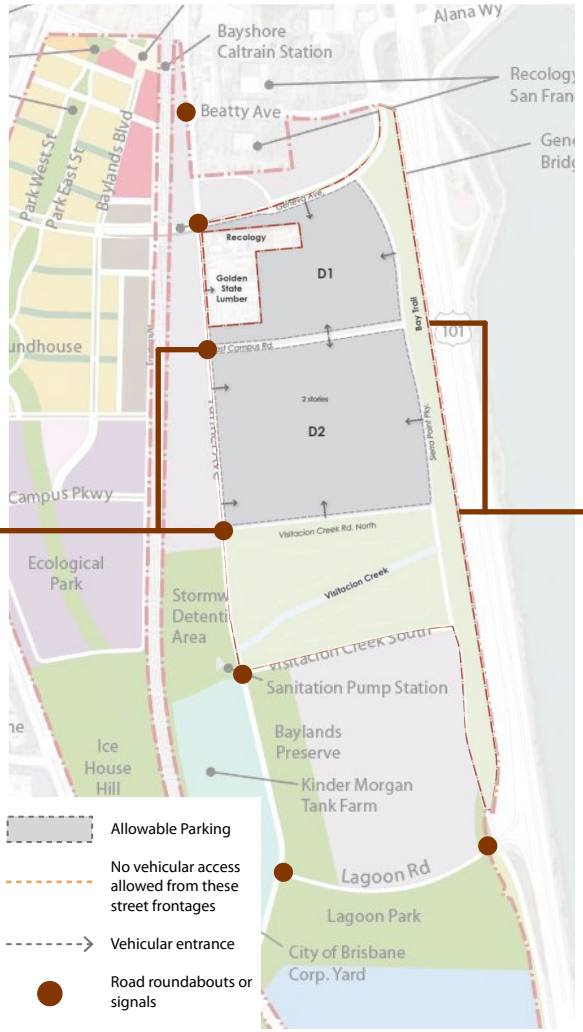
Figure 17

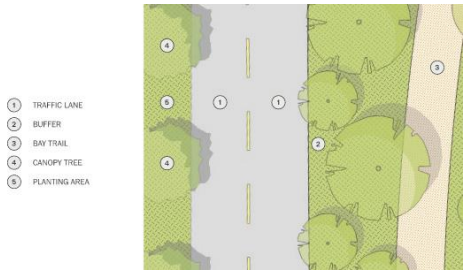
Transportation Facility Review:
Roundhouse and Icehouse Hill Districts



Tunnel Ave:
The Project shall add a two-way left turn lane to Tunnel Avenue to facilitate left turn access into Campus East and roundabouts or signals at intersections with minor arterials, collector roads, and local streets.







Sierra Point Pkwy:
Given lower volumes and few driveways indicated under the Specific Plan than Tunnel Avenue, a two-way left turn lane is not needed; however, all way stop controlled intersections with left turn-pockets at shall be provided at East Campus Road and Visitacion Creek North to facilitate access into Campus east developments.

Figure 18

Transportation Facility Review:
East Campus and Sustainability Districts

Off-Site Connections for People Walking and Bicycling

As presented in **Figures 2** and **3**, the proposed Project would provide sidewalk coverage on all roadways and a network of on-street bikeways and off-street pathways that would connect internally to the Project and directly to off-site locations. **Figure 19** identifies connections for people walking and bicycling between the Project site and off-site locations. As a part of Phase 1, the Project would provide connections to Visitacion Valley and off-site transit facilities (Muni and SamTrans stops on Bayshore Boulevard) through sidewalks and Class IV bicycle facilities and to Downtown Brisbane and Crocker Park via off-street multi-use trails at Old Country Road and the Crocker Park Recreational Trail. The full buildout of the Project would connect Little Hollywood and Downtown Brisbane through existing sidewalks and bicycle facilities on Tunnel Avenue. These connections would adequately connect the Project to some adjacent neighborhoods. Also identified on **Figure 19** are neighborhoods such as Linda Vista in Daly City and those along Guadalupe Canyon Parkway in Brisbane to which adequate connections from the Project site are not proposed. For example, residents in Daly City would be in the Bayshore School District and would need to travel to the proposed Baylands School along Main Street, which does not currently have sidewalks or bicycle facilities.

The Project will generate demand for people walking and bicycling between the Project site and these destinations given the close proximity for people visiting the Project site from adjacent communities for work, school, recreation, shopping, or other trips. The routes identified in **Figure 19** would include inadequate pedestrian and bicycle facilities or mixing for people walking or bicycling with vehicles. Further, while the off-street trails constructed by the Project, including the Bay Trail, would provide safe and comfortable access for people walking and bicycling within the Project site, they would not connect to off-site facilities that are designed for all ages and abilities, including other segments of the Bay Trail.

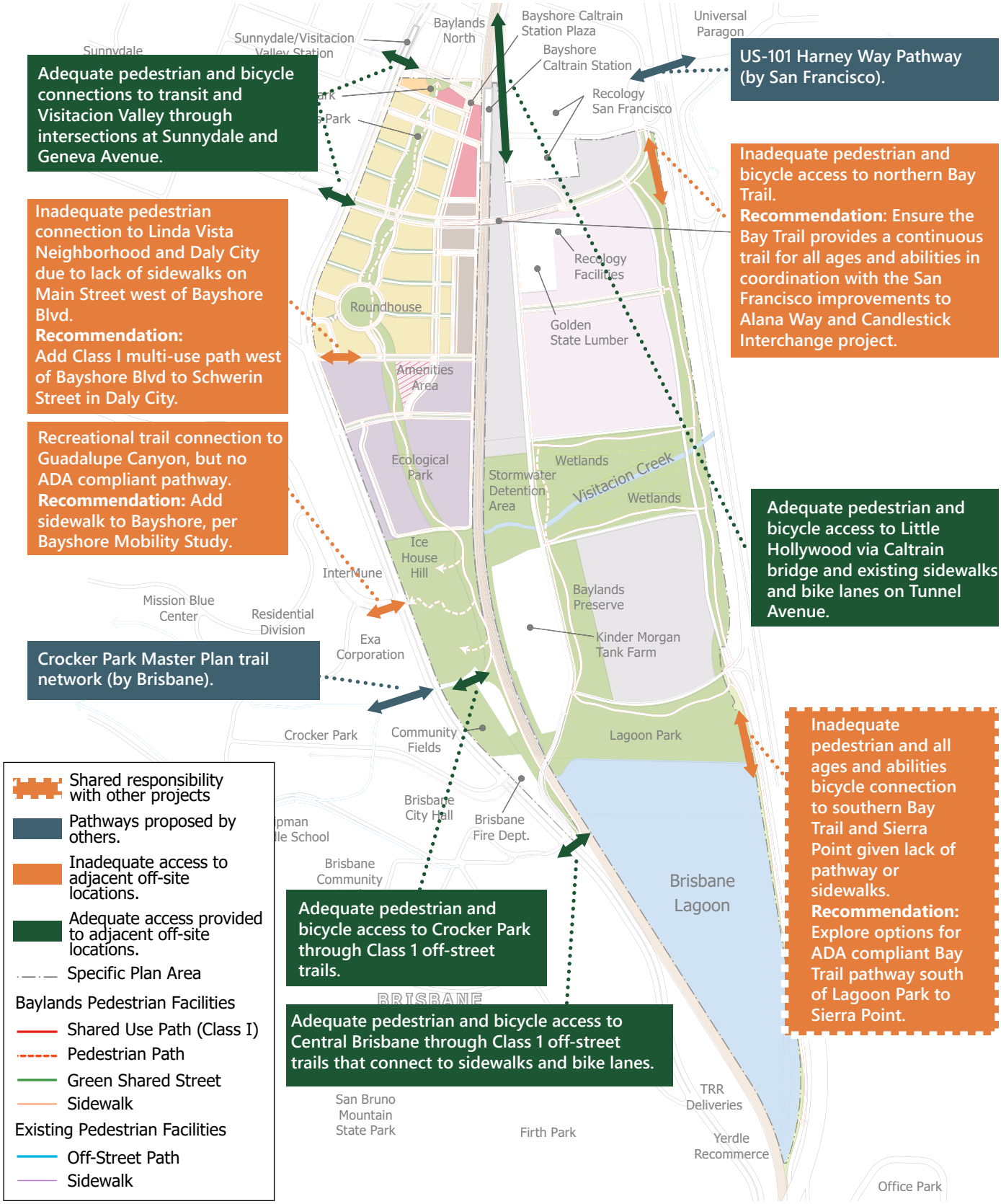


Figure 19

Recommendations for Off-Site Pedestrian and Bicycle Connections

Conclusion

Given the potentially hazardous conditions presented above relating to the design and location of driveways and loading facilities, the interface of the proposed Project with regional roadways, and the design of shared roadway facilities that mix people walking, bicycling, and driving, the proposed Project would result in a **significant impact** due to potentially hazardous conditions.

Impact 3b: The proposed Project would result in a **significant impact to hazards** with Phase 1 and Full Buildout of the proposed Project.

Recommendation 3b: Baylands roadways shall comply with the City's design standards and the supplemental design guidelines prepared to address the roadway design issues raised above (see **Appendix E**). Roadway improvement plans and proposed site specific development plans shall also demonstrate adequate sight distance to meet the City's design standards at roadway intersections, driveways, and parking and loading areas prior to receiving construction permits.

Bayshore Boulevard:

- Implement the Bayshore Mobility Plan, as presented in **Appendix F**, to reduce the potential for hazardous conditions and enhance multi-modal connectivity along Bayshore Boulevard.
- Allow right-turn access only for all unsignalized local and green streets that intersect Bayshore Boulevard, with features described in the Bayshore Mobility Plan and Supplemental Design Guidelines to ensure that speed differential does not result in hazardous conditions through adequate lane geometry and sight distances. Alternatively, left-turn access could be approved if it were to be demonstrated that such access would not result in vehicle queues blocking through lanes, unsafe turning movements, inadequate sight distance, or excessive speeds on local and green streets.
- Convert the intersection of Bayshore Boulevard and Industrial Way from a traffic signal to a side-street stop-controlled intersection that allows right-turn in and out only (as shown in **Figure 17**), with the primary vehicular access to the southern portion of the Roundhouse District provided through Main Street.
- Provide side-street stop-controlled intersection and prohibit westbound left turns at the intersection of Main Street at the driveway east of Bayshore Boulevard adjacent to development block C2 (as shown in **Figure 17**), which is shown as a traffic signal in the specific plan. Alternatively, the project applicant shall prepare a traffic study that includes signal warrants and operational analysis to demonstrate how the two closely spaced signalized intersections on Main Street could be designed to ensure that the closely spaced intersections would not result in peak hour vehicle queues extending between intersections.
- Construct the above measures in coordination with construction of new or modified intersections and Bayshore Boulevard project frontage improvements.

Geneva Avenue:

- Modify the design of the western touchdown of the Geneva Avenue bridge to eliminate conflicting movements between bridge traffic and frontage roads, or between vehicles and bicycles, subject to approval by the Director of Public Works. One approach to this would be the removal of the Geneva Avenue frontage road as these frontage roads are not required to provide direct vehicular access to individual parcels. Alternatively, the project applicant shall prepare a frontage road design that conforms to the design standards presented above and the Supplemental Design Guidelines presented in **Appendix E** for approval by the Director of Public Works.
- Redesign the roadway to provide adequate separation for bicyclists (minimum two feet for roadways with 35 miles per hour speed limits) to match NACTO standards.
- As identified in the Bi-County Study and **Table 24**, the Project shall contribute fair share contribution to Candlestick Interchange improvements.
- Construct the above measures in coordination with construction of the Geneva Avenue extension and shall be coordinated within Recommendations 2 and 4, which would require the addition of BRT lanes to the Geneva Avenue bridge over Caltrain and the construction of the Geneva Avenue bridge in coordination with the Phase 1 development.

Tunnel Avenue: As noted in Program C.5.a of Brisbane's General Plan, Tunnel Avenue shall be upgraded to current codes and standards. In addition to the features described in the Specific Plan, Tunnel Avenue shall:

- Provide a two-way left-turn lane north of Lagoon Road or turn pockets at all driveways to allow southbound vehicles to access driveways for existing and project land uses without stopping in the southbound through lane.
- Design access features for Golden State Lumber to provide adequate access for large trucks, a potential at-grade rail spur crossing of Tunnel Avenue for Golden State Lumber, and personal vehicles, such as through traffic signals, railroad gates, and consolidated driveways into parking facilities. These features shall be designed to ensure that personal vehicles or trucks do not back out onto Tunnel Avenue and that large vehicles or the potential train spur have protected access through traffic signals or railroad gates to meet FHWA, Caltrans, and CPUC standards.
- Provide roundabouts or traffic signals at intersections of minor arterial and collector streets, including Lagoon Road, Beatty Avenue, the Geneva Avenue Connector, East Campus Road, and Visitacion Creek North to facilitate access to the East Campus land uses, unless such improvements are demonstrated not to be warranted at a specific location.
- Construct the above measures in coordination with other infrastructure as follows: (1) The segment of Tunnel Avenue at Golden State Lumber and to the north in coordination with the Geneva Avenue extension, (2) The segment to the south of Golden State Lumber prior to opening of the land uses in the East Campus District or in coordination with the Lagoon Road reconstruction.



Sierra Point Parkway:

- Provide a roundabout at the intersection of Sierra Point Parkway and Lagoon Road, after the reconstruction of Lagoon Road, shall be if approved by Caltrans or a traffic signal if Caltrans does not approve a roundabout. This intersection shall be designed to allow for the continuation of the Bay Trail through this intersection through the features presented in the Supplemental Design Guidelines. Other recommendations for off-site bicycle and pedestrian facilities along Sierra Point Parkway are presented in the *Off-Site Connections for People Walking and Bicycling* sections.
- Construct the above measures in coordination with the existing City of Brisbane plans to add a roundabout or traffic signal at this off-ramp to support anticipated traffic growth associated with development at Sierra Point.

Main Street and Campus Parkway:

- Provide protected intersection features at the signalized intersections of Bayshore Boulevard with Main Street and Campus Parkway consistent with those presented in the Supplemental Design Guidelines in **Appendix E** and the Bayshore Mobility Plan presented in **Appendix F**.
- Construct the above measures features in coordination with construction of these collector roadways.

Roundhouse Circle and East and West Park Boulevard:

- Modify the roadway cross-sections for Roundhouse Circle as well as East and West Park Boulevard to provide a continuous 20-foot-wide fire access as approved by the North County Fire Authority.
- Provide stop signs for local roadways connecting to Roundhouse Circle and provide at least one marked pedestrian crossing location per intersection that meets the standards set forth in the Supplemental Design Guidelines.
- Construct the above measures features in coordination with construction of these local roadways.

Green Streets:

- Implement the design standards in the Supplemental Design Guidelines in **Appendix E** to slow median vehicle speeds of 15 mph or slower and reduce the potential for conflicts between roadway users while ensuring adequate emergency access.
- Provide driveways on at least two block faces for each development block on green streets to reduce the concentration of vehicles on any one green street. Alternatively, the project applicant could demonstrate through a traffic study using the trip generation information presented in this study that demonstrates that traffic volumes on the green street would not exceed 1,000 vehicles per day.



- The Project shall monitor traffic volumes and speeds on green streets to ensure that daily vehicle volumes average 1,000 vehicles or less and that median vehicle speeds are 15 miles per hour or less. The Project shall implement additional features consistent with the Supplemental Design Guidelines to slow traffic speeds and reduce the potential for cut through traffic if these metrics are not met.
- Construct the above measures features in coordination with construction of the green streets.

Off-Site Connections for People Walking and Bicycling:

- Provide off-site improvements shown on **Figure 19** to provide a safe and accessible pedestrian and bicycle network to local and regional destinations to ensure that the project does not create a situation where there is inadequate mixing for people walking or bicycling with vehicles to off-site destinations.
- The Bay Trail shall be connected through a protected path of travel along Sierra Point Parkway (either a two-way shared use pathway or protected Class IV bicycle facilities if the right-of-way for a shared use path to Bay Trail standards is infeasible), connecting to the proposed Bay Trail extension on the north side of Sierra Point Parkway at Marina Boulevard. Similar improvements shall be provided on the northern end of the Bay Trail in the Project site.
- Off-site improvements shall comply with the Supplemental Design Guidelines presented in **Appendix E** and shall be constructed in coordination with the on-site facilities that these are connecting.

Effectiveness of Recommendations

Compliance with the City's design standards and supplemental design guidelines would ensure that new facilities meet relevant standards and support the provision of adequate sight lines, protection for roadway users, and accommodation of loading activities. Implementation of specific measures for roadways described above would reduce the potential for the proposed Project to create or exacerbate existing hazardous conditions as described below. Compliance with design standards and implementation of these specific measures would all qualify of the types of roadway projects that would not lead to a substantial or measurable increase in VMT according to OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA*.[53] Additional information on the Bayshore Mobility Plan relating to VMT, emergency vehicle access, and transit access are described below and in **Appendix F**.

- **Bayshore Boulevard:** Between Geneva Avenue and San Bruno Avenue, the Bayshore Mobility Plan would reduce the number of travel lanes from four to two lanes, reduce the posted speed limit from 45 miles per hour (mph) to 35 mph consistent with other arterials in the Baylands Specific Plan, enhance multimodal facilities by widening sidewalks and adding a multi-use Class I path on the west side of the corridor, provide protected intersections at locations with vulnerable

[53] Technical Advisory on Evaluating Transportation Impacts in CEQA http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

roadway users (such as school children at Bayshore and Main Street traveling to proposed Baylands school), and improve access control to local streets. The Bayshore Mobility Plan would reduce the potential for hazardous conditions while also addressing plan compliance noted in Recommendation 2. As described in **Appendix F**, the Bayshore Mobility Plan includes features such as the reduction of vehicle through lanes and addition of pedestrian and bicycle facilities, and there would not therefore would not lead to a substantial or measurable increase in VMT according to OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA*.[54] As discussed in that Advisory, "reduction in the number of through lanes" and "[a]ddition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way" are "not likely to lead to a substantial or measurable increase in vehicle travel." Further, the Bayshore Mobility Plan would also include signal preemption, bus and emergency vehicle queue jumps, median breaks, and a shared use path that can accommodate emergency vehicles for short distances to bypass queues. Therefore, the Bayshore Mobility Plan would not increase VMT nor affect transit operations or emergency vehicle access and response times. Implementation of the Bayshore Mobility Plan would improve citywide mobility in a manner consistent with local and regional policies and reduce the potential for hazardous conditions along Bayshore Boulevard by providing adequate access control and complete street facilities to support multi-modal travel. Given the locally serving nature of the green streets, local roadways, and Industrial Way, these vehicle access recommendations would not substantially alter traffic patterns on Bayshore Boulevard or through the project site.

- **Geneva Avenue:** Implementation of these measures would reduce the potential for hazardous conditions along the Geneva Avenue extension and at the adjacent off-ramps and help the roadway meet the relevant design standards. The removal of the Geneva Avenue frontage roads would not preclude access to land uses because no driveways would be allowed along these frontages in the proposed project. The traffic volumes using the Geneva Avenue frontage roads would be low (approximately 50 vehicles or less during the peak hours) and these vehicles could use Baylands Boulevard and the parallel local roadways to access the proposed parking garage driveways. Thus, the redistribution of this traffic to other local roadways would not substantially change traffic circulation nor create secondary impacts within the project site. The Candlestick Interchange would reduce the potential for vehicle queues to extend back to the U.S. 101 mainline as presented in **Table 28** and Appendix D.
- **Tunnel Avenue:** Implementation of these measures would reduce the potential for hazardous conditions along the Tunnel Avenue extension and help the roadway meet the relevant design standards.
- **Sierra Point Parkway:** Implementation of these measures would reduce the potential for hazardous conditions along the Sierra Point Parkway extension by reducing the potential for the Project to cause vehicle queues to extend back to the U.S. 101 mainline (as presented in **Table 28** and Appendix D) and reducing conflicts between people walking and bicycling on the Bay Trail and people driving through the intersection of Lagoon Road.

[54] Technical Advisory on Evaluating Transportation Impacts in CEQA http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf



- **Main Street and Campus Parkway**: Implementation of this measure would allow bicyclists to comfortably connect between the existing Bayshore Boulevard Class II bicycle lanes and the proposed Class IV bicycle facilities.
- **Roundhouse Circle and East and West Park Boulevard:** Implementation of this recommendation would improve emergency access and reduce the potential for the inadequate mixing of people walking and bicycling with vehicles.
- **Green Streets:** Implementation of this recommendation would reduce the potential for the hazardous mixing or separation of people walking and bicycling with vehicles.
- **Off-Site Connections for People Walking and Bicycling:** Implementation of off-site connections to adjacent neighborhoods outside of the Project would reduce the potential for inadequate mixing of walking and bicycling trips generated by the Project with vehicles.

Table 28: 95th Percentile Vehicle Queues at U.S. 101 Off-Ramps that Exceed the Ramp Storage Length and Extend to the Mainline with Recommendations

U.S. 101 Off-Ramp	Storage Length[1]	Mid-Term 2035		Cumulative 2040	
		Plus Project	Recommended Configuration[2]	Plus Project	Recommended Configuration[2]
Candlestick Interchange Southbound Off-Ramp[3]	1,275 (1,025)	Adequate storage	Adequate storage	**Exceed** (AM and PM)	Adequate storage
Candlestick Interchange Northbound Off-ramp[3]	3,250 (2,500)	**Exceed** (PM Only)	Adequate storage	**Exceed** (PM Only)	Adequate storage
Sierra Point Southbound Off-Ramp[4]	1,370 (1,050)	Adequate storage	Adequate storage	**Exceed** (AM and PM)	Adequate storage

Notes: Detailed operational results are presented in Appendix D.

1. Storage length with the Project at Sierra Point Parkway or with the Candlestick Interchange are shown in parentheses.
2. Recommended Configuration includes the Candlestick Interchange, as studied through the 2013 Candlestick Interchange PSR for consistency with the San Francisco / San Mateo Bi-County Transportation Study, and a roundabout at Sierra Pont Parkway southbound U.S. 101 ramps.
3. Candlestick Interchange includes existing on- and off-ramps at Beatty Avenue, Alana Way, and Harney Way.
4. The Sierra Point Southbound Off-Ramp would be converted from a signal with the Project to a roundabout. The Northbound Off-Ramp is not shown as the Project would not contribute substantial volumes to this location.

Source: Fehr & Peers, 2024.

Therefore, **Recommendation 3b** would thus reduce the project's impact to hazardous conditions to **less than significant levels with these recommended improvements** and would not result in significant secondary transportation impacts.

Emergency Access

The proposed Project would cause a significant impact if it would provide an inadequate number of access points to the Project site, Development Districts, or site specific development projects such that potential evacuation operations would interfere with emergency response or roadway or site design would hinder the ability of emergency service operators to access streets and buildings or to conduct operations within the Specific Plan area.



Bayshore Boulevard, Geneva Avenue, Tunnel Avenue, Lagoon Road, and Sierra Point Parkway under the full buildout of the Project are the arterials serving the project site and the City of Brisbane as a whole that would serve as the primary evacuation routes in the case of an emergency requiring an evacuation. These routes connect to the rest of the region through interchanges to U.S. 101 and I-280. The proposed Project would extend Geneva Avenue and Sierra Point Parkway into the project site, but otherwise would not modify nor interfere with evacuation routes. These roadway extensions would improve emergency access to the City of Brisbane by providing redundancy of routes that emergency service providers could use in the case where one of the existing roadways becomes inaccessible. Additional access to regional routes would be provided through the proposed Project's network of local and collector roadways that would provide redundancy through a connected grid street network. The proposed Project would supplement the City's existing emergency evacuation centers, including Sierra Point and Mission Blue Recreation Cent, with new public open spaces on the east and west side of Caltrain that could serve as additional evacuation locations within the City of Brisbane in the case of an evacuation within the Project site other portions of the City. All parcels within the proposed Project are connected through at least two points of access and have at least 20-foot-wide through zones that can allow emergency service providers to reach individual parcels, even if evacuees are leaving the site in the opposite direction.

As presented in **Chapter 2**, Brisbane's existing fire and police stations are located at 2445 Bayshore Boulevard and 147 Valley Drive, respectively, in Central Brisbane, approximately 1.5 miles south of the middle of the project site. Access to the project site would be provided via Bayshore Boulevard and via Tunnel Avenue for the land uses east of Caltrain. The closest hospitals to the project site are CPMC Mission Bernal Campus in San Francisco and Kaiser in South San Francisco. Both hospitals are approximately five to six miles from the project site, accessible via Bayshore Boulevard or U.S. 101 via Lagoon Road, Sierra Point Parkway, Beatty Avenue, and the Geneva Avenue Extension under the full buildout of the Project.

Included in the proposed Project is relocation of Brisbane's existing fire station to 140 Valley Drive across from City Hall and the Brisbane Police Station. Development of a second fire station to serve the Baylands and City of Brisbane is proposed as part of the Project. The North County Fire Authority has identified the preferred location for this second station as being adjacent to U.S. 101 between Beatty Avenue and the Geneva Avenue extension to serve the project site and other mid-term land use growth, such as is occurring at Sierra Point to the southeast of the project site. Under Phase 1 operational conditions, without completion of the Geneva Avenue Bridge, fire trucks would need to use a circuitous route through two other jurisdictions (San Francisco and Daly City) to reach the Phase 1 project sites. This includes traveling on westbound Beatty Avenue, northbound Tunnel Avenue, westbound Blanken Avenue, and southbound Bayshore Boulevard. Under 2040 plus project conditions, the completion of the Geneva Avenue bridge as a part of the full buildout of the Project would improve emergency access compared to Phase 1 operational conditions by providing a more direct route to the development on the west side of the Caltrain tracks. However, the proposed cross section of the Geneva Avenue bridge would be only 44 feet wide for vehicle travel, with two travel lanes in each direction and no shoulders.



Per California Vehicle Code (CVC) 21806, drivers must yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes. In general, this means that emergency vehicle access would not be significantly impacted where drivers are able to pull over. Bayshore Boulevard south of Geneva Avenue has large roadway shoulders that provide ample room for drivers to pull over and the Bayshore Mobility Plan presented in Appendix F would provide multiple features for emergency vehicles to bypass queues, including emergency traffic signal priority, median breaks, and queue jumps. However, Bayshore Boulevard north of Geneva Avenue as well as Tunnel Avenue and Blanken Avenue have less shoulder space and do not include these emergency pre-emption features. The combination of the circuitous route through multiple jurisdictions under Phase 1 operational conditions, the limited shoulders for vehicles to pull over, and the substantial increase in traffic volumes on these roadways by 2035 (as presented in **Appendix D**) could result in inadequate emergency access to the Project. Further, the Geneva Avenue bridge proposed as a part the full buildout of the Project by 2040 would not include any shoulders or room for emergency vehicles to bypass the anticipated vehicle queues on Geneva Avenue in the case of an emergency.

Therefore, emergency vehicle access has the potential to be inadequate serving Phase 1 and Full Buildout of the proposed Project. This represents a **significant impact** to emergency access.

> **Impact 4:** The proposed Project would result in a **significant impact to emergency access**.
>
> **Recommendation 4:** The proposed Project shall construct the Geneva Avenue bridge overcrossing of Caltrain prior to triggering the need for an additional fire station to serve the land uses in Phase 1 of the project site. As presented in **Table 26**, the Geneva Avenue bridge would require dedicated BRT lanes to meet relevant local and regional plans for the corridor. These BRT lanes would also allow emergency vehicles to bypass traffic congestion on the bridge and provide unimpeded travel between the east side of the Caltrain tracks and the Phase 1 land uses on the west side of Caltrain, and thus meet the City of Brisbane's response time standards.
>
> Providing adequate response time would thus reduce the project's impact on emergency access to **less than significant levels with these recommended improvements**.

Cumulative Impacts

This section describes the full buildout of the proposed Project's contribution to cumulative impacts. This assessment documents the potential for the proposed Project, in combination with the reasonably foreseeable projects described in **Chapter 4**, to create impacts. As supplemental information to the cumulative conditions, which would not include any changes to the existing Alana Way and Harney Way interchange, this evaluation includes the results of a supplemental cumulative scenario that includes replacement of this existing interchange with the Candlestick Interchange as envisioned within the 2013 PSR. This scenario includes local and regional land use growth and transportation network changes that are reasonably foreseeable by 2040, as presented in **Appendix B**.



Vehicle Miles Traveled

OPR's Technical Advisory allows reliance upon a comparison to baseline conditions for the cumulative analysis. As discussed under OPR's Technical Advisory, "A project that falls below an efficiency-based threshold that is aligned with long-term environmental goals and relevant plans would have no cumulative impact distinct from the project impact. Accordingly, a finding of a less-than-significant project impact would imply a less than significant cumulative impact, and vice versa." (OPR Technical Advisory p. 6.) OPR's Technical Advisory similarly notes that "When using an absolute VMT metric, i.e., total VMT…analyzing the combined impacts for a cumulative impact analysis may be appropriate." (OPR Technical Advisory, p. 6.) Consequently, while the analysis provides future year daily total VMT generated in the region for cumulative scenarios, these are not required for the purposes of CEQA. As shown in **Table 23** of Chapter 6, the Project would not increase regional VMT, with or without the Candlestick Interchange. Since the proposed Project would not exceed the threshold related to per capita VMT nor result in an increase in regional VMT under project conditions, the proposed Project would not contribute to a significant impact to VMT under cumulative conditions.

Consistency with Plans and Policies

The proposed Project would result in a significant impact under cumulative conditions if it would not meet the intent of facilitating use of transit, bicycle, or pedestrian travel modes expressed in the Brisbane General Plan, Plan Bay Area, and other relevant regional plans, in combination with other reasonably foreseeable changes. Similar to the Project-level impacts presented in **Table 26** and **Table 27**, the proposed Project would conflict with local and regional policy and plan and not meet the intent of facilitating use of transit, bicycle, or pedestrian travel modes. In particular, the proposed Specific Plan's designs of the Geneva Avenue Extension does not show how it would accommodate the Candlestick Interchange nor provide access to Recology and the proposed open space and Bay Trail segment east of the Sierra Point Parkway extension. Given the inconsistencies of the proposed Project with local and regional plans and policies, the proposed Project would result in a cumulatively **significant impact** by conflicting with these plans and policies.

Implementation of **Recommendation 2** would require that the Project complies with the applicable local and regional plans and policies, which would reduce cumulative impact to **less than significant levels with these recommended improvements**.

Hazards

The proposed Project would cause a significant impact under cumulative conditions if, in combination with other past, present, and reasonably foreseeable future projects, it would result in hazards to vehicles, bicyclists, or pedestrians due to hazards during construction or inadequate roadway design.

With respect to hazards during the construction phase, the proposed Project would overlap with the construction of other nearby land use and infrastructure projects given the 20-year period for construction activities and the location of the proposed project adjacent to the other reasonably foreseeable projects presented in **Appendix B** that will be under construction during this time based on



anticipated buildout by 2035. Therefore, similar to the Project Impact conditions, the large number of trucks generated by the Project's construction activities could combine with the construction activities of those projects to create hazardous conditions for other roadway users. The construction of the proposed Project would be conducted in compliance with city requirements, which would reduce the interference of construction activities to people walking, bicycling, or driving, including transit and emergency vehicles as described under the Project Impacts section. Therefore, the combination of construction activities of the proposed Project with other reasonably foreseeable projects would result in a cumulatively **less than significant impact** to construction hazards.

With respect to design hazards, cumulative conditions for the proposed Project would be similar to Project conditions. Other proposed land uses in the area would not include incompatible uses that would worsen or create hazardous conditions that the Project would contribute to. Other land use projects that occur on the Project's frontage, which includes Recology, would not introduce geometric design hazards as disclosed through the environmental documents prepared for that study. However, as presented in the Project Impacts section, given the potentially hazardous conditions relating to the design and location of driveways and loading facilities associated with the proposed Project, the interface of the Project with regional roadways, and the design of shared roadway facilities that mix people walking, bicycling, and driving, the proposed Project would result in a **cumulatively significant impact** due to potentially hazardous conditions.

Implementation of **Recommendation 3b** would require that the Project design the roadway network in a manner that would be consistent with relevant roadway design standards, which would reduce cumulative impact to **less than significant levels with these recommended improvements**.

Emergency Access

The proposed Project would result in a significant impact under cumulative conditions if, in combination with other reasonably foreseeable projects, it would provide an inadequate number of access points such that potential evacuation operations would interfere with emergency response or roadway or site design would hinder the ability of emergency service operators to access streets and buildings or to conduct operations within the Specific Plan area. Under cumulative conditions, the proposed Project would contribute to traffic congestion on the Geneva Avenue bridge that would inhibit emergency vehicle access to the proposed new fire station in the Campus East District due to the lack of room for emergency vehicles to pass other vehicles. Therefore, similar to the Project Impacts, emergency vehicle access would be inadequate under cumulative conditions, resulting in a cumulatively significant impact.

Implementation of **Recommendation 4** would also allow emergency vehicles to bypass traffic congestion on the bridge and provide unimpeded travel between the east side of the Caltrain tracks and the Phase 1 land uses on the west side of Caltrain, and thus meet the City of Brisbane's response time standards. Providing adequate response time would thus reduce the cumulative impact on emergency access to **less than significant levels with these recommended improvements**.

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Appendix A: Existing Traffic Conditions Memo

FEHR PEERS

MEMORANDUM

Date: April 13, 2023

To: Lloyd Zola, Metis Environmental Group

From: Matt Goyne and Allison Quach, Fehr & Peers

Subject: Baylands Specific Plan: Existing Traffic Conditions

SF19-1036

STUDY PURPOSE

The Circulation Element of the City of Brisbane's General Plan identifies several policies related to traffic circulation. Bayshore Boulevard is identified as a regional arterial due to the high amount of regional traffic. As a part of Policy C.1, the City identified the need to manage regional cut-through traffic on Bayshore Boulevard so that this roadway better supports local circulation. The Circulation Element Policy C.2 identifies the objective to maintain LOS "D" for principal and minor arterial streets. This memorandum presents an evaluation of existing LOS and traffic patterns to inform the Brisbane Baylands traffic study addressing General Plan requirements. While the intersections on Bayshore Boulevard do not qualify for Policy C.2 due to the regional arterial designation, the existing LOS is presented in this memorandum for informational purposes.

SUMMARY OF FINDINGS

All 16 study intersections currently operate at LOS D or better, thus complying with the City of Brisbane's Circulation Element Policy C.2. Our findings from the travel pattern study indicate that Bayshore Boulevard continues to function primarily as a regional roadway through the City of Brisbane. Depending on the time of day and location, regional cut-through trips make up 60 to 90 percent of traffic on Bayshore Boulevard. On a daily basis, less than 10 percent of all trips on Bayshore Boulevard are generated from Brisbane residential neighborhoods and approximately 15 percent are generated by Brisbane employment centers. Most of the cut-through travel is between San Francisco and cities to the south of Brisbane, with a smaller amount (approximately 17 percent of all trips) traveling between Daly City and the south. As documented in the 2013 Brisbane Baylands DEIR, this regional traffic on Bayshore Boulevard is expected to grow in the future, worsening traffic

operations to unacceptable levels without any changes to the land uses in Brisbane. The effect of this growth will be studied further as a part of the 2023 Brisbane Baylands DEIR.

EXISTING TRAFFIC OPERATIONS

Fehr & Peers collected traffic counts and conducted a LOS analysis to determine existing traffic operations for intersections within the Brisbane Baylands study area shown in **Figure 1**.

Data Collection

Fehr & Peers collected AM (7:00-9:00) and PM (4:30-6:30) peak period vehicle, bicycle, and pedestrian counts at the study intersections listed below on Wednesday, May 1, 2019, Wednesday, March 11, 2020, and Tuesday, May 10, 2022. Traffic counts collected in 2022 indicate that peak hour traffic volumes continue to be lower than 2019 and 2020 pre-COVID conditions. Therefore, to establish a reasonably conservative existing condition, this analysis is based on traffic counts collected in 2019 and the first two months of 2020, except for the intersection of Bayshore Boulevard / San Bruno Avenue since the lane configuration was changed after the 2019/2020 counts were collected. **Figure 2** presents the AM and PM peak hour turning movement volumes. In addition to the intersection counts, daily roadway traffic counts were collected at the locations indicated on **Figure 1**. **Attachment A** presents a record of the intersection and roadway counts and the comparison of total intersection volumes between each study year.

1. Beatty Ave / Tunnel Ave
2. Beatty Road / Alana Way
3. Harney Way / Alana Way / Thomas Mellon Drive (San Francisco)
4. Tunnel Ave / Lagoon Road
5. Sierra Point Pkwy / Lagoon Road / US-101 southbound ramps
6. Sierra Point Pkwy / US-101 northbound ramps
7. Geneva Ave / Carter St (Daly City)
8. Bayshore Boulevard / Tunnel Avenue
9. Bayshore Boulevard / Geneva Avenue
10. Bayshore Boulevard / Industrial Way
11. Bayshore Boulevard / Main Street
12. Bayshore Boulevard / Guadalupe Canyon Pkwy
13. Bayshore Boulevard / Valley Drive
14. Bayshore Boulevard / Old County Road / Tunnel Avenue

15. Bayshore Boulevard / Van Waters and Rodgers Road
16. Bayshore Boulevard / San Bruno Avenue

Field Visits

In 2019 and 2022, Fehr & Peers conducted site visits during the PM peak hour to observe general traffic conditions at the study intersections. We also verified traffic control devices and lane configurations at the study intersections, as well as recording observed maximum queue lengths. The intersection of Bayshore Boulevard / San Bruno Avenue was modified after the 2019 site visit to prohibit eastbound left-turns from San Bruno Avenue onto Bayshore Boulevard. As reflected in the traffic counts, observations during field visits showed that traffic conditions in 2022 continue to be lower than 2019 pre-COVID conditions.

In general, while there was a constant stream of cars on Bayshore Boulevard in both directions, traffic operations appeared to be acceptable throughout the corridor. The maximum queue length observed for most study intersections ranged from 20 to 200 feet during the field visit and did not extend to nearby intersections in Brisbane. The longest observed queue was on the northbound approach at Bayshore Boulevard / Old County Road / Tunnel Avenue of approximately 400 feet. All vehicles were able to clear in one traffic signal cycle, indicating that traffic operations on this approach generally meet the City's standard for acceptable operations.

Vehicle spillover did occur at the southbound approach at Bayshore Boulevard / Tunnel Avenue in the City of San Francisco. Southbound queues from the downstream intersection of Bayshore Boulevard / San Bruno Avenue / Arleta Avenue occasionally extended past Tunnel Avenue. All vehicles in the queue were able to clear in one traffic signal cycle and the queues did not extend to the next upstream signalized intersection past Tunnel Avenue.

Drivers experienced some delay at the stop-controlled intersections of San Bruno Avenue and Main Street while waiting for gaps in traffic before turning onto Bayshore Boulevard. Traffic volumes on Bayshore Boulevard at San Bruno Avenue were higher than at Main Street, and therefore the drivers waited longer for gaps in traffic at this location.

Figure 1. Study Intersections





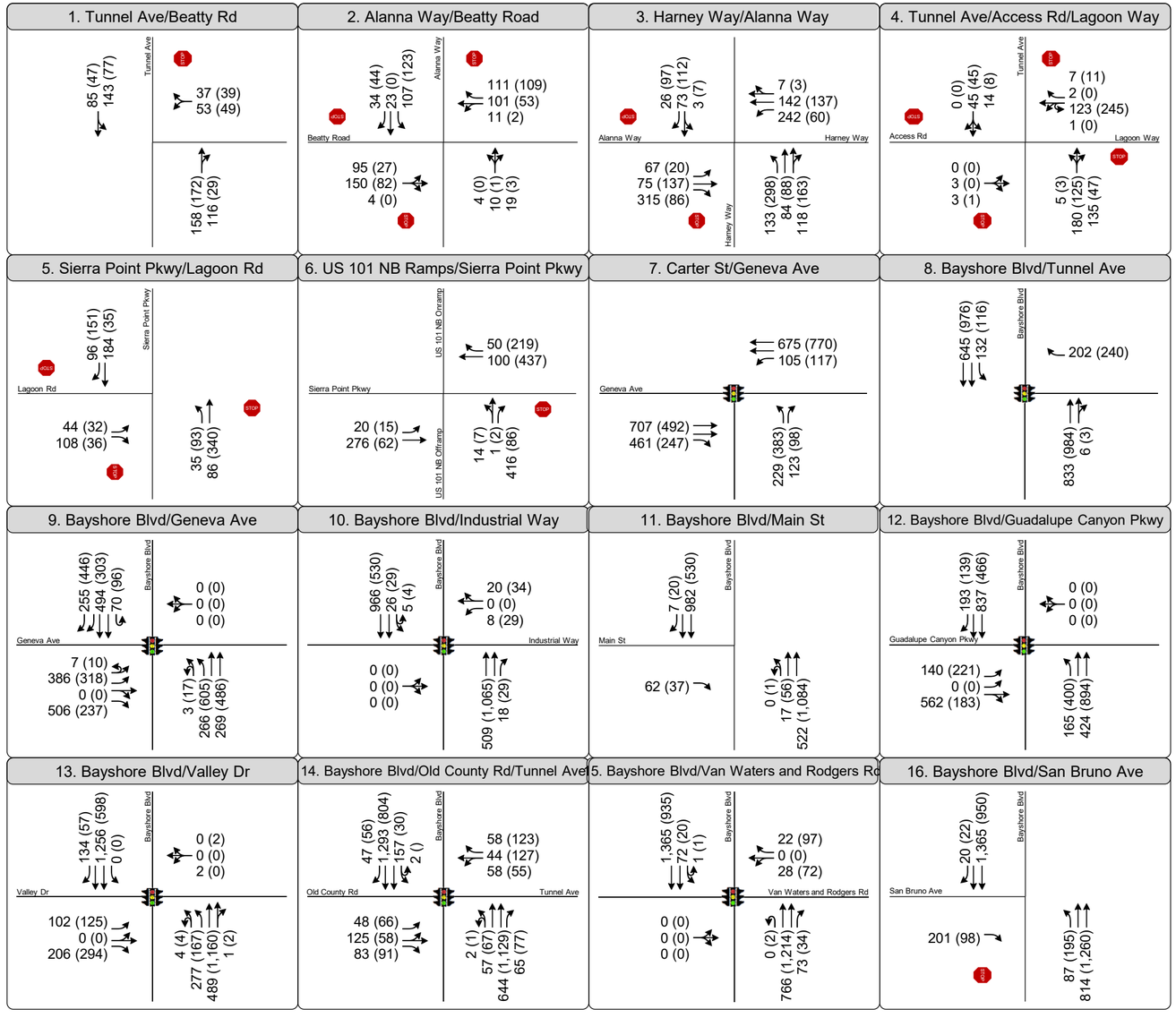


Figure 2
Turning Movement Volumes and Lane Configuration
Existing Conditions

Intersection Operations

This study analyzes traffic operations using LOS as a measure of performance. Motorized vehicle LOS is a qualitative measure of traffic flow from the perspective of motorists and is an indication of the comfort and convenience associated with driving. Typical factors that affect motorized vehicle LOS include speed, travel time, traffic interruptions, and freedom to maneuver. Empirical LOS criteria and methods of calculation are documented in the *Highway Capacity Manual (HCM)* published by the Transportation Research Board of the National Academies of Science (Transportation Research Board, 2017). This study relies on PTV's Visum software package to produce the LOS results, consistent with the HCM 7th edition, for 13 of the 16 study intersections. Vissim, a microsimulation analysis tool that accounts for the congestion interactions between tightly spaced intersections, was used to analyze the intersections of Bayshore Blvd / Geneva Ave, Beatty Road / Alana Way / US-101 SB Ramps, and Harney Way / Alana Way / Thomas Mellon Drive / US-101 NB. These intersections will be located on the Geneva Avenue extension with tightly spaced intersections. The HCM defines six levels of service ranging from LOS A (representing free-flow vehicular traffic conditions with little to no congestion) to LOS F (oversaturated conditions where traffic demand exceeds capacity resulting in long queues and delays). The LOS definitions and calculations contained in the HCM are the prevailing measurement standard used throughout the United States and are used in this study. **Table 3** in **Attachment B** summarizes intersection LOS criteria for both signalized and unsignalized intersections.

Per Policy C.2 of the City of Brisbane General Plan, "the level of service objective for principal and minor arterial streets within the City is LOS "D." This policy covers intersections 1 through 7 and excludes all intersections on Bayshore Boulevard.

Table 1 presents the results of the AM and PM peak hour operations analysis at the 16 study intersections. The detailed calculations are presented in **Attachment C**. All intersections operate acceptably.

Table 1. Intersection LOS – Existing Conditions[1]

Intersection	Jurisdiction	Traffic Control[2]	AM Peak Hour		PM Peak Hour	
			Delay	LOS	Delay	LOS
1. Beatty / Tunnel Ave	Brisbane	SSSC	14	B (WB)	11	B (WB)
2. Beatty Road / Alana Way / US-101 SB Ramps[3]	Brisbane	AWSC	≤10	A	≤10	A
3. Harney Way / Alana Way / Thomas Mellon Drive / US-101 NB Ramps[3]	San Francisco	SSSC	≤10	A (EB)	14	B (EB)
4. Tunnel Ave / Lagoon Road	Brisbane	AWSC	≤10	A	≤10	A
5. Sierra Point Pkwy / Lagoon Road / US-101 SB ramps	Brisbane	AWSC	≤10	A	≤10	A
6. Sierra Point Pkwy / US-101 NB ramps	Brisbane	SSSC	14	B (NB)	14	B (NB)
7. Geneva Ave / Carter St	Daly City	Signal	26	C	23	C
8. Bayshore Blvd / Tunnel Ave	San Francisco	Signal	17	B	17	B
9. Bayshore Blvd / Geneva Ave[3]	Daly City	Signal	23	C	23	C
10. Beatty Ave / Industrial Way	Brisbane	Signal	≤10	A	≤10	A
11. Bayshore Blvd / Main St	Brisbane	SSSC	20	C (NB)	12	B (NB)
12. Bayshore Blvd / Guadalupe Canyon Parkway	Brisbane	Signal	16	B	14	B
13. Bayshore Blvd / Valley Dr	Brisbane	Signal	25	C	14	B
14. Bayshore Blvd / Old County Rd / Tunnel Ave	Brisbane	Signal	35	C	27	C
15. Bayshore Blvd / Van Waters and Rodgers Rd	Brisbane	Signal	≤10	A	11	B
16. Bayshore Blvd / San Bruno Ave	Brisbane	SSSC	18	C (EB)	13	B (EB)

Notes: **Bolded** results indicate operations exceeding City of Brisbane acceptable standards.

1. For signalized intersections, delay (sec/veh) and LOS is reported for the overall intersection. For SSSC intersections, delay and LOS is reported for the overall intersection and worst-case movement in parentheses. NB = Northbound, SB = Southbound, EB = Eastbound, WB = Westbound
2. SSSC = side-street stop controlled, AWSC = all-way stop controlled.
3. Analyzed in the microsimulation tool Vissim due to the closely spaced intersections along Geneva Avenue under future with project conditions. The remaining intersections were analyzed using the Brisbane Sub Area Visum model.

Source: Fehr & Peers, 2023.

EXISTING TRAVEL PATTERNS

Bayshore Boulevard is the main arterial that runs north-south through the City of Brisbane, connecting South San Francisco to Visitacion Valley at the southern end of San Francisco. Within Brisbane, Bayshore Boulevard has two travel lanes in each direction, a 45 mile per hour speed limit, and five traffic signals over the approximately 2.5-mile long corridor. The Bayshore Boulevard corridor parallels US-101, which provides regional connection from San Francisco to San Jose and beyond. Bayshore Boulevard is identified as a regional arterial in the Circulation Element of the City of Brisbane's General Plan due to the high amount of regional traffic. This analysis provides existing information to support the programs set forth in Policy C.1 that identified the need to manage regional cut-through traffic on Bayshore Boulevard to better supports local circulation.

To identify who is currently traveling along Bayshore Boulevard, Fehr & Peers conducted an analysis of travel patterns using "Big Data" from Streetlight Data. This data source provides an observed estimate of travel patterns based on aggregated and anonymous observed cell phone data from a sample of travelers. The study period included aggregated data from January to April 2022.

Fehr & Peers selected the eight Origin-Destination zones presented in **Figure 3** to determine how many people using Bayshore Boulevard are traveling through Brisbane versus those that start or end in Brisbane. There are four Origin-Destination zones in the City of Brisbane representing distinct areas of the City. These were selected in consultation with City staff based on land use patterns and major roadways. There are also four zones outside of Brisbane to inform who is using Bayshore Boulevard to cut-through Brisbane between San Francisco, Daly City, San Mateo County, and the rest of the Bay Area. We selected two locations on Bayshore Boulevard to conduct this analysis: north of Guadalupe Canyon Parkway ("North Bayshore") and south of Old County Road / Tunnel Avenue ("South Bayshore"). These locations were selected to isolate the effects of cut-through traffic entering Brisbane from the north and south.

Table 2 presents a summary of this analysis for the following different time periods: weekday and weekend, and AM peak, PM peak, and daily. Approximately two thirds to three quarters of weekday of travel and over 80 percent of weekend trips on Bayshore Boulevard are cut-through trips, indicating that Bayshore Boulevard functions primarily as a regional roadway through the City of Brisbane. A few key trends from this table include the following:

- Cut-through trips make up a slightly higher percentage (five to seven percent) of total traffic on the northern end of Bayshore Boulevard than the southern end.
- Cut-through travel is slightly higher in the PM peak hour than the AM peak hour (by five to seven percent), likely due to increased traffic congestion on US-101 during this period.

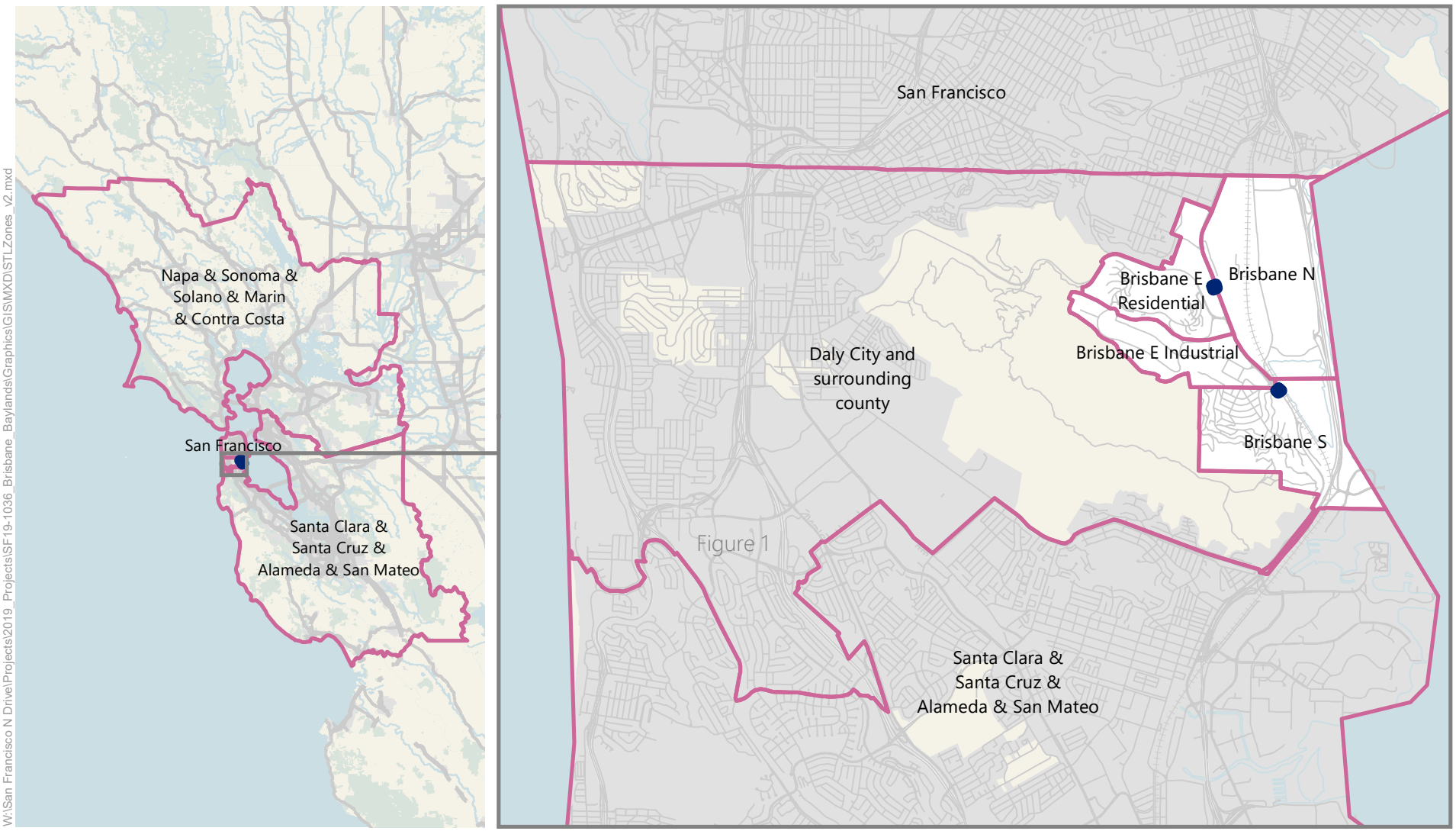


Figure 3

Streetlight Analysis Zones

- Cut-through travel makes up a larger share of the travel on Bayshore Boulevard on weekends than on weekdays (by 11 to 14 percent), likely because there is reduced travel to and from Brisbane employment locations on weekends, making cut-through travel a larger share of the total.

Table 2 – Bayshore Boulevard Cut-Through Traffic Assessment

Pass Through Zone	Day Type	Day Part	Brisbane Trips	Cut-through Trips
North Bayshore	Average Weekday (M-Th)	Peak AM (7am-10am)	33%	67%
		Peak PM (4pm-7pm)	27%	73%
		All Day (12am-12am)	24%	76%
	Average Weekend Day (Sa-Sun)	Peak AM (7am-10am)	21%	79%
		Peak PM (4pm-7pm)	14%	86%
		All Day (12am-12am)	13%	87%
South Bayshore	Average Weekday (M-Th)	Peak AM (7am-10am)	38%	62%
		Peak PM (4pm-7pm)	33%	67%
		All Day (12am-12am)	31%	69%
	Average Weekend Day (Sa-Sun)	Peak AM (7am-10am)	26%	74%
		Peak PM (4pm-7pm)	19%	81%
		All Day (12am-12am)	19%	81%

In addition to this key finding that Bayshore Boulevard is functioning as a regional roadway, Streetlight Data can be used to answer a variety of other questions relating to the origins and destinations of the travelers or the types of trips being made. **Attachment D** presents several additional tables of results, which are summarized below.

The highest peak hour cut-through trip pattern is between San Francisco and cities to the south of Brisbane, representing 33 to 36 percent of all travelers. Travelers between Daly City and cities to the south of Brisbane represent 17 percent of all travelers.

The most common Brisbane trip-end on an average weekday is the Brisbane East Industrial zone, which is dominated by the Crocker Industrial Park along Valley Drive. Approximately 15 percent of all trips on Bayshore Boulevard start or end at this location. Most of these trips are to other cities, highlighting that this industrial area is a regional employer which draws in trips from outside of Brisbane. The Brisbane East residential areas that contain The Ridge neighborhood and the Brisbane South Zone that contains Downtown Brisbane and the surrounding neighborhoods make up only 7 to 10 percent of all traffic on Bayshore Boulevard. Less than three percent of all trips start or end at the Baylands site, which currently hosts several industrial uses.

Note as this study focuses on Bayshore Boulevard, it does not include Brisbane-based travelers who use Old Country Road and Tunnel Avenue to reach on- and off-ramps on US-101, nor those who use San Bruno Avenue to reach southbound Bayshore Boulevard.

CONCLUSION

This study indicates that Bayshore Boulevard serves primarily as a regional route connecting nearby communities. Bayshore Boulevard has higher speed limits and fewer traffic signals compared to arterials in nearby San Francisco and Daly City, creating an attractive route parallel route to US-101 for regional commuters. While traffic operations along Bayshore Boulevard do not currently exceed LOS D, future traffic operations along Bayshore Boulevard are highly susceptible to changes to regional travel patterns. As documented in the 2013 Brisbane Baylands DEIR, regional traffic on Bayshore Boulevard is expected to grow and worsen traffic operations to unacceptable levels without any changes to the land uses in Brisbane. The 2023 Brisbane Baylands EIR and General Plan compliance study will evaluate options for improving mobility for Brisbane residents, consistent with General Plan Policy C.1.

ATTACHMENTS

ATTACHMENT A – TRAFFIC COUNTS

Brisbane Intersection Volume Comparison - Total Intersection Volume

Prepared by Fehr & Peers, June 2022

Intersection	AM Peak Hour			PM Peak Hour			AM Comparison		PM Comparison		AM Comparison		PM Comparison	
							May 2019 to May 2022		May 2019 to May 2022		March 2020 to May 2022		March 2020 to May 2022	
	May-19	Mar-20	May-22	May-19	Mar-20	May-22	Numerical	Percentage	Numerical	Percentage	Numerical	Percentage	Numerical	Percentage
Bayshore Blvd / Tunnel Ave	1,818	0	1,824	2,320	0	2,173	-6	0%	147	-6%	-	-	-	-
Bayshore Blvd / Geneva Ave	2,256	0	1,831	2,518	0	2,135	425	-19%	383	-15%	-	-	-	-
Bayshore Blvd / Industrial Way	1,552	0	1,364	1,720	0	1,530	188	-12%	190	-11%	-	-	-	-
Bayshore Blvd / Main St	1,590	0	1,394	1,728	0	1,553	196	-12%	175	-10%	-	-	-	-
Bayshore Blvd / Guadalupe Canyon Parkway	2,321	0	1,765	2,303	0	1,882	556	-24%	421	-18%	-	-	-	-
Bayshore Blvd / Valley Dr	2,471	0	2,070	2,409	0	2,099	401	-16%	310	-13%	-	-	-	-
Bayshore Blvd / Tunnel Ave / Old County Rd	2,683	2,444	2,189	2,684	2,561	2,358	494	-18%	326	-12%	255	-10%	203	-8%
Bayshore Blvd / Van Waters and Rodgers Rd	2,327	2,156	1,755	2,375	2,262	1,961	572	-25%	414	-17%	401	-19%	301	-13%
Bayshore Blvd / San Bruno Ave	2,507	2,359	2,005	2,540	2,500	2,272	502	-20%	268	-11%	354	-15%	228	-9%
Tunnel Ave / Beatty Ave	0	592	508	0	413	279	-	-	-	-	84	-14%	134	-32%
Alana Way / Beatty Ave	0	669	660	0	444	399	-	-	-	-	9	-1%	45	-10%
Thomas Mellon Cir / Alana Way / Harney Way	0	1,196	613	0	1,124	506	-	-	-	-	583	-49%	618	-55%
Tunnel Ave / Lagoon Rd	0	518	481	0	485	369	-	-	-	-	37	-7%	116	-24%
Sierra Point Parkway / Lagoon Rd	0	553	569	0	687	563	-	-	-	-	-16	3%	124	-18%
US-101 NB Ramps / Sierra Point Parkway	0	877	747	0	828	699	-	-	-	-	130	-15%	129	-16%
Carter St / Geneva Ave	0	2,300	2,092	0	2,107	2,103	-	-	-	-	208	-9%	4	0%

Notes:

Intersection turning movement counts were collected on: Wednesday May 1, 2019, Wednesday March 11, 2020, and Tuesday May 10, 2022

Brisbane Intersection Volume Comparison - by Movement

Prepared by Fehr & Peers, June 2022

Intersection	Turning Movement		AM Peak Hour			PM Peak Hour			AM Comparison		PM Comparison		AM Comparison		PM Comparison	
			May-19	Mar-20	May-22	May-19	Mar-20	May-22	May 2019 to May 2022		May 2019 to May 2022		March 2020 to May 2022		March 2020 to May 2022	
									Numerical	Percentage	Numerical	Percentage	Numerical	Percentage	Numerical	Percentage
Bayshore Blvd / Tunnel Ave	NB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	833	-	996	984	-	883	163	20%	-101	-10%	-	-	-	-
		RT	6	-	8	3	-	5	2	33%	2	67%	-	-	-	-
	SB	U	3	-	1	10	-	13	-2	-67%	3	30%	-	-	-	-
		LT	129	-	63	106	-	93	-66	-51%	-13	-12%	-	-	-	-
		TH	645	-	540	976	-	1,031	-105	-16%	55	6%	-	-	-	-
		RT	0	-	0	1	-	0	0	-	-1	-100%	-	-	-	-
	EB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
	WB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	202	-	216	240	-	148	14	7%	-92	-38%	-	-	-	-
Bayshore Blvd / Geneva Ave	NB	U	3	-	3	17	-	1	0	0%	-16	-94%	-	-	-	-
		LT	266	-	256	605	-	493	-10	-4%	-112	-19%	-	-	-	-
		TH	269	-	225	486	-	403	-44	-16%	-83	-17%	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
	SB	U	70	-	1	96	-	0	-69	-99%	-96	-100%	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	494	-	354	303	-	279	-140	-28%	-24	-8%	-	-	-	-
		RT	255	-	237	446	-	453	-18	-7%	7	2%	-	-	-	-
	EB	U	7	-	1	10	-	5	-6	-86%	-5	-50%	-	-	-	-
		LT	386	-	325	318	-	266	-61	-16%	-52	-16%	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	506	-	429	237	-	235	-77	-15%	-2	-1%	-	-	-	-
	WB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
Bayshore Blvd / Industrial Way	NB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	509	-	461	1,065	-	842	-48	-9%	-223	-21%	-	-	-	-
		RT	18	-	40	29	-	27	22	122%	-2	-7%	-	-	-	-
	SB	U	5	-	8	4	-	11	3	60%	7	175%	-	-	-	-
		LT	26	-	47	29	-	37	21	81%	8	28%	-	-	-	-
		TH	966	-	744	530	-	515	-222	-23%	-15	-3%	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
	EB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
	WB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	8	-	16	29	-	51	8	100%	22	76%	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	20	-	48	34	-	47	28	140%	13	38%	-	-	-	-
Bayshore Blvd / Main St	NB	U	0	-	1	1	-	0	1	-	-1	-100%	-	-	-	-
		LT	17	-	34	56	-	66	17	100%	10	18%	-	-	-	-
		TH	522	-	492	1,084	-	869	-30	-6%	-215	-20%	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
	SB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	982	-	740	530	-	539	-242	-25%	9	2%	-	-	-	-
		RT	7	-	19	20	-	24	12	171%	4	20%	-	-	-	-
	EB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	4	0	-	1	4	-	1	-	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	62	-	104	37	-	54	42	68%	17	46%	-	-	-	-
	WB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
Bayshore Blvd / Guadalupe Canyon Parkway	NB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	165	-	153	400	-	223	-12	-7%	-177	-44%	-	-	-	-
		TH	424	-	446	894	-	706	22	5%	-188	-21%	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
	SB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	837	-	649	466	-	467	-188	-22%	1	0%	-	-	-	-
		RT	193	-	153	139	-	122	-40	-21%	-17	-12%	-	-	-	-
	EB	U	0	-	0	1	-	0	0	-	-1	-100%	-	-	-	-
		LT	140	-	93	220	-	197	-47	-34%	-23	-10%	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	562	-	271	183	-	167	-291	-52%	-16	-9%	-	-	-	-
	WB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	0	-	0	0	-	0	0	-	0	-	-	-	-	-

Brisbane Intersection Volume Comparison - by Movement

Prepared by Fehr & Peers, June 2022

Intersection	Turning Movement		AM Peak Hour			PM Peak Hour			AM Comparison		PM Comparison		AM Comparison		PM Comparison	
			May-19	Mar-20	May-22	May-19	Mar-20	May-22	May 2019 to May 2022		May 2019 to May 2022		March 2020 to May 2022		March 2020 to May 2022	
									Numerical	Percentage	Numerical	Percentage	Numerical	Percentage	Numerical	Percentage
Bayshore Blvd / Valley Dr	NB	U	4	-	7	4	-	5	3	75%	1	25%	-	-	-	-
		LT	277	-	386	167	-	196	109	39%	29	17%	-	-	-	-
		TH	489	-	467	1,160	-	835	-22	-4%	-325	-28%	-	-	-	-
		RT	1	-	2	2	-	1	1	100%	-1	-50%	-	-	-	-
	SB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	0	-	0	0	-	1	0	-	1	-	-	-	-	-
		TH	1,256	-	826	598	-	589	-430	-34%	-9	-2%	-	-	-	-
		RT	134	-	110	57	-	49	-24	-18%	-8	-14%	-	-	-	-
	EB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	102	-	88	125	-	94	-14	-14%	-31	-25%	-	-	-	-
		TH	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		RT	206	-	180	294	-	327	-26	-13%	33	11%	-	-	-	-
	WB	U	0	-	0	0	-	0	0	-	0	-	-	-	-	-
		LT	2	-	1	0	-	2	-1	-50%	2	-	-	-	-	-
		TH	0	-	1	0	-	0	1	-	0	-	-	-	-	-
		RT	0	-	2	2	-	0	2	-	-2	-100%	-	-	-	-
Bayshore Blvd / Tunnel Ave / Old County Rd	NB	U	2	0	0	1	2	0	-2	-100%	-1	-100%	0	-	-2	-100%
		LT	57	47	47	67	74	78	-10	-18%	11	16%	0	0%	4	5%
		TH	644	702	688	1,129	985	862	44	7%	-267	-24%	-14	-2%	-123	-12%
		RT	65	56	34	77	67	28	-31	-48%	-49	-64%	-22	-39%	-39	-58%
	SB	U	2	2	1	0	2	0	-1	-50%	0	-	-1	-50%	-2	-100%
		LT	157	125	85	30	44	41	-72	-46%	11	37%	-40	-32%	-3	-7%
		TH	1,293	1,056	885	804	802	826	-408	-32%	22	3%	-171	-16%	24	3%
		RT	47	40	44	56	63	59	-3	-6%	3	5%	4	10%	-4	-6%
	EB	U	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		LT	48	45	36	66	74	72	-12	-25%	6	9%	-9	-20%	-2	-3%
		TH	125	129	94	58	69	59	-31	-25%	1	2%	-35	-27%	-10	-14%
		RT	83	76	63	91	86	122	-20	-24%	31	34%	-13	-17%	36	42%
	WB	U	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		LT	58	46	26	55	52	37	-32	-55%	-18	-33%	-20	-43%	-15	-29%
		TH	44	40	54	127	130	75	10	23%	-52	-41%	14	35%	-55	-42%
		RT	58	80	132	123	111	99	74	128%	-24	-20%	52	65%	-12	-11%
Bayshore Blvd / Van Waters and Rodgers Rd	NB	U	0	3	6	2	6	2	6	-	0	0%	3	100%	-4	-67%
		LT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		TH	766	803	756	1,214	1,129	971	-10	-1%	-243	-20%	-47	-6%	-158	-14%
		RT	73	79	1	34	21	1	-72	-99%	-33	-97%	-78	-99%	-20	-95%
	SB	U	1	0	1	1	2	1	0	0%	0	0%	1	-	-1	-50%
		LT	72	57	1	20	15	2	-71	-99%	-18	-90%	-56	-98%	-13	-87%
		TH	1,365	1,151	985	935	932	981	-380	-28%	46	5%	-166	-14%	49	5%
		RT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
	EB	U	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		LT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		TH	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		RT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
	WB	U	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		LT	28	45	4	72	90	2	-24	-86%	-70	-97%	-41	-91%	-88	-98%
		TH	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		RT	22	18	1	97	67	1	-21	-95%	-96	-99%	-17	-94%	-66	-99%
Bayshore Blvd / San Bruno Ave	NB	U	6	7	3	4	8	8	-3	-50%	4	100%	-4	-57%	0	0%
		LT	81	91	66	191	204	158	-15	-19%	-33	-17%	-25	-27%	-46	-23%
		TH	814	866	776	1,260	1,153	992	-38	-5%	-268	-21%	-90	-10%	-161	-14%
		RT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
	SB	U	0	1	0	0	0	0	0	-	0	-	-1	-100%	0	-
		LT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		TH	1,365	1,182	980	950	992	983	-385	-28%	33	3%	-202	-17%	-9	-1%
		RT	20	18	11	22	22	16	-9	-45%	-6	-27%	-7	-39%	-6	-27%
	EB	U	0	1	0	0	0	0	0	-	0	-	-1	-100%	0	-
		LT	20	5	3	15	4	5	-17	-85%	-10	-67%	-2	-40%	1	25%
		TH	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		RT	201	188	166	98	117	110	-35	-17%	12	12%	-22	-12%	-7	-6%
	WB	U	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		LT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		TH	0	0	0	0	0	0	0	-	0	-	0	-	0	-
		RT	0	0	0	0	0	0	0	-	0	-	0	-	0	-
Tunnel Ave / Beatty Ave	NB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	158	128	-	172	94	-	-	-	-	-30	-19%	-78	-45%
		RT	-	116	105	-	29	28	-	-	-	-	-11	-9%	-1	-3%
	SB	U	-	0	0	-	2	0	-	-	-	-	0	-	-2	-100%
		LT	-	143	138	-	75	87	-	-	-	-	-5	-3%	12	16%
		TH	-	85	48	-	47	18	-	-	-	-	-37	-44%	-29	-62%
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
	EB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
	WB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	53	56	-	49	30	-	-	-	-	3	6%	-19	-39%
		TH	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		RT	-	37	33	-	39	22	-	-	-	-	-4	-11%	-17	-44%

Brisbane Intersection Volume Comparison - by Movement

Prepared by Fehr & Peers, June 2022

Intersection	Turning Movement		AM Peak Hour			PM Peak Hour			AM Comparison		PM Comparison		AM Comparison		PM Comparison	
			May-19	Mar-20	May-22	May-19	Mar-20	May-22	May 2019 to May 2022		May 2019 to May 2022		March 2020 to May 2022		March 2020 to May 2022	
									Numerical	Percentage	Numerical	Percentage	Numerical	Percentage	Numerical	Percentage
Alana Way / Beatty Ave	NB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	4	3	-	0	0	-	-	-	-	-1	-25%	0	-
		TH	-	10	12	-	1	3	-	-	-	-	2	20%	2	200%
		RT	-	19	6	-	3	1	-	-	-	-	-13	-68%	-2	-67%
	SB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	107	107	-	123	94	-	-	-	-	0	0%	-29	-24%
		TH	-	23	4	-	0	4	-	-	-	-	-19	-83%	4	-
		RT	-	34	34	-	44	23	-	-	-	-	0	0%	-21	-48%
	EB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	95	88	-	27	27	-	-	-	-	-7	-7%	0	0%
		TH	-	150	167	-	82	96	-	-	-	-	17	11%	14	17%
		RT	-	4	7	-	0	0	-	-	-	-	3	75%	0	-
	WB	U	-	1	1	-	1	2	-	-	-	-	0	0%	1	100%
		LT	-	10	14	-	1	0	-	-	-	-	4	40%	-1	-100%
		TH	-	101	107	-	53	42	-	-	-	-	6	6%	-11	-21%
		RT	-	111	110	-	109	107	-	-	-	-	-1	-1%	-2	-2%
Thomas Mellon Cir / Alana Way / Harney Way	NB	U	-	0	0	-	0	1	-	-	-	-	0	-	1	-
		LT	-	124	62	-	278	117	-	-	-	-	-62	-50%	-161	-58%
		TH	-	78	55	-	82	36	-	-	-	-	-23	-29%	-46	-56%
		RT	-	110	37	-	152	53	-	-	-	-	-73	-66%	-99	-65%
	SB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	2	3	-	6	7	-	-	-	-	1	50%	1	17%
		TH	-	68	41	-	104	67	-	-	-	-	-27	-40%	-37	-36%
		RT	-	24	15	-	90	50	-	-	-	-	-9	-38%	-40	-44%
	EB	U	-	0	1	-	0	0	-	-	-	-	1	-	0	-
		LT	-	62	48	-	18	16	-	-	-	-	-14	-23%	-2	-11%
		TH	-	70	31	-	128	49	-	-	-	-	-39	-56%	-79	-62%
		RT	-	294	200	-	80	29	-	-	-	-	-94	-32%	-51	-64%
	WB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	226	74	-	56	41	-	-	-	-	-152	-67%	-15	-27%
		TH	-	132	43	-	128	37	-	-	-	-	-89	-67%	-91	-71%
		RT	-	6	3	-	2	3	-	-	-	-	-3	-50%	1	50%
Tunnel Ave / Lagoon Rd	NB	U	-	0	0	-	1	0	-	-	-	-	0	-	-1	-100%
		LT	-	5	2	-	2	1	-	-	-	-	-3	-60%	-1	-50%
		TH	-	180	131	-	125	84	-	-	-	-	-49	-27%	-41	-33%
		RT	-	135	90	-	47	49	-	-	-	-	-45	-33%	2	4%
	SB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	14	13	-	8	5	-	-	-	-	-1	-7%	-3	-38%
		TH	-	45	27	-	45	36	-	-	-	-	-18	-40%	-9	-20%
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
	EB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	3	2	-	0	0	-	-	-	-	-1	-33%	0	-
		RT	-	3	7	-	1	1	-	-	-	-	4	133%	0	0%
	WB	U	-	1	0	-	0	0	-	-	-	-	-1	-100%	0	-
		LT	-	123	197	-	245	186	-	-	-	-	74	60%	-59	-24%
		TH	-	2	0	-	0	0	-	-	-	-	-2	-100%	0	-
		RT	-	7	12	-	11	7	-	-	-	-	5	71%	-4	-36%
Sierra Point Parkway / Lagoon Rd	NB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	35	25	-	93	65	-	-	-	-	-10	-29%	-28	-30%
		TH	-	86	75	-	340	268	-	-	-	-	-11	-13%	-72	-21%
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
	SB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	184	173	-	35	44	-	-	-	-	-11	-6%	9	26%
		RT	-	96	184	-	151	131	-	-	-	-	88	92%	-20	-13%
	EB	U	-	0	0	-	0	1	-	-	-	-	0	-	1	-
		LT	-	44	40	-	32	20	-	-	-	-	-4	-9%	-12	-38%
		TH	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		RT	-	108	72	-	36	34	-	-	-	-	-36	-33%	-2	-6%
	WB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-

Brisbane Intersection Volume Comparison - by Movement

Prepared by Fehr & Peers, June 2022

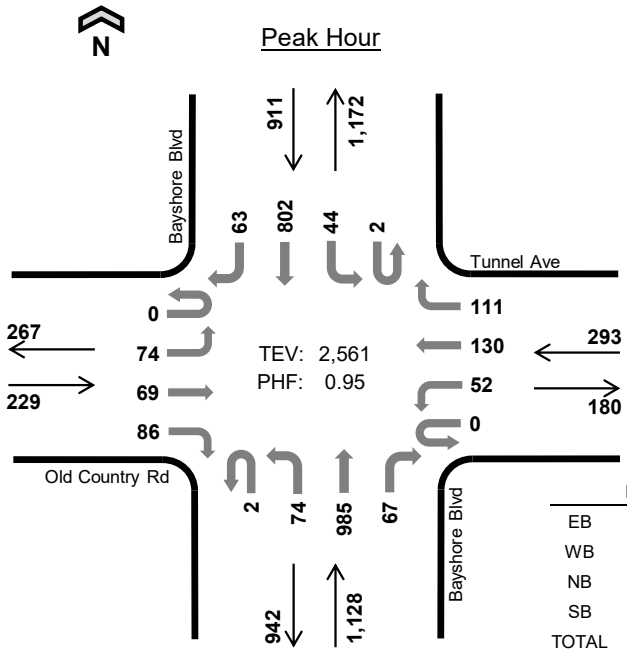
Intersection	Turning Movement		AM Peak Hour			PM Peak Hour			AM Comparison		PM Comparison		AM Comparison		PM Comparison	
			May-19	Mar-20	May-22	May-19	Mar-20	May-22	May 2019 to May 2022		May 2019 to May 2022		March 2020 to May 2022		March 2020 to May 2022	
									Numerical	Percentage	Numerical	Percentage	Numerical	Percentage	Numerical	Percentage
US-101 NB Ramps / Sierra Point Parkway	NB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	14	17	-	7	13	-	-	-	-	3	21%	6	86%
		TH	-	1	3	-	2	2	-	-	-	-	2	200%	0	0%
		RT	-	416	340	-	86	92	-	-	-	-	-76	-18%	6	7%
	SB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
	EB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	20	23	-	15	16	-	-	-	-	3	15%	1	7%
		TH	-	276	226	-	62	67	-	-	-	-	-50	-18%	5	8%
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
	WB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	100	83	-	437	327	-	-	-	-	-17	-17%	-110	-25%
		RT	-	50	55	-	219	182	-	-	-	-	5	10%	-37	-17%
Carter St / Geneva Ave	NB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	229	218	-	383	300	-	-	-	-	-11	-5%	-83	-22%
		TH	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		RT	-	123	113	-	98	103	-	-	-	-	-10	-8%	5	5%
	SB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
	EB	U	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		LT	-	0	0	-	0	0	-	-	-	-	0	-	0	-
		TH	-	707	657	-	492	567	-	-	-	-	-50	-7%	75	15%
		RT	-	461	328	-	247	237	-	-	-	-	-133	-29%	-10	-4%
	WB	U	-	4	2	-	5	6	-	-	-	-	-2	-50%	1	20%
		LT	-	101	97	-	112	122	-	-	-	-	-4	-4%	10	9%
		TH	-	675	677	-	770	768	-	-	-	-	2	0%	-2	0%
		RT	-	0	0	-	0	0	-	-	-	-	0	-	0	-

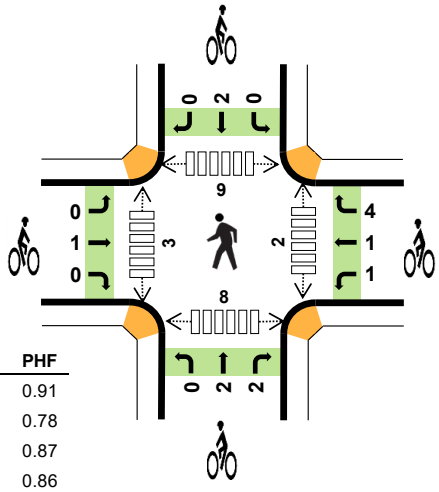
Notes:

Intersection turning movement counts were collected on: Wednesday May 1, 2019, Wednesday March 11, 2020, and Tuesday May 10, 2022

Bayshore Blvd
Old Country Rd

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.0%	0.91
WB	4.1%	0.78
NB	4.0%	0.87
SB	4.2%	0.86
TOTAL	3.7%	0.95

Three-Hour Count Summaries

Interval Start		Old Country Rd Eastbound				Tunnel Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:45 PM		0	17	8	27	0	10	31	22	1	19	243	11	1	8	170	29	597	0
5:00 PM		0	19	23	21	0	22	36	36	1	16	228	8	0	19	235	12	676	0
5:15 PM		0	17	17	19	0	12	32	23	0	20	281	22	0	5	197	6	651	0
5:30 PM		0	21	21	19	0	8	31	30	0	19	233	26	1	12	200	16	637	2,561
Peak Hour	All	0	74	69	86	0	52	130	111	2	74	985	67	2	44	802	63	2,561	0
	HV	0	0	0	0	0	4	0	8	0	0	39	6	0	2	31	5	95	0
	HV%	-	0%	0%	0%	-	8%	0%	7%	0%	0%	4%	9%	0%	5%	4%	8%	4%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:45 PM	0	2	7	12	*21*	0	3	2	1	*6*	0	1	4	2	*7*
5:00 PM	0	2	14	11	*27*	0	0	1	0	*1*	2	0	2	5	*9*
5:15 PM	0	3	12	8	*23*	0	1	0	1	*2*	0	1	2	1	*4*
5:30 PM	0	5	12	7	*24*	1	2	1	0	*4*	0	1	1	0	*2*
Peak Hour	0	12	45	38	*95*	1	6	4	2	*13*	2	3	9	8	*22*

Three-Hour Count Summaries

Interval Start	Old Country Rd Eastbound				Tunnel Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	23	16	27	0	8	27	30	0	18	215	6	0	6	184	15	575	0
4:15 PM	0	24	19	26	0	9	30	21	1	17	208	8	1	16	171	27	578	0
4:30 PM	0	24	25	32	0	13	17	30	0	22	205	11	0	8	180	19	586	0
4:45 PM	**0**	**17**	**8**	**27**	**0**	**10**	**31**	**22**	**1**	**19**	**243**	**11**	**1**	**8**	**170**	**29**	**597**	2,336
5:00 PM	**0**	**19**	**23**	**21**	**0**	**22**	**36**	**36**	**1**	**16**	**228**	**8**	**0**	**19**	**235**	**12**	**676**	2,437
5:15 PM	**0**	**17**	**17**	**19**	**0**	**12**	**32**	**23**	**0**	**20**	**281**	**22**	**0**	**5**	**197**	**6**	**651**	2,510
5:30 PM	**0**	**21**	**21**	**19**	**0**	**8**	**31**	**30**	**0**	**19**	**233**	**26**	**1**	**12**	**200**	**16**	**637**	**2,561**
5:45 PM	0	21	10	15	0	10	22	32	1	13	247	11	0	7	166	13	568	2,532
6:00 PM	0	16	14	18	0	6	18	20	0	28	230	7	0	8	129	13	507	2,363
6:15 PM	0	13	12	20	0	6	32	17	0	12	240	12	2	8	125	12	511	2,223
6:30 PM	0	10	10	10	0	9	26	17	0	14	200	12	1	6	122	11	448	2,034
6:45 PM	0	11	9	10	0	6	36	16	0	9	149	7	0	5	114	10	382	1,848
Count Total	0	216	184	244	0	119	338	294	4	207	2,679	141	6	108	1,993	183	6,716	0
Peak Hour All	**0**	**74**	**69**	**86**	**0**	**52**	**130**	**111**	**2**	**74**	**985**	**67**	**2**	**44**	**802**	**63**	**2,561**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**8**	**0**	**0**	**39**	**6**	**0**	**2**	**31**	**5**	**95**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**0%**	**-**	**8%**	**0%**	**7%**	**0%**	**0%**	**4%**	**9%**	**0%**	**5%**	**4%**	**8%**	**4%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	8	17	9	*37*	1	1	0	2	*4*	0	0	0	0	*0*
4:15 PM	3	2	12	14	*31*	1	0	0	0	*1*	0	0	0	2	*2*
4:30 PM	0	4	9	9	*22*	1	1	0	0	*2*	0	0	1	0	*1*
4:45 PM	**0**	**2**	**7**	**12**	***21***	**0**	**3**	**2**	**1**	***6***	**0**	**1**	**4**	**2**	*7*
5:00 PM	**0**	**2**	**14**	**11**	***27***	**0**	**0**	**1**	**0**	***1***	**2**	**0**	**2**	**5**	*9*
5:15 PM	**0**	**3**	**12**	**8**	***23***	**0**	**1**	**0**	**1**	***2***	**0**	**1**	**2**	**1**	*4*
5:30 PM	**0**	**5**	**12**	**7**	***24***	**1**	**2**	**1**	**0**	***4***	**0**	**1**	**1**	**0**	***2***
5:45 PM	1	2	16	6	*25*	0	2	0	0	*2*	1	2	1	3	*7*
6:00 PM	0	2	6	11	*19*	0	2	0	2	*4*	0	0	0	5	*5*
6:15 PM	0	3	13	11	*27*	0	3	0	1	*4*	0	0	0	0	*0*
6:30 PM	0	1	3	4	*8*	0	1	0	1	*2*	0	0	0	0	*0*
6:45 PM	0	1	6	4	*11*	1	1	0	0	*2*	0	0	0	0	*0*
Count Total	7	35	127	106	*275*	5	17	4	8	*34*	3	5	11	18	*37*
Peak Hour	**0**	**12**	**45**	**38**	***95***	**1**	**6**	**4**	**2**	***13***	**2**	**3**	**9**	**8**	***22***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Old Country Rd				Tunnel Ave				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	0	1	0	2	0	6	0	1	15	1	0	0	8	1	37	0
4:15 PM	0	2	1	0	0	0	0	2	0	0	11	1	0	1	11	2	31	0
4:30 PM	0	0	0	0	0	2	1	1	0	0	9	0	0	0	8	1	22	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**6**	**1**	**0**	**1**	**9**	**2**	**21**	111
5:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**12**	**2**	**0**	**0**	**10**	**1**	**27**	101
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**10**	**2**	**0**	**1**	**6**	**1**	**23**	93
5:30 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**0**	**0**	**11**	**1**	**0**	**0**	**6**	**1**	**24**	**95**
5:45 PM	0	1	0	0	0	0	0	2	0	0	16	0	0	1	4	1	25	99
6:00 PM	0	0	0	0	0	1	0	1	0	0	5	1	0	0	9	2	19	91
6:15 PM	0	0	0	0	0	1	1	1	0	0	12	1	0	1	10	0	27	95
6:30 PM	0	0	0	0	0	1	0	0	0	1	2	0	0	1	3	0	8	79
6:45 PM	0	0	0	0	0	0	0	1	0	0	6	0	0	0	3	1	11	65
Count Total	0	5	1	1	0	11	2	22	0	2	115	10	0	6	87	13	275	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**8**	**0**	**0**	**39**	**6**	**0**	**2**	**31**	**5**	**95**	**0**

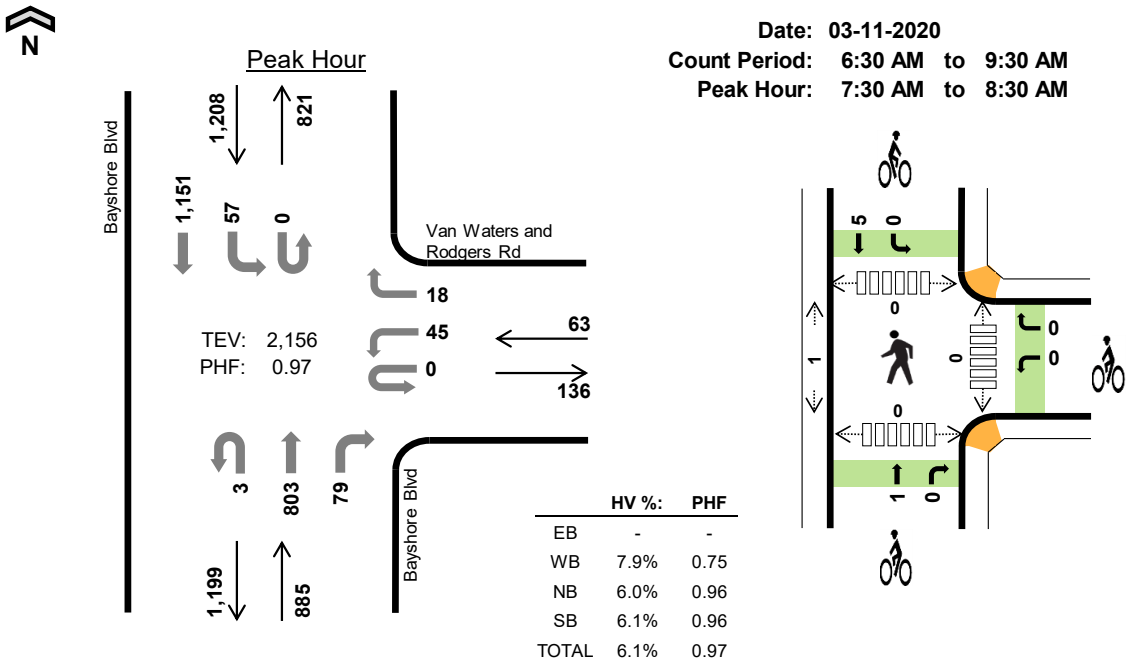
Three-Hour Count Summaries - Bikes

Interval Start	Old Country Rd			Tunnel Ave			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	1	0	1	0	0	0	0	0	2	0	4	0
4:15 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:30 PM	0	0	1	0	0	1	0	0	0	0	0	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**2**	**0**	**1**	**0**	**6**	13
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	10
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	11
5:30 PM	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**13**
5:45 PM	0	0	0	2	0	0	0	0	0	0	0	0	2	9
6:00 PM	0	0	0	0	1	1	0	0	0	1	1	0	4	12
6:15 PM	0	0	0	0	0	3	0	0	0	0	1	0	4	14
6:30 PM	0	0	0	0	1	0	0	0	0	0	1	0	2	12
6:45 PM	0	1	0	1	0	0	0	0	0	0	0	0	2	12
Count Total	0	3	2	4	4	9	0	2	2	1	7	0	34	0
Peak Hour	**0**	**1**	**0**	**1**	**1**	**4**	**0**	**2**	**2**	**0**	**2**	**0**	**13**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Van Waters and Rodgers Rd

Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:30 AM to 8:30 AM



Three-Hour Count Summaries

Interval Start		n/a Eastbound				Van Waters and Rodgers Rd Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	0	0	0	0	18	0	1	1	0	206	18	0	11	303	0	558	0
7:45 AM		0	0	0	0	0	5	0	4	1	0	211	19	0	17	283	0	540	0
8:00 AM		0	0	0	0	0	12	0	2	0	0	202	18	0	15	267	0	516	0
8:15 AM		0	0	0	0	0	10	0	11	1	0	184	24	0	14	298	0	542	2,156
Peak Hour	All	0	0	0	0	0	45	0	18	3	0	803	79	0	57	1,151	0	2,156	0
	HV	0	0	0	0	0	2	0	3	1	0	52	0	0	3	71	0	132	0
	HV%	-	-	-	-	-	4%	-	17%	33%	-	6%	0%	-	5%	6%	-	6%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:30 AM	0	1	11	32	*44*	0	0	1	0	*1*	0	0	0	0	*0*
7:45 AM	0	2	12	19	*33*	0	0	0	2	*2*	0	0	0	0	*0*
8:00 AM	0	0	17	12	*29*	0	0	0	1	*1*	0	0	0	0	*0*
8:15 AM	0	2	13	11	*26*	0	0	0	2	*2*	0	1	0	0	*1*
Peak Hour	0	5	53	74	*132*	0	0	1	5	*6*	0	1	0	0	*1*

Three-Hour Count Summaries

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	0	0	1	0	1	1	0	136	8	0	6	161	0	314	0
6:45 AM	0	0	0	0	0	5	0	4	1	0	193	19	0	7	212	0	441	0
7:00 AM	0	0	0	0	0	2	0	3	0	0	161	24	1	11	205	0	407	0
7:15 AM	0	0	0	0	0	9	0	3	0	0	159	8	0	11	221	0	411	1,573
7:30 AM	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**1**	**1**	**0**	**206**	**18**	**0**	**11**	**303**	**0**	**558**	1,817
7:45 AM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**4**	**1**	**0**	**211**	**19**	**0**	**17**	**283**	**0**	**540**	1,916
8:00 AM	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**2**	**0**	**0**	**202**	**18**	**0**	**15**	**267**	**0**	**516**	2,025
8:15 AM	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**11**	**1**	**0**	**184**	**24**	**0**	**14**	**298**	**0**	**542**	**2,156**
8:30 AM	0	0	0	0	0	3	0	5	1	0	191	19	0	22	261	0	502	2,100
8:45 AM	0	0	0	0	0	2	0	9	0	0	183	26	0	23	249	0	492	2,052
9:00 AM	0	0	0	0	0	7	0	5	1	0	134	22	0	15	216	0	400	1,936
9:15 AM	0	0	0	0	0	3	0	5	1	0	159	9	0	4	182	0	363	1,757
Count Total	0	0	0	0	0	77	0	53	8	0	2,119	214	1	156	2,858	0	5,486	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**18**	**3**	**0**	**803**	**79**	**0**	**57**	**1,151**	**0**	**2,156**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**1**	**0**	**52**	**0**	**0**	**3**	**71**	**0**	**132**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**4%**	**-**	**17%**	**33%**	**-**	**6%**	**0%**	**-**	**5%**	**6%**	**-**	**6%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	0	0	19	10	*29*	0	0	0	0	*0*	0	0	0	0	*0*
6:45 AM	0	2	9	17	*28*	0	0	0	0	*0*	0	0	0	0	*0*
7:00 AM	0	0	10	17	*27*	0	1	2	0	*3*	0	0	0	0	*0*
7:15 AM	0	3	13	20	*36*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**0**	**1**	**11**	**32**	***44***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**2**	**12**	**19**	***33***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**17**	**12**	***29***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**2**	**13**	**11**	***26***	**0**	**0**	**0**	**2**	***2***	**0**	**1**	**0**	**0**	***1***
8:30 AM	0	0	19	9	*28*	0	0	1	2	*3*	0	0	0	0	*0*
8:45 AM	0	2	15	17	*34*	0	0	2	1	*3*	0	0	0	0	*0*
9:00 AM	0	2	19	11	*32*	0	1	2	1	*4*	0	0	0	0	*0*
9:15 AM	0	2	23	20	*45*	0	0	0	1	*1*	0	0	0	0	*0*
Count Total	0	16	180	195	*391*	0	2	8	10	*20*	0	1	0	0	*1*
Peak Hr	**0**	**5**	**53**	**74**	***132***	**0**	**0**	**1**	**5**	***6***	**0**	**1**	**0**	**0**	***1***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	0	0	0	0	18	1	0	0	10	0	29	0
6:45 AM	0	0	0	0	0	1	0	1	0	0	8	1	0	1	16	0	28	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	17	0	27	0
7:15 AM	0	0	0	0	0	1	0	2	0	0	13	0	0	3	17	0	36	120
7:30 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**10**	**0**	**0**	**0**	**32**	**0**	**44**	135
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**12**	**0**	**0**	**2**	**17**	**0**	**33**	140
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**12**	**0**	**29**	142
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**13**	**0**	**0**	**1**	**10**	**0**	**26**	**132**
8:30 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	1	8	0	28	116
8:45 AM	0	0	0	0	0	0	0	2	0	0	15	0	0	2	15	0	34	117
9:00 AM	0	0	0	0	0	2	0	0	0	0	17	2	0	0	11	0	32	120
9:15 AM	0	0	0	0	0	0	0	2	0	0	22	1	0	1	19	0	45	139
Count Total	0	0	0	0	0	6	0	10	1	0	174	5	0	11	184	0	391	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**1**	**0**	**52**	**0**	**0**	**3**	**71**	**0**	**132**	**0**

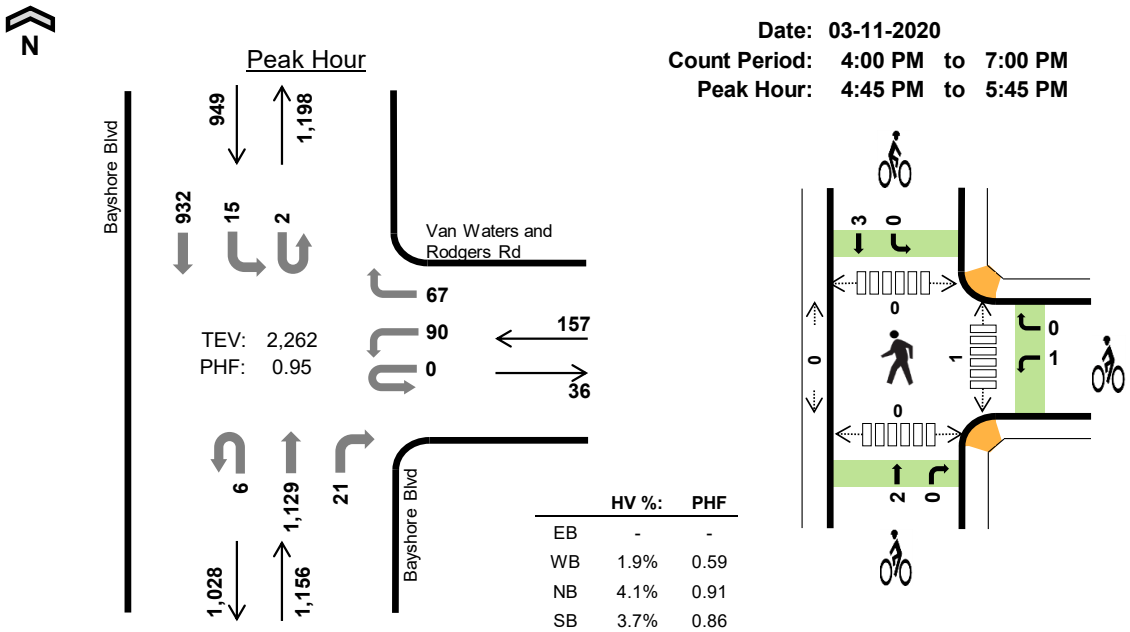
Three-Hour Count Summaries - Bikes

Interval Start	n/a			Van Waters and Rodgers Rd			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	1	0	0	0	2	0	0	0	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	4
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	6
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	4
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**6**
8:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	3	8
8:45 AM	0	0	0	0	0	0	0	1	1	0	1	0	3	9
9:00 AM	0	0	0	0	0	1	0	1	1	0	1	0	4	12
9:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	11
Count Total	0	0	0	1	0	1	0	6	2	0	10	0	20	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**0**	**6**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Van Waters and Rodgers Rd

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	1.9%	0.59
NB	4.1%	0.91
SB	3.7%	0.86
TOTAL	3.8%	0.95

Three-Hour Count Summaries

Interval Start		n/a Eastbound				Van Waters and Rodgers Rd Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:45 PM		0	0	0	0	0	13	0	8	1	0	262	5	0	3	208	0	500	0
5:00 PM		0	0	0	0	0	18	0	10	2	0	268	4	1	3	271	0	577	0
5:15 PM		0	0	0	0	0	23	0	18	0	0	312	7	0	2	234	0	596	0
5:30 PM		0	0	0	0	0	36	0	31	3	0	287	5	1	7	219	0	589	2,262
Peak Hour	All	0	0	0	0	0	90	0	67	6	0	1,129	21	2	15	932	0	2,262	0
	HV	0	0	0	0	0	1	0	2	1	0	44	2	0	3	32	0	85	0
	HV%	-	-	-	-	-	1%	-	3%	17%	-	4%	10%	0%	20%	3%	-	4%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:45 PM	0	0	7	9	*16*	0	0	1	1	*2*	1	0	0	0	*1*
5:00 PM	0	0	15	10	*25*	0	0	1	0	*1*	0	0	0	0	*0*
5:15 PM	0	2	11	8	*21*	0	0	0	1	*1*	0	0	0	0	*0*
5:30 PM	0	1	14	8	*23*	0	1	0	1	*2*	0	0	0	0	*0*
Peak Hour	0	3	47	35	*85*	0	1	2	3	*6*	1	0	0	0	*1*

Three-Hour Count Summaries

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	8	0	3	1	0	233	7	0	2	230	0	484	0
4:15 PM	0	0	0	0	0	12	0	8	0	0	221	5	0	2	204	0	452	0
4:30 PM	0	0	0	0	0	14	0	20	1	0	247	7	0	4	220	0	513	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**8**	**1**	**0**	**262**	**5**	**0**	**3**	**208**	**0**	**500**	1,949
5:00 PM	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**10**	**2**	**0**	**268**	**4**	**1**	**3**	**271**	**0**	**577**	2,042
5:15 PM	**0**	**0**	**0**	**0**	**0**	**23**	**0**	**18**	**0**	**0**	**312**	**7**	**0**	**2**	**234**	**0**	**596**	2,186
5:30 PM	**0**	**0**	**0**	**0**	**0**	**36**	**0**	**31**	**3**	**0**	**287**	**5**	**1**	**7**	**219**	**0**	**589**	**2,262**
5:45 PM	0	0	0	0	0	15	0	17	2	0	255	3	0	3	194	0	489	2,251
6:00 PM	0	0	0	0	0	7	0	10	0	0	228	7	0	2	145	0	399	2,073
6:15 PM	0	0	0	0	0	6	0	10	0	0	255	4	0	3	152	0	430	1,907
6:30 PM	0	0	0	0	0	16	0	15	2	0	202	2	0	2	132	0	371	1,689
6:45 PM	0	0	0	0	0	2	0	10	0	0	178	4	0	0	140	0	334	1,534
Count Total	0	0	0	0	0	170	0	160	12	0	2,948	60	2	33	2,349	0	5,734	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**90**	**0**	**67**	**6**	**0**	**1,129**	**21**	**2**	**15**	**932**	**0**	**2,262**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**1**	**0**	**44**	**2**	**0**	**3**	**32**	**0**	**85**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**1%**	**-**	**3%**	**17%**	**-**	**4%**	**10%**	**0%**	**20%**	**3%**	**-**	**4%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	22	12	*34*	0	0	1	2	*3*	0	1	0	0	*1*
4:15 PM	0	1	6	11	*18*	0	0	0	1	*1*	0	0	0	0	*0*
4:30 PM	0	3	10	10	*23*	0	0	1	1	*2*	0	0	0	0	*0*
4:45 PM	**0**	**0**	**7**	**9**	***16***	**0**	**0**	**1**	**1**	***2***	**1**	**0**	**0**	**0**	*1*
5:00 PM	**0**	**0**	**15**	**10**	***25***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**2**	**11**	**8**	***21***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**1**	**14**	**8**	***23***	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	4	14	4	*22*	0	0	0	2	*2*	0	0	0	0	*0*
6:00 PM	0	0	9	10	*19*	0	0	0	1	*1*	0	0	0	0	*0*
6:15 PM	0	1	9	10	*20*	0	0	0	1	*1*	0	1	0	0	*1*
6:30 PM	0	2	2	4	*8*	0	0	0	1	*1*	0	0	0	0	*0*
6:45 PM	0	1	5	4	*10*	0	0	0	1	*1*	0	1	0	0	*1*
Count Total	0	15	124	100	*239*	0	1	4	13	*18*	1	3	0	0	*4*
Peak Hr	**0**	**3**	**47**	**35**	***85***	**0**	**1**	**2**	**3**	***6***	**1**	**0**	**0**	**0**	***1***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	21	1	0	2	10	0	34	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	6	0	0	1	10	0	18	0
4:30 PM	0	0	0	0	0	2	0	1	0	0	10	0	0	2	8	0	23	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**1**	**0**	**0**	**9**	**0**	**16**	91
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**1**	**0**	**1**	**9**	**0**	**25**	82
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**11**	**0**	**0**	**0**	**8**	**0**	**21**	85
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**13**	**0**	**0**	**2**	**6**	**0**	**23**	**85**
5:45 PM	0	0	0	0	0	1	0	3	0	0	14	0	0	0	4	0	22	91
6:00 PM	0	0	0	0	0	0	0	0	0	0	8	1	0	1	9	0	19	85
6:15 PM	0	0	0	0	0	0	0	1	0	0	9	0	0	1	9	0	20	84
6:30 PM	0	0	0	0	0	1	0	1	0	0	2	0	0	1	3	0	8	69
6:45 PM	0	0	0	0	0	0	0	1	0	0	5	0	0	0	4	0	10	57
Count Total	0	0	0	0	0	5	0	10	1	0	119	4	0	11	89	0	239	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**1**	**0**	**44**	**2**	**0**	**3**	**32**	**0**	**85**	**0**

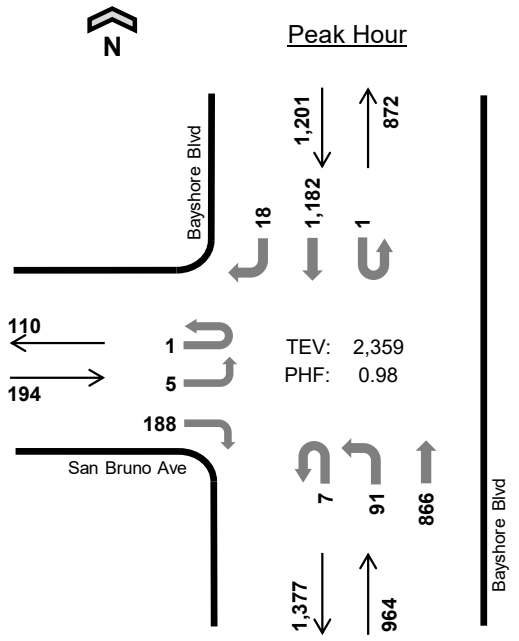
Three-Hour Count Summaries - Bikes

Interval Start	n/a			Van Waters and Rodgers Rd			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	0	3	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	8
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	6
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	6
5:30 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**6**
5:45 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	6
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	6
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	6
6:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	5
6:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	4
Count Total	0	0	0	1	0	0	0	4	0	0	13	0	18	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**6**	**0**

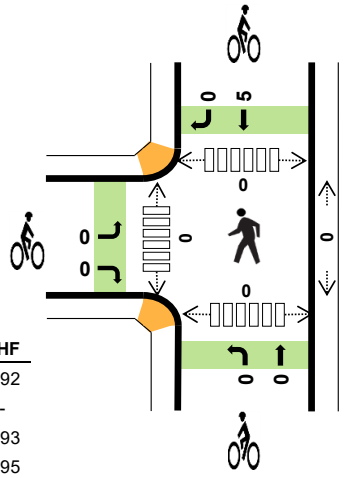
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
San Bruno Ave

Peak Hour



Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	2.1%	0.92
WB	-	-
NB	5.4%	0.93
SB	6.1%	0.95
TOTAL	5.5%	0.98

Three-Hour Count Summaries

Interval Start		San Bruno Ave Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	1	0	42	0	0	0	0	1	20	219	0	0	0	314	1	598	0
7:45 AM		1	1	0	51	0	0	0	0	3	28	229	0	0	0	284	2	599	0
8:00 AM		0	3	0	49	0	0	0	0	2	22	207	0	1	0	284	7	575	0
8:15 AM		0	0	0	46	0	0	0	0	1	21	211	0	0	0	300	8	587	2,359
Peak Hour	All	1	5	0	188	0	0	0	0	7	91	866	0	1	0	1,182	18	2,359	0
	HV	0	3	0	1	0	0	0	0	0	1	51	0	0	0	72	1	129	0
	HV%	0%	60%	-	1%	-	-	-	-	0%	1%	6%	-	0%	-	6%	6%	5%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:30 AM	1	0	11	33	*45*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	0	0	13	16	*29*	0	0	0	2	*2*	0	0	0	0	*0*
8:00 AM	3	0	14	14	*31*	0	0	0	1	*1*	0	0	0	0	*0*
8:15 AM	0	0	14	10	*24*	0	0	0	2	*2*	0	0	0	0	*0*
Peak Hour	4	0	52	73	*129*	0	0	0	5	*5*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	San Bruno Ave				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	1	0	27	0	0	0	0	0	6	156	0	0	0	167	1	358	0
6:45 AM	0	1	0	29	0	0	0	0	3	8	204	0	0	0	220	0	465	0
7:00 AM	0	1	0	34	0	0	0	0	1	6	190	0	0	0	216	2	450	0
7:15 AM	0	0	0	31	0	0	0	0	1	13	171	0	0	0	224	0	440	1,713
7:30 AM	**0**	**1**	**0**	**42**	**0**	**0**	**0**	**0**	**1**	**20**	**219**	**0**	**0**	**0**	**314**	**1**	**598**	1,953
7:45 AM	**1**	**1**	**0**	**51**	**0**	**0**	**0**	**0**	**3**	**28**	**229**	**0**	**0**	**0**	**284**	**2**	**599**	2,087
8:00 AM	**0**	**3**	**0**	**49**	**0**	**0**	**0**	**0**	**2**	**22**	**207**	**0**	**1**	**0**	**284**	**7**	**575**	2,212
8:15 AM	**0**	**0**	**0**	**46**	**0**	**0**	**0**	**0**	**1**	**21**	**211**	**0**	**0**	**0**	**300**	**8**	**587**	**2,359**
8:30 AM	0	1	0	41	0	0	0	0	1	11	213	0	0	0	262	2	531	2,292
8:45 AM	0	0	0	34	0	0	0	0	4	13	207	0	0	0	259	1	518	2,211
9:00 AM	0	1	0	35	0	0	0	0	2	8	161	0	0	0	216	6	429	2,065
9:15 AM	0	2	0	33	0	0	0	0	5	22	164	0	0	0	181	1	408	1,886
Count Total	1	12	0	452	0	0	0	0	24	178	2,332	0	1	0	2,927	31	5,958	0
Peak Hour All	**1**	**5**	**0**	**188**	**0**	**0**	**0**	**0**	**7**	**91**	**866**	**0**	**1**	**0**	**1,182**	**18**	**2,359**	**0**
Peak Hour HV	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**51**	**0**	**0**	**0**	**72**	**1**	**129**	**0**
Peak Hour HV%	**0%**	**60%**	**-**	**1%**	**-**	**-**	**-**	**-**	**0%**	**1%**	**6%**	**-**	**0%**	**-**	**6%**	**6%**	**5%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	1	0	19	10	*30*	1	0	0	0	*1*	0	0	0	0	*0*
6:45 AM	1	0	8	19	*28*	0	0	0	0	*0*	0	0	0	0	*0*
7:00 AM	2	0	9	18	*29*	1	0	0	1	*2*	0	0	0	0	*0*
7:15 AM	0	0	16	17	*33*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**1**	**0**	**11**	**33**	***45***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**0**	**13**	**16**	***29***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**3**	**0**	**14**	**14**	***31***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**0**	**14**	**10**	***24***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***
8:30 AM	1	0	18	10	*29*	1	0	0	1	*2*	0	0	0	0	*0*
8:45 AM	0	0	16	15	*31*	1	0	1	1	*3*	0	0	0	0	*0*
9:00 AM	1	0	19	14	*34*	0	0	0	1	*1*	0	0	0	0	*0*
9:15 AM	1	0	22	18	*41*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	11	0	179	194	*384*	4	0	1	9	*14*	0	0	0	0	*0*
Peak Hr	**4**	**0**	**52**	**73**	***129***	**0**	**0**	**0**	**5**	***5***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	San Bruno Ave				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	1	0	0	0	0	0	0	0	2	17	0	0	0	10	0	30	0
6:45 AM	0	1	0	0	0	0	0	0	1	0	7	0	0	0	19	0	28	0
7:00 AM	0	1	0	1	0	0	0	0	0	1	8	0	0	0	18	0	29	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	17	0	33	120
7:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**10**	**0**	**0**	**0**	**32**	**1**	**45**	135
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**16**	**0**	**29**	136
8:00 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**14**	**0**	**31**	138
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**10**	**0**	**24**	**129**
8:30 AM	0	1	0	0	0	0	0	0	0	0	18	0	0	0	10	0	29	113
8:45 AM	0	0	0	0	0	0	0	0	0	1	15	0	0	0	15	0	31	115
9:00 AM	0	1	0	0	0	0	0	0	0	0	19	0	0	0	13	1	34	118
9:15 AM	0	1	0	0	0	0	0	0	1	0	21	0	0	0	18	0	41	135
Count Total	0	9	0	2	0	0	0	0	2	5	172	0	0	0	192	2	384	0
Peak Hour	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**51**	**0**	**0**	**0**	**72**	**1**	**129**	**0**

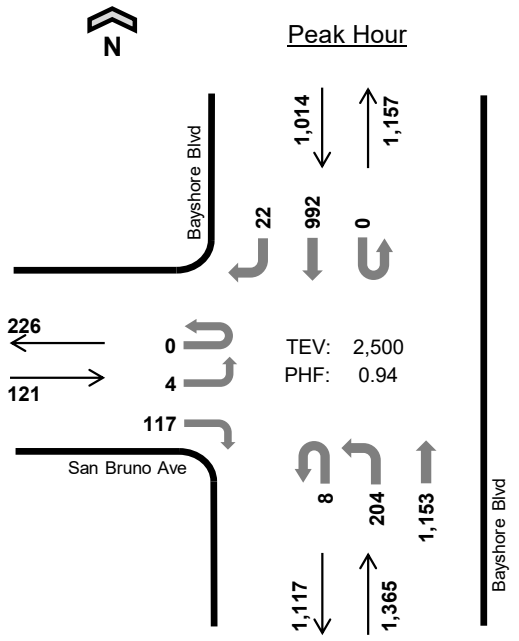
Three-Hour Count Summaries - Bikes

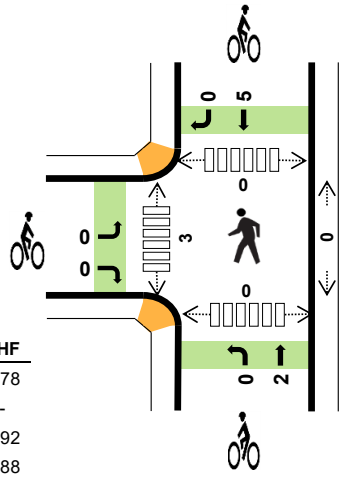
Interval Start	San Bruno Ave			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	1	0	0	0	0	0	0	0	1	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	4
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	3
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**5**
8:30 AM	1	0	0	0	0	0	0	0	0	0	1	0	2	7
8:45 AM	1	0	0	0	0	0	0	1	0	0	1	0	3	8
9:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	8
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Count Total	2	0	2	0	0	0	0	1	0	0	9	0	14	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
San Bruno Ave

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	4.1%	0.78
WB	-	-
NB	3.8%	0.92
SB	2.9%	0.88
TOTAL	3.4%	0.94

Three-Hour Count Summaries

Interval Start		San Bruno Ave Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM		0	2	0	19	0	0	0	0	3	52	276	0	0	0	285	4	641	0
5:15 PM		0	0	0	39	0	0	0	0	1	47	321	0	0	0	255	2	665	0
5:30 PM		0	2	0	32	0	0	0	0	3	50	289	0	0	0	255	8	639	0
5:45 PM		0	0	0	27	0	0	0	0	1	55	267	0	0	0	197	8	555	2,500
Peak Hour	All	0	4	0	117	0	0	0	0	8	204	1,153	0	0	0	992	22	2,500	0
	HV	0	4	0	1	0	0	0	0	0	0	52	0	0	0	29	0	86	0
	HV%	-	100%	-	1%	-	-	-	-	0%	0%	5%	-	-	-	3%	0%	3%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	2	0	13	9	*24*	0	0	1	0	*1*	0	3	0	0	*3*
5:15 PM	1	0	12	8	*21*	0	0	0	1	*1*	0	0	0	0	*0*
5:30 PM	2	0	11	7	*20*	0	0	1	1	*2*	0	0	0	0	*0*
5:45 PM	0	0	16	5	*21*	0	0	0	3	*3*	0	0	0	0	*0*
Peak Hour	5	0	52	29	*86*	0	0	2	5	*7*	0	3	0	0	*3*

Three-Hour Count Summaries

Interval Start	San Bruno Ave Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	25	0	0	0	0	1	43	237	0	0	0	229	1	536	0
4:15 PM	0	0	0	22	0	0	0	0	4	43	228	0	0	0	208	4	509	0
4:30 PM	0	1	0	17	0	0	0	0	1	36	255	0	0	0	227	7	544	0
4:45 PM	0	1	0	26	0	0	0	0	3	40	260	0	0	0	211	6	547	2,136
5:00 PM	**0**	**2**	**0**	**19**	**0**	**0**	**0**	**0**	**3**	**52**	**276**	**0**	**0**	**0**	**285**	**4**	**641**	2,241
5:15 PM	**0**	**0**	**0**	**39**	**0**	**0**	**0**	**0**	**1**	**47**	**321**	**0**	**0**	**0**	**255**	**2**	**665**	2,397
5:30 PM	**0**	**2**	**0**	**32**	**0**	**0**	**0**	**0**	**3**	**50**	**289**	**0**	**0**	**0**	**255**	**8**	**639**	2,492
5:45 PM	**0**	**0**	**0**	**27**	**0**	**0**	**0**	**0**	**1**	**55**	**267**	**0**	**0**	**0**	**197**	**8**	**555**	**2,500**
6:00 PM	0	2	0	25	0	0	0	0	5	42	223	0	0	0	152	5	454	2,313
6:15 PM	0	0	0	18	0	0	0	0	1	35	256	0	0	0	155	0	465	2,113
6:30 PM	0	0	0	20	0	0	0	0	3	46	208	0	0	0	145	3	425	1,899
6:45 PM	0	0	0	20	0	0	0	0	2	45	171	0	0	0	141	9	388	1,732
Count Total	0	8	0	290	0	0	0	0	28	534	2,991	0	0	0	2,460	57	6,368	0
Peak Hour All	**0**	**4**	**0**	**117**	**0**	**0**	**0**	**0**	**8**	**204**	**1,153**	**0**	**0**	**0**	**992**	**22**	**2,500**	**0**
Peak Hour HV	**0**	**4**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**0**	**0**	**0**	**29**	**0**	**86**	**0**
Peak Hour HV%	**-**	**100%**	**-**	**1%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**5%**	**-**	**-**	**-**	**3%**	**0%**	**3%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	0	21	9	*31*	0	0	1	2	*3*	0	2	0	0	*2*
4:15 PM	0	0	6	9	*15*	1	0	0	1	*2*	0	0	0	0	*0*
4:30 PM	1	0	9	12	*22*	0	0	2	1	*3*	0	0	0	0	*0*
4:45 PM	0	0	7	9	*16*	0	0	1	1	*2*	0	0	0	0	*0*
5:00 PM	**2**	**0**	**13**	**9**	***24***	**0**	**0**	**1**	**0**	***1***	**0**	**3**	**0**	**0**	*3*
5:15 PM	**1**	**0**	**12**	**8**	***21***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**2**	**0**	**11**	**7**	***20***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**0**	**0**	**16**	**5**	***21***	**0**	**0**	**0**	**3**	***3***	**0**	**0**	**0**	**0**	***0***
6:00 PM	3	0	7	9	*19*	0	0	0	1	*1*	0	0	0	0	*0*
6:15 PM	1	0	8	9	*18*	0	0	0	1	*1*	0	0	0	0	*0*
6:30 PM	0	0	2	5	*7*	0	0	0	0	*0*	0	0	0	0	*0*
6:45 PM	0	0	5	4	*9*	1	0	0	1	*2*	0	0	0	0	*0*
Count Total	11	0	117	95	*223*	2	0	6	13	*21*	0	5	0	0	*5*
Peak Hr	**5**	**0**	**52**	**29**	***86***	**0**	**0**	**2**	**5**	***7***	**0**	**3**	**0**	**0**	***3***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	San Bruno Ave				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	1	0	0	0	0	0	0	21	0	0	0	9	0	31	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	9	0	15	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	9	0	0	0	11	1	22	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	7	0	0	0	9	0	16	84
5:00 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**9**	**0**	**24**	77
5:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**8**	**0**	**21**	83
5:30 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**7**	**0**	**20**	81
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**5**	**0**	**21**	**86**
6:00 PM	0	2	0	1	0	0	0	0	0	0	7	0	0	0	9	0	19	81
6:15 PM	0	0	0	1	0	0	0	0	0	0	8	0	0	0	9	0	18	78
6:30 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	7	65
6:45 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	4	0	9	53
Count Total	0	7	0	4	0	0	0	0	0	0	117	0	0	0	94	1	223	0
Peak Hour	**0**	**4**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**0**	**0**	**0**	**29**	**0**	**86**	**0**

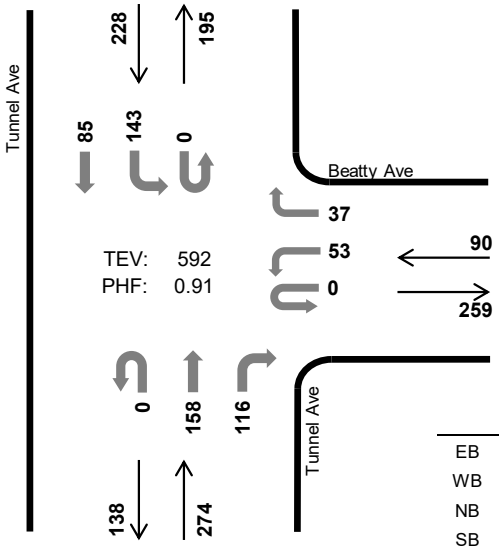
Three-Hour Count Summaries - Bikes

Interval Start	San Bruno Ave			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	0	3	0
4:15 PM	0	0	1	0	0	0	0	0	0	0	1	0	2	0
4:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	3	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	10
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	8
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	7
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	6
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	**7**
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	7
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	7
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6:45 PM	0	0	1	0	0	0	0	0	0	0	1	0	2	4
Count Total	0	0	2	0	0	0	0	6	0	0	13	0	21	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**5**	**0**	**7**	**0**

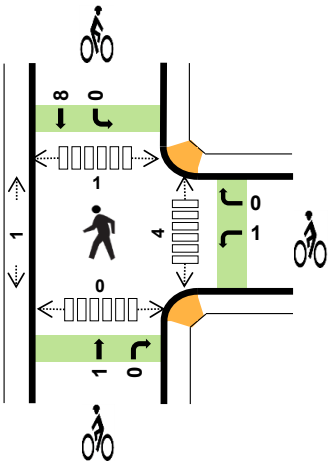
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Tunnel Ave
Beatty Ave

Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	-	-
WB	14.4%	0.80
NB	17.9%	0.76
SB	3.5%	0.95
TOTAL	11.8%	0.91



Three-Hour Count Summaries

Interval Start		n/a Eastbound				Beatty Ave Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	0	0	0	0	11	0	7	0	0	50	40	0	28	27	0	163	0
7:45 AM		0	0	0	0	0	17	0	11	0	0	34	33	0	36	21	0	152	0
8:00 AM		0	0	0	0	0	16	0	11	0	0	39	24	0	37	23	0	150	0
8:15 AM		0	0	0	0	0	9	0	8	0	0	35	19	0	42	14	0	127	592
Peak Hour	All	0	0	0	0	0	53	0	37	0	0	158	116	0	143	85	0	592	0
	HV	0	0	0	0	0	5	0	8	0	0	18	31	0	1	7	0	70	0
	HV%	-	-	-	-	-	9%	-	22%	-	-	11%	27%	-	1%	8%	-	12%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:30 AM	0	5	20	5	*30*	0	1	0	2	*3*	2	1	0	0	*3*
7:45 AM	0	4	13	1	*18*	0	0	1	3	*4*	0	0	1	0	*1*
8:00 AM	0	1	12	1	*14*	0	0	0	2	*2*	2	0	0	0	*2*
8:15 AM	0	3	4	1	*8*	0	0	0	1	*1*	0	0	0	0	*0*
Peak Hour	0	13	49	8	*70*	0	1	1	8	*10*	4	1	1	0	*6*

Three-Hour Count Summaries

Interval Start	n/a				Beatty Ave				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	0	0	17	0	4	0	0	31	15	0	31	14	0	112	0
6:45 AM	0	0	0	0	0	22	0	4	0	0	30	25	0	26	11	0	118	0
7:00 AM	0	0	0	0	0	24	0	4	0	0	39	18	0	42	12	0	139	0
7:15 AM	0	0	0	0	0	14	0	3	0	0	36	20	0	23	9	0	105	474
7:30 AM	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**7**	**0**	**0**	**50**	**40**	**0**	**28**	**27**	**0**	**163**	525
7:45 AM	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**11**	**0**	**0**	**34**	**33**	**0**	**36**	**21**	**0**	**152**	559
8:00 AM	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**11**	**0**	**0**	**39**	**24**	**0**	**37**	**23**	**0**	**150**	570
8:15 AM	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**8**	**0**	**0**	**35**	**19**	**0**	**42**	**14**	**0**	**127**	**592**
8:30 AM	0	0	0	0	0	15	0	10	0	0	37	22	0	30	15	0	129	558
8:45 AM	0	0	0	0	0	15	0	16	0	0	29	14	0	35	15	0	124	530
9:00 AM	0	0	0	0	0	15	0	10	0	0	34	8	0	21	8	0	96	476
9:15 AM	0	0	0	0	0	12	0	10	0	0	32	14	0	19	11	0	98	447
Count Total	0	0	0	0	0	187	0	98	0	0	426	252	0	370	180	0	1,513	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**53**	**0**	**37**	**0**	**0**	**158**	**116**	**0**	**143**	**85**	**0**	**592**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**8**	**0**	**0**	**18**	**31**	**0**	**1**	**7**	**0**	**70**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**9%**	**-**	**22%**	**-**	**-**	**11%**	**27%**	**-**	**1%**	**8%**	**-**	**12%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	0	3	13	2	*18*	0	0	0	0	*0*	1	0	0	0	*1*
6:45 AM	0	4	26	0	*30*	0	0	0	0	*0*	0	0	1	0	*1*
7:00 AM	0	2	19	2	*23*	0	0	0	1	*1*	0	0	0	0	*0*
7:15 AM	0	3	16	1	*20*	0	0	0	0	*0*	1	1	1	0	*3*
7:30 AM	**0**	**5**	**20**	**5**	***30***	**0**	**1**	**0**	**2**	***3***	**2**	**1**	**0**	**0**	*3*
7:45 AM	**0**	**4**	**13**	**1**	***18***	**0**	**0**	**1**	**3**	***4***	**0**	**0**	**1**	**0**	*1*
8:00 AM	**0**	**1**	**12**	**1**	***14***	**0**	**0**	**0**	**2**	***2***	**2**	**0**	**0**	**0**	*2*
8:15 AM	**0**	**3**	**4**	**1**	***8***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***
8:30 AM	0	1	9	1	*11*	0	0	0	2	*2*	0	0	0	0	*0*
8:45 AM	0	4	5	3	*12*	0	0	2	2	*4*	0	0	0	0	*0*
9:00 AM	0	2	4	1	*7*	0	0	1	1	*2*	0	0	0	0	*0*
9:15 AM	0	4	4	0	*8*	0	1	0	3	*4*	0	0	0	0	*0*
Count Total	0	36	145	18	*199*	0	2	4	17	*23*	6	2	3	0	*11*
Peak Hr	**0**	**13**	**49**	**8**	***70***	**0**	**1**	**1**	**8**	***10***	**4**	**1**	**1**	**0**	***6***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Beatty Ave				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	0	0	2	0	1	0	0	4	9	0	2	0	0	18	0
6:45 AM	0	0	0	0	0	3	0	1	0	0	8	18	0	0	0	0	30	0
7:00 AM	0	0	0	0	0	1	0	1	0	0	8	11	0	2	0	0	23	0
7:15 AM	0	0	0	0	0	1	0	2	0	0	9	7	0	1	0	0	20	91
7:30 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**0**	**0**	**6**	**14**	**0**	**0**	**5**	**0**	**30**	103
7:45 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**5**	**8**	**0**	**0**	**1**	**0**	**18**	91
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	**6**	**0**	**1**	**0**	**0**	**14**	82
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**3**	**0**	**0**	**1**	**0**	**8**	**70**
8:30 AM	0	0	0	0	0	1	0	0	0	0	5	4	0	1	0	0	11	51
8:45 AM	0	0	0	0	0	0	0	4	0	0	2	3	0	2	1	0	12	45
9:00 AM	0	0	0	0	0	2	0	0	0	0	2	2	0	1	0	0	7	38
9:15 AM	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	8	38
Count Total	0	0	0	0	0	19	0	17	0	0	56	89	0	10	8	0	199	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**8**	**0**	**0**	**18**	**31**	**0**	**1**	**7**	**0**	**70**	**0**

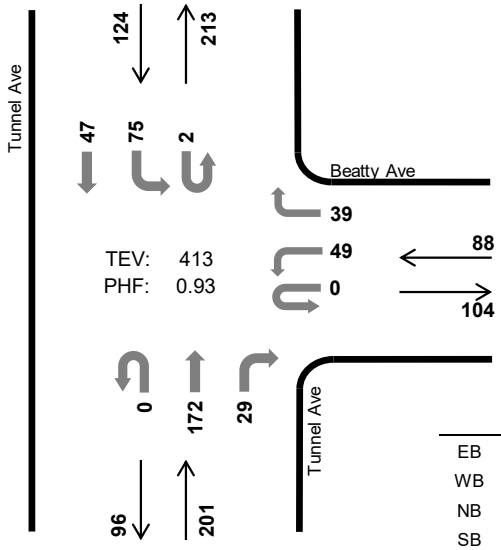
Three-Hour Count Summaries - Bikes

Interval Start	n/a			Beatty Ave			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
7:30 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	4
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**4**	8
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	9
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**10**
8:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	9
8:45 AM	0	0	0	0	0	0	0	2	0	0	2	0	4	9
9:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	9
9:15 AM	0	0	0	1	0	0	0	0	0	0	3	0	4	12
Count Total	0	0	0	2	0	0	0	4	0	0	17	0	23	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**8**	**0**	**10**	**0**

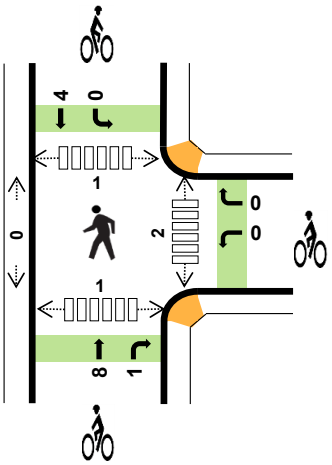
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Tunnel Ave
Beatty Ave

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	33.0%	0.79
NB	2.0%	0.82
SB	11.3%	0.74
TOTAL	11.4%	0.93



Three-Hour Count Summaries

Interval Start		n/a Eastbound				Beatty Ave Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:45 PM		0	0	0	0	0	13	0	5	0	0	34	8	0	24	18	0	102	0
5:00 PM		0	0	0	0	0	15	0	13	0	0	35	5	0	12	16	0	96	0
5:15 PM		0	0	0	0	0	13	0	6	0	0	52	9	2	16	6	0	104	0
5:30 PM		0	0	0	0	0	8	0	15	0	0	51	7	0	23	7	0	111	413
Peak Hour	All	0	0	0	0	0	49	0	39	0	0	172	29	2	75	47	0	413	0
	HV	0	0	0	0	0	25	0	4	0	0	3	1	1	2	11	0	47	0
	HV%	-	-	-	-	-	51%	-	10%	-	-	2%	3%	50%	3%	23%	-	11%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:45 PM	0	5	1	5	*11*	0	0	2	1	*3*	0	0	0	0	*0*
5:00 PM	0	8	0	4	*12*	0	0	2	1	*3*	1	0	1	0	*2*
5:15 PM	0	9	2	3	*14*	0	0	3	0	*3*	1	0	0	1	*2*
5:30 PM	0	7	1	2	*10*	0	0	2	2	*4*	0	0	0	0	*0*
Peak Hour	0	29	4	14	*47*	0	0	9	4	*13*	2	0	1	1	*4*

Three-Hour Count Summaries

Interval Start	n/a				Beatty Ave				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	8	0	16	0	0	31	5	0	12	10	0	82	0
4:15 PM	0	0	0	0	0	11	0	13	0	0	34	5	0	15	12	0	90	0
4:30 PM	0	0	0	0	0	9	0	16	0	0	42	6	0	16	13	0	102	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**5**	**0**	**0**	**34**	**8**	**0**	**24**	**18**	**0**	**102**	376
5:00 PM	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**13**	**0**	**0**	**35**	**5**	**0**	**12**	**16**	**0**	**96**	390
5:15 PM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**6**	**0**	**0**	**52**	**9**	**2**	**16**	**6**	**0**	**104**	404
5:30 PM	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**15**	**0**	**0**	**51**	**7**	**0**	**23**	**7**	**0**	**111**	**413**
5:45 PM	0	0	0	0	0	5	0	12	0	0	38	9	0	22	4	0	90	401
6:00 PM	0	0	0	0	0	13	0	9	0	0	26	5	0	25	7	0	85	390
6:15 PM	0	0	0	0	0	16	0	3	0	0	31	5	0	21	8	0	84	370
6:30 PM	0	0	0	0	0	5	0	9	0	0	23	11	0	21	5	0	74	333
6:45 PM	0	0	0	0	0	10	0	6	0	0	18	8	0	19	5	0	66	309
Count Total	0	0	0	0	0	126	0	123	0	0	415	83	2	226	111	0	1,086	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**49**	**0**	**39**	**0**	**0**	**172**	**29**	**2**	**75**	**47**	**0**	**413**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**4**	**0**	**0**	**3**	**1**	**1**	**2**	**11**	**0**	**47**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**51%**	**-**	**10%**	**-**	**-**	**2%**	**3%**	**50%**	**3%**	**23%**	**-**	**11%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	2	1	5	*8*	0	0	2	0	*2*	1	0	0	0	*1*
4:15 PM	0	5	3	5	*13*	0	0	1	2	*3*	0	0	0	1	*1*
4:30 PM	0	6	0	4	*10*	0	0	2	0	*2*	1	0	0	0	*1*
4:45 PM	**0**	**5**	**1**	**5**	***11***	**0**	**0**	**2**	**1**	***3***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**8**	**0**	**4**	***12***	**0**	**0**	**2**	**1**	***3***	**1**	**0**	**1**	**0**	*2*
5:15 PM	**0**	**9**	**2**	**3**	***14***	**0**	**0**	**3**	**0**	***3***	**1**	**0**	**0**	**1**	*2*
5:30 PM	**0**	**7**	**1**	**2**	***10***	**0**	**0**	**2**	**2**	***4***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	1	1	1	*3*	0	0	5	1	*6*	0	0	0	0	*0*
6:00 PM	0	8	1	5	*14*	0	0	1	0	*1*	0	1	0	0	*1*
6:15 PM	0	7	0	2	*9*	0	0	3	1	*4*	0	1	0	0	*1*
6:30 PM	0	3	1	0	*4*	0	0	1	0	*1*	0	0	0	0	*0*
6:45 PM	0	9	0	2	*11*	0	0	3	1	*4*	0	0	0	0	*0*
Count Total	0	70	11	38	*119*	0	0	27	9	*36*	4	2	1	2	*9*
Peak Hr	**0**	**29**	**4**	**14**	***47***	**0**	**0**	**9**	**4**	***13***	**2**	**0**	**1**	**1**	***4***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Beatty Ave				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	2	0	0	0	0	0	1	0	1	4	0	8	0
4:15 PM	0	0	0	0	0	3	0	2	0	0	2	1	0	0	5	0	13	0
4:30 PM	0	0	0	0	0	4	0	2	0	0	0	0	0	1	3	0	10	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**11**	42
5:00 PM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**12**	46
5:15 PM	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**1**	**0**	**0**	**2**	**0**	**1**	**1**	**1**	**0**	**14**	47
5:30 PM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**10**	**47**
5:45 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	1	0	3	39
6:00 PM	0	0	0	0	0	7	0	1	0	0	0	1	0	1	4	0	14	41
6:15 PM	0	0	0	0	0	7	0	0	0	0	0	0	0	0	2	0	9	36
6:30 PM	0	0	0	0	0	3	0	0	0	0	1	0	0	0	0	0	4	30
6:45 PM	0	0	0	0	0	7	0	2	0	0	0	0	0	2	0	0	11	38
Count Total	0	0	0	0	0	59	0	11	0	0	7	4	1	7	30	0	119	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**25**	**0**	**4**	**0**	**0**	**3**	**1**	**1**	**2**	**11**	**0**	**47**	**0**

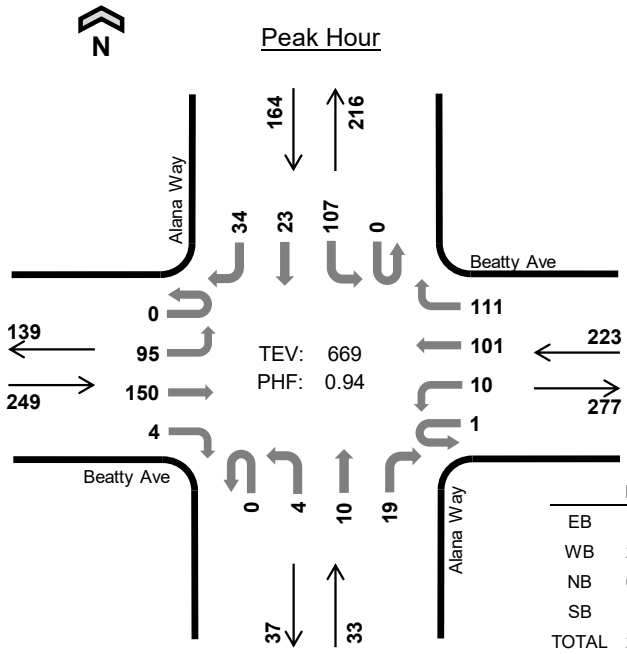
Three-Hour Count Summaries - Bikes

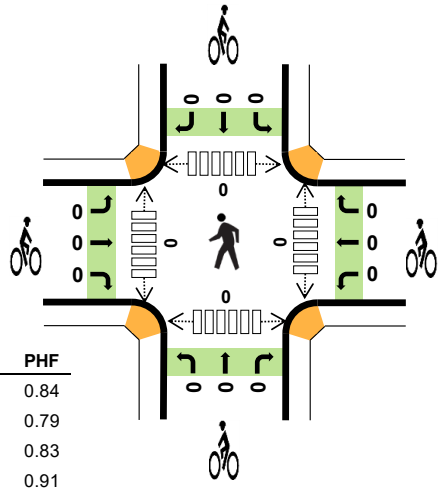
Interval Start	n/a			Beatty Ave			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	0
4:15 PM	0	0	0	0	0	0	0	1	0	0	2	0	3	0
4:30 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**3**	10
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	11
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	11
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**4**	**13**
5:45 PM	0	0	0	0	0	0	0	5	0	0	1	0	6	16
6:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	14
6:15 PM	0	0	0	0	0	0	0	3	0	0	1	0	4	15
6:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	12
6:45 PM	0	0	0	0	0	0	0	3	0	0	1	0	4	10
Count Total	0	0	0	0	0	0	0	26	1	0	9	0	36	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**1**	**0**	**4**	**0**	**13**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Alana Way
Beatty Ave

Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	8.4%	0.84
WB	29.1%	0.79
NB	69.7%	0.83
SB	18.9%	0.91
TOTAL	20.9%	0.94

Three-Hour Count Summaries

Interval Start		Beatty Ave Eastbound				Beatty Ave Westbound				Alana Way Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
8:00 AM		0	24	36	0	1	3	22	21	0	1	2	5	0	26	5	12	158	0
8:15 AM		0	30	43	1	0	2	18	34	0	0	4	1	0	25	8	5	171	0
8:30 AM		0	20	34	2	0	2	26	23	0	1	1	8	0	30	7	8	162	0
8:45 AM		0	21	37	1	0	3	35	33	0	2	3	5	0	26	3	9	178	669
Peak Hour	All	0	95	150	4	1	10	101	111	0	4	10	19	0	107	23	34	669	0
	HV	0	16	4	1	0	8	48	9	0	1	8	14	0	8	19	4	140	0
	HV%	-	17%	3%	25%	0%	80%	48%	8%	-	25%	80%	74%	-	7%	83%	12%	21%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
8:00 AM	6	11	5	7	*29*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	6	13	3	11	*33*	0	0	0	0	*0*	0	0	0	0	*0*
8:30 AM	4	17	8	9	*38*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	5	24	7	4	*40*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	21	65	23	31	*140*	0	0	0	0	*0*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Beatty Ave Eastbound				Beatty Ave Westbound				Alana Way Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	15	29	0	0	3	17	11	0	0	0	0	0	20	2	10	107	0
6:45 AM	0	31	28	0	0	2	25	15	0	0	0	0	0	23	3	8	135	0
7:00 AM	0	18	42	0	0	3	28	18	0	0	1	2	0	34	7	14	167	0
7:15 AM	0	20	26	1	0	3	29	17	0	0	5	5	0	16	1	6	129	538
7:30 AM	0	40	30	1	0	1	23	11	0	0	4	5	0	24	3	9	151	582
7:45 AM	0	32	40	0	0	2	27	18	0	1	3	0	0	36	2	14	175	622
8:00 AM	**0**	**24**	**36**	**0**	**1**	**3**	**22**	**21**	**0**	**1**	**2**	**5**	**0**	**26**	**5**	**12**	**158**	613
8:15 AM	**0**	**30**	**43**	**1**	**0**	**2**	**18**	**34**	**0**	**0**	**4**	**1**	**0**	**25**	**8**	**5**	**171**	655
8:30 AM	**0**	**20**	**34**	**2**	**0**	**2**	**26**	**23**	**0**	**1**	**1**	**8**	**0**	**30**	**7**	**8**	**162**	666
8:45 AM	**0**	**21**	**37**	**1**	**0**	**3**	**35**	**33**	**0**	**2**	**3**	**5**	**0**	**26**	**3**	**9**	**178**	**669**
9:00 AM	0	9	25	1	0	3	27	28	0	1	1	2	0	24	5	9	135	646
9:15 AM	0	15	23	1	0	2	35	24	0	3	3	6	0	18	3	6	139	614
Count Total	0	275	393	8	1	29	312	253	0	9	27	39	0	302	49	110	1,807	0
Peak Hour All	**0**	**95**	**150**	**4**	**1**	**10**	**101**	**111**	**0**	**4**	**10**	**19**	**0**	**107**	**23**	**34**	**669**	**0**
Peak Hour HV	**0**	**16**	**4**	**1**	**0**	**8**	**48**	**9**	**0**	**1**	**8**	**14**	**0**	**8**	**19**	**4**	**140**	**0**
Peak Hour HV%	**-**	**17%**	**3%**	**25%**	**0%**	**80%**	**48%**	**8%**	**-**	**25%**	**80%**	**74%**	**-**	**7%**	**83%**	**12%**	**21%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	8	13	0	4	*25*	0	0	0	0	*0*	0	0	0	0	*0*
6:45 AM	20	14	0	5	*39*	0	0	0	0	*0*	0	0	0	0	*0*
7:00 AM	14	17	3	16	*50*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	8	27	10	2	*47*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	15	18	8	8	*49*	0	0	0	1	*1*	0	0	0	0	*0*
7:45 AM	7	16	2	8	*33*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	**6**	**11**	**5**	**7**	***29***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**6**	**13**	**3**	**11**	***33***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**4**	**17**	**8**	**9**	***38***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:45 AM	**5**	**24**	**7**	**4**	***40***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
9:00 AM	2	14	4	6	*26*	0	0	0	0	*0*	0	0	0	0	*0*
9:15 AM	5	25	8	5	*43*	0	0	0	1	*1*	0	0	0	0	*0*
Count Total	100	209	58	85	*452*	0	0	0	2	*2*	0	0	0	0	*0*
Peak Hour	**21**	**65**	**23**	**31**	***140***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Beatty Ave Eastbound				Beatty Ave Westbound				Alana Way Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	7	1	0	0	2	8	3	0	0	0	0	0	1	1	2	25	0
6:45 AM	0	20	0	0	0	2	10	2	0	0	0	0	0	3	1	1	39	0
7:00 AM	0	12	2	0	0	2	10	5	0	0	1	2	0	6	7	3	50	0
7:15 AM	0	6	2	0	0	1	20	6	0	0	5	5	0	0	1	1	47	161
7:30 AM	0	13	1	1	0	0	17	1	0	0	4	4	0	2	3	3	49	185
7:45 AM	0	5	2	0	0	2	13	1	0	0	2	0	0	5	2	1	33	179
8:00 AM	**0**	**5**	**1**	**0**	**0**	**2**	**6**	**3**	**0**	**1**	**2**	**2**	**0**	**3**	**4**	**0**	**29**	158
8:15 AM	**0**	**5**	**1**	**0**	**0**	**2**	**10**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**8**	**3**	**33**	144
8:30 AM	**0**	**2**	**1**	**1**	**0**	**2**	**13**	**2**	**0**	**0**	**1**	**7**	**0**	**3**	**5**	**1**	**38**	133
8:45 AM	**0**	**4**	**1**	**0**	**0**	**2**	**19**	**3**	**0**	**0**	**2**	**5**	**0**	**2**	**2**	**0**	**40**	**140**
9:00 AM	0	2	0	0	0	1	12	1	0	1	1	2	0	1	5	0	26	137
9:15 AM	0	4	1	0	0	1	23	1	0	2	2	4	0	1	2	2	43	147
Count Total	0	85	13	2	0	19	161	29	0	4	23	31	0	27	41	17	452	0
Peak Hour	**0**	**16**	**4**	**1**	**0**	**8**	**48**	**9**	**0**	**1**	**8**	**14**	**0**	**8**	**19**	**4**	**140**	**0**

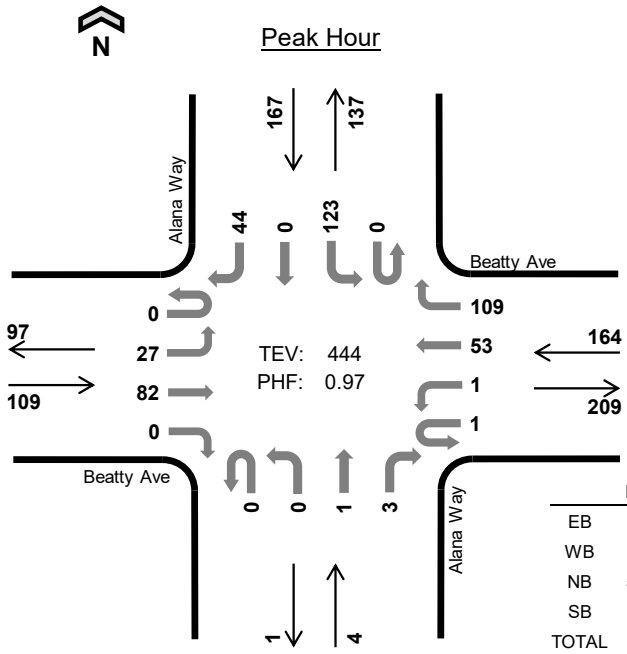
Three-Hour Count Summaries - Bikes

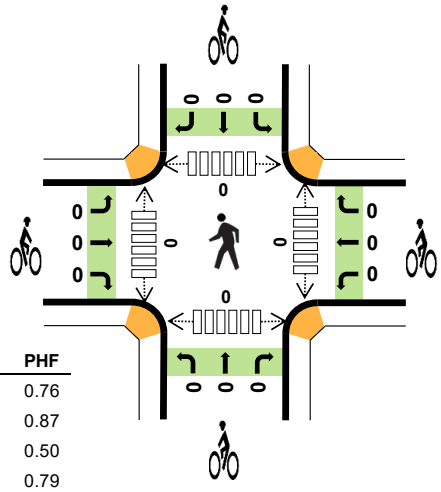
Interval Start	Beatty Ave Eastbound			Beatty Ave Westbound			Alana Way Northbound			Alana Way Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	1
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	0	0	0	0	0	0	0	1	1	1
Count Total	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Alana Way
Beatty Ave

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	4.6%	0.76
WB	17.7%	0.87
NB	50.0%	0.50
SB	5.4%	0.79
TOTAL	10.1%	0.97

Three-Hour Count Summaries

Interval Start		Beatty Ave Eastbound				Beatty Ave Westbound				Alana Way Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM		0	3	14	0	0	0	15	25	0	0	1	0	0	40	0	13	111	0
5:15 PM		0	8	23	0	0	1	14	25	0	0	0	2	0	30	0	9	112	0
5:30 PM		0	8	17	0	1	0	13	33	0	0	0	0	0	24	0	11	107	0
5:45 PM		0	8	28	0	0	0	11	26	0	0	0	1	0	29	0	11	114	444
Peak Hour	All	0	27	82	0	1	1	53	109	0	0	1	3	0	123	0	44	444	0
	HV	0	5	0	0	0	1	26	2	0	0	0	2	0	2	0	7	45	0
	HV%	-	19%	0%	-	0%	100%	49%	2%	-	-	0%	67%	-	2%	-	16%	10%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	1	8	0	2	*11*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	1	11	1	1	*14*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	2	5	0	4	*11*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	5	1	2	*9*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	5	29	2	9	*45*	0	0	0	0	*0*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Beatty Ave Eastbound				Beatty Ave Westbound				Alana Way Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	20	0	1	1	18	25	0	2	6	0	0	31	0	5	111	0
4:15 PM	0	8	13	0	0	1	17	32	0	0	1	2	0	25	1	9	109	0
4:30 PM	0	4	22	0	0	0	17	35	0	0	1	0	0	24	0	4	107	0
4:45 PM	0	7	28	0	0	1	10	36	0	0	2	1	0	11	0	7	103	430
5:00 PM	**0**	**3**	**14**	**0**	**0**	**0**	**15**	**25**	**0**	**0**	**1**	**0**	**0**	**40**	**0**	**13**	**111**	430
5:15 PM	**0**	**8**	**23**	**0**	**0**	**1**	**14**	**25**	**0**	**0**	**0**	**2**	**0**	**30**	**0**	**9**	**112**	433
5:30 PM	**0**	**8**	**17**	**0**	**1**	**0**	**13**	**33**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**11**	**107**	433
5:45 PM	**0**	**8**	**28**	**0**	**0**	**0**	**11**	**26**	**0**	**0**	**0**	**1**	**0**	**29**	**0**	**11**	**114**	**444**
6:00 PM	0	9	23	0	0	0	13	27	0	0	0	0	0	26	0	10	108	441
6:15 PM	0	6	21	0	0	1	13	20	0	0	0	0	0	20	1	9	91	420
6:30 PM	0	4	32	0	0	0	5	21	0	0	0	0	0	32	0	7	101	414
6:45 PM	0	9	22	0	0	1	18	27	0	0	0	0	0	21	0	3	101	401
Count Total	0	76	263	0	2	6	164	332	0	2	11	6	0	313	2	98	1,275	0
Peak Hour All	**0**	**27**	**82**	**0**	**1**	**1**	**53**	**109**	**0**	**0**	**1**	**3**	**0**	**123**	**0**	**44**	**444**	**0**
Peak Hour HV	**0**	**5**	**0**	**0**	**0**	**1**	**26**	**2**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**7**	**45**	**0**
Peak Hour HV%	**-**	**19%**	**0%**	**-**	**0%**	**100%**	**49%**	**2%**	**-**	**-**	**0%**	**67%**	**-**	**2%**	**-**	**16%**	**10%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	7	1	0	*11*	0	0	0	0	*0*	0	0	1	0	*1*
4:15 PM	1	7	2	2	*12*	1	0	1	0	*2*	0	0	0	0	*0*
4:30 PM	2	9	1	3	*15*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	2	6	2	2	*12*	1	0	0	0	*1*	0	0	0	0	*0*
5:00 PM	**1**	**8**	**0**	**2**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**1**	**11**	**1**	**1**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**2**	**5**	**0**	**4**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**1**	**5**	**1**	**2**	***9***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
6:00 PM	4	7	0	0	*11*	0	0	0	0	*0*	0	0	0	0	*0*
6:15 PM	2	7	0	5	*14*	0	0	0	0	*0*	0	0	0	0	*0*
6:30 PM	1	4	0	2	*7*	0	0	0	0	*0*	0	0	0	0	*0*
6:45 PM	5	13	0	0	*18*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	25	89	8	23	*145*	2	0	1	0	*3*	0	0	1	0	*1*
Peak Hour	**5**	**29**	**2**	**9**	***45***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Beatty Ave Eastbound				Beatty Ave Westbound				Alana Way Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	2	0	0	1	5	1	0	0	1	0	0	0	0	0	11	0
4:15 PM	0	1	0	0	0	1	6	0	0	0	1	1	0	0	1	1	12	0
4:30 PM	0	2	0	0	0	0	6	3	0	0	1	0	0	2	0	1	15	0
4:45 PM	0	2	0	0	0	1	4	1	0	0	2	0	0	0	0	2	12	50
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**7**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**11**	50
5:15 PM	**0**	**1**	**0**	**0**	**0**	**1**	**9**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**14**	52
5:30 PM	**0**	**2**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**11**	48
5:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**9**	**45**
6:00 PM	0	4	0	0	0	0	7	0	0	0	0	0	0	0	0	0	11	45
6:15 PM	0	2	0	0	0	1	6	0	0	0	0	0	0	1	1	3	14	45
6:30 PM	0	1	0	0	0	0	4	0	0	0	0	0	0	2	0	0	7	41
6:45 PM	0	5	0	0	0	1	12	0	0	0	0	0	0	0	0	0	18	50
Count Total	0	23	2	0	0	6	76	7	0	0	5	3	0	7	2	14	145	0
Peak Hour	**0**	**5**	**0**	**0**	**0**	**1**	**26**	**2**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**7**	**45**	**0**

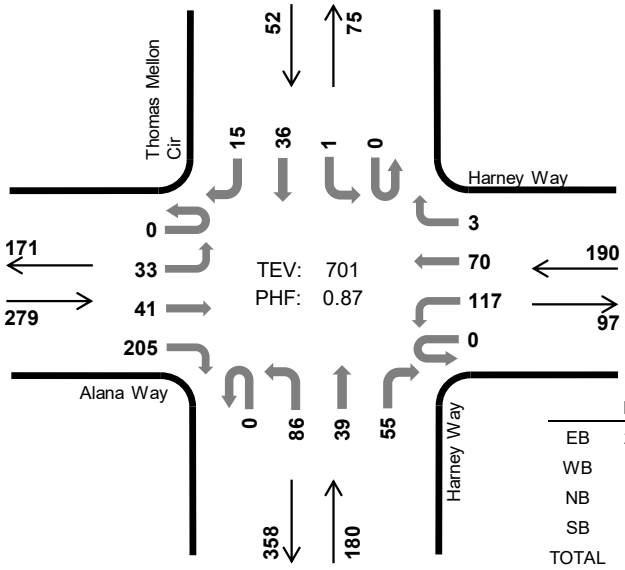
Three-Hour Count Summaries - Bikes

Interval Start	Beatty Ave Eastbound			Beatty Ave Westbound			Alana Way Northbound			Alana Way Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	0	1	0	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	3
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	3
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	1	0	1	0	0	0	0	1	0	0	0	0	3	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

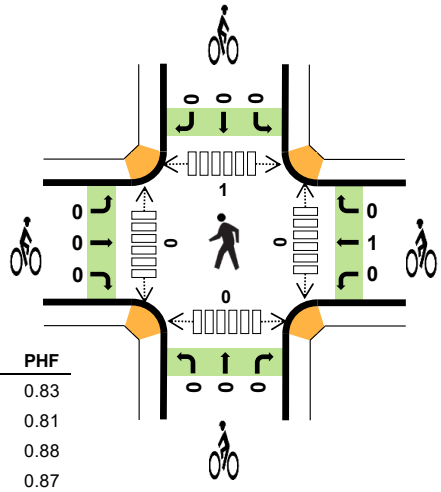
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Harney Way
Alana Way

Peak Hour



Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	23.7%	0.83
WB	4.2%	0.81
NB	13.3%	0.88
SB	9.6%	0.87
TOTAL	14.7%	0.87

Three-Hour Count Summaries

Interval Start		Alana Way Eastbound				Harney Way Westbound				Harney Way Northbound				Thomas Mellon Cir Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:30 AM		0	7	8	69	0	34	24	1	0	21	10	16	0	0	8	4	202	0
7:45 AM		0	5	14	52	0	32	17	0	0	21	8	11	0	1	8	6	175	0
8:00 AM		0	5	9	44	0	20	20	1	0	21	8	13	0	0	12	3	156	0
8:15 AM		0	16	10	40	0	31	9	1	0	23	13	15	0	0	8	2	168	701
Peak Hour	All	0	33	41	205	0	117	70	3	0	86	39	55	0	1	36	15	701	0
	HV	0	2	6	58	0	4	4	0	0	24	0	0	0	0	2	3	103	0
	HV%	-	6%	15%	28%	-	3%	6%	0%	-	28%	0%	0%	-	0%	6%	20%	15%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:30 AM	33	5	3	3	*44*	0	1	0	0	*1*	0	0	1	0	*1*
7:45 AM	12	1	6	0	*19*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	10	1	5	1	*17*	0	0	0	0	*0*	0	0	0	0	*0*
8:15 AM	11	1	10	1	*23*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	66	8	24	5	*103*	0	1	0	0	*1*	0	0	1	0	*1*

Three-Hour Count Summaries

Interval Start	Alana Way				Harney Way				Harney Way				Thomas Mellon Cir				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	5	26	0	8	10	0	0	16	4	9	0	0	7	1	86	0
6:45 AM	0	5	6	42	0	16	11	0	0	17	2	13	0	0	5	0	117	0
7:00 AM	0	4	6	23	0	18	23	0	0	18	3	14	0	0	6	3	118	0
7:15 AM	0	6	6	47	0	32	13	0	0	11	8	21	0	0	10	1	155	476
7:30 AM	**0**	**7**	**8**	**69**	**0**	**34**	**24**	**1**	**0**	**21**	**10**	**16**	**0**	**0**	**8**	**4**	**202**	592
7:45 AM	**0**	**5**	**14**	**52**	**0**	**32**	**17**	**0**	**0**	**21**	**8**	**11**	**0**	**1**	**8**	**6**	**175**	650
8:00 AM	**0**	**5**	**9**	**44**	**0**	**20**	**20**	**1**	**0**	**21**	**8**	**13**	**0**	**0**	**12**	**3**	**156**	688
8:15 AM	**0**	**16**	**10**	**40**	**0**	**31**	**9**	**1**	**0**	**23**	**13**	**15**	**0**	**0**	**8**	**2**	**168**	**701**
8:30 AM	0	7	4	31	0	13	20	0	0	27	15	9	0	0	16	4	146	645
8:45 AM	0	7	6	35	0	10	13	0	0	14	16	9	0	1	5	3	119	589
9:00 AM	0	13	6	20	0	16	15	1	0	16	18	15	0	0	12	3	135	568
9:15 AM	0	6	8	29	0	1	12	0	0	12	15	6	0	1	1	5	96	496
Count Total	0	81	88	458	0	231	187	4	0	217	120	151	0	3	98	35	1,673	0
Peak Hour All	**0**	**33**	**41**	**205**	**0**	**117**	**70**	**3**	**0**	**86**	**39**	**55**	**0**	**1**	**36**	**15**	**701**	**0**
Peak Hour HV	**0**	**2**	**6**	**58**	**0**	**4**	**4**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**2**	**3**	**103**	**0**
Peak Hour HV%	**-**	**6%**	**15%**	**28%**	**-**	**3%**	**6%**	**0%**	**-**	**28%**	**0%**	**0%**	**-**	**0%**	**6%**	**20%**	**15%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	15	0	4	0	*19*	0	0	0	0	*0*	0	0	0	0	*0*
6:45 AM	25	3	4	0	*32*	0	0	0	0	*0*	0	0	0	0	*0*
7:00 AM	15	6	8	1	*30*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	22	1	3	0	*26*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**33**	**5**	**3**	**3**	***44***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**1**	**0**	*1*
7:45 AM	**12**	**1**	**6**	**0**	***19***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**10**	**1**	**5**	**1**	***17***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**11**	**1**	**10**	**1**	***23***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	9	1	6	0	*16*	0	0	0	0	*0*	0	0	0	0	*0*
8:45 AM	11	3	3	1	*18*	0	0	0	0	*0*	0	0	3	0	*3*
9:00 AM	11	1	5	1	*18*	0	0	0	0	*0*	0	0	0	0	*0*
9:15 AM	11	1	3	0	*15*	0	1	0	0	*1*	0	0	1	0	*1*
Count Total	185	24	60	8	*277*	0	2	0	0	*2*	0	0	5	0	*5*
Peak Hour	**66**	**8**	**24**	**5**	***103***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**1**	**0**	***1***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Alana Way				Harney Way				Harney Way				Thomas Mellon Cir				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	15	0	0	0	0		4	0	0	0	0	0	0	19	0
6:45 AM	0	0	0	25	0	3	0	0	0	3	0	1	0	0	0	0	32	0
7:00 AM	0	0	0	15	0	1	5	0	0	6	0	2	0	0	0	1	30	0
7:15 AM	0	0	1	21	0	1	0	0	0	2	0	1	0	0	0	0	26	107
7:30 AM	**0**	**1**	**2**	**30**	**0**	**2**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**2**	**44**	132
7:45 AM	**0**	**0**	**2**	**10**	**0**	**1**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	119
8:00 AM	**0**	**0**	**1**	**9**	**0**	**0**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**1**	**17**	106
8:15 AM	**0**	**1**	**1**	**9**	**0**	**1**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**1**	**0**	**23**	**103**
8:30 AM	0	0	0	9	0	0	1	0	0	6	0	0	0	0	0	0	16	75
8:45 AM	0	0	0	11	0	2	1	0	0	2	0	1	0	0	0	1	18	74
9:00 AM	0	0	0	11	0	1	0	0	0	5	0	0	0	0	0	1	18	75
9:15 AM	0	0	0	11	0	0	1	0	0	3	0	0	0	0	0	0	15	67
Count Total	0	2	7	176	0	12	12	0	0	55	0	5	0	0	2	6	277	0
Peak Hour	**0**	**2**	**6**	**58**	**0**	**4**	**4**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**2**	**3**	**103**	**0**

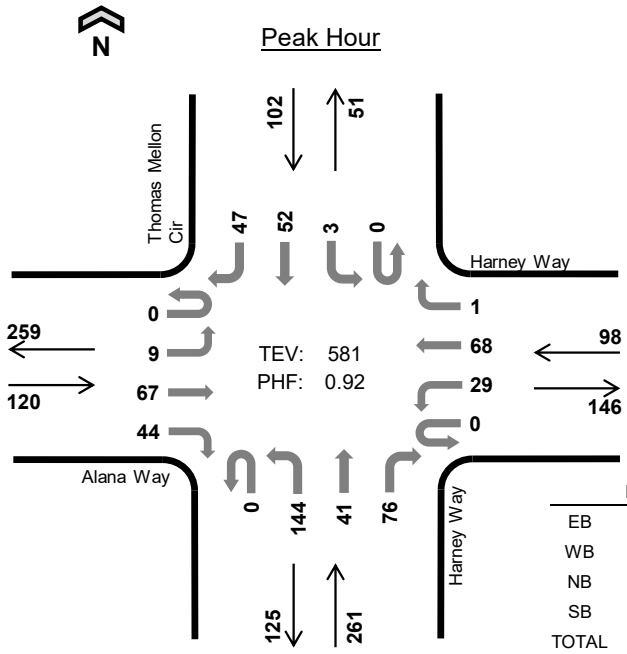
Three-Hour Count Summaries - Bikes

Interval Start	Alana Way			Harney Way			Harney Way			Thomas Mellon Cir			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9:15 AM	0	0	0	0	1	0	0	0	0	0	0	0	1	1
Count Total	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

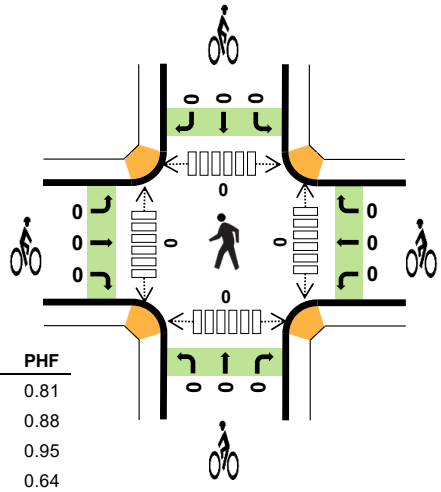
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Harney Way
Alana Way

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	5.8%	0.81
WB	5.1%	0.88
NB	1.9%	0.95
SB	2.0%	0.64
TOTAL	3.3%	0.92



Three-Hour Count Summaries

Interval Start		Alana Way Eastbound				Harney Way Westbound				Harney Way Northbound				Thomas Mellon Cir Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM		0	3	10	8	0	10	18	0	0	33	10	26	0	1	21	18	158	0
5:15 PM		0	2	17	12	0	11	16	1	0	36	7	19	0	1	14	12	148	0
5:30 PM		0	3	22	12	0	6	16	0	0	39	7	15	0	0	8	5	133	0
5:45 PM		0	1	18	12	0	2	18	0	0	36	17	16	0	1	9	12	142	581
Peak Hour	All	0	9	67	44	0	29	68	1	0	144	41	76	0	3	52	47	581	0
	HV	0	0	3	4	0	1	4	0	0	5	0	0	0	0	0	2	19	0
	HV%	-	0%	4%	9%	-	3%	6%	0%	-	3%	0%	0%	-	0%	0%	4%	3%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	2	0	2	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:15 PM	1	2	0	1	*4*	0	0	0	0	*0*	0	0	0	0	*0*
5:30 PM	3	1	2	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	1	2	1	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
Peak Hour	7	5	5	2	*19*	0	0	0	0	*0*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Alana Way Eastbound				Harney Way Westbound				Harney Way Northbound				Thomas Mellon Cir Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	14	13	0	10	14	1	0	29	4	19	0	0	6	8	120	0
4:15 PM	0	8	14	11	0	6	12	2	0	21	8	14	0	3	15	10	124	0
4:30 PM	0	3	22	11	0	12	19	1	0	33	7	18	0	0	6	7	139	0
4:45 PM	0	3	18	14	0	9	6	0	0	28	8	21	0	2	13	9	131	514
5:00 PM	**0**	**3**	**10**	**8**	**0**	**10**	**18**	**0**	**0**	**33**	**10**	**26**	**0**	**1**	**21**	**18**	**158**	552
5:15 PM	**0**	**2**	**17**	**12**	**0**	**11**	**16**	**1**	**0**	**36**	**7**	**19**	**0**	**1**	**14**	**12**	**148**	576
5:30 PM	**0**	**3**	**22**	**12**	**0**	**6**	**16**	**0**	**0**	**39**	**7**	**15**	**0**	**0**	**8**	**5**	**133**	570
5:45 PM	**0**	**1**	**18**	**12**	**0**	**2**	**18**	**0**	**0**	**36**	**17**	**16**	**0**	**1**	**9**	**12**	**142**	**581**
6:00 PM	0	2	9	5	0	7	15	0	0	24	8	11	0	2	11	13	107	530
6:15 PM	0	2	20	7	0	12	12	0	0	36	7	12	0	0	7	4	119	501
6:30 PM	0	1	10	6	0	3	19	0	0	30	7	17	0	0	14	11	118	486
6:45 PM	0	6	15	6	0	14	12	1	0	19	4	12	0	0	1	4	94	438
Count Total	0	36	189	117	0	102	177	6	0	364	94	200	0	10	125	113	1,533	0
Peak Hour All	**0**	**9**	**67**	**44**	**0**	**29**	**68**	**1**	**0**	**144**	**41**	**76**	**0**	**3**	**52**	**47**	**581**	**0**
Peak Hour HV	**0**	**0**	**3**	**4**	**0**	**1**	**4**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**2**	**19**	**0**
Peak Hour HV%	**-**	**0%**	**4%**	**9%**	**-**	**3%**	**6%**	**0%**	**-**	**3%**	**0%**	**0%**	**-**	**0%**	**0%**	**4%**	**3%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	3	1	0	0	*4*	1	0	0	0	*1*	0	0	1	0	*1*
4:15 PM	2	0	1	1	*4*	1	1	0	0	*2*	0	0	1	0	*1*
4:30 PM	3	1	2	1	*7*	0	0	0	0	*0*	0	0	1	0	*1*
4:45 PM	5	1	1	1	*8*	1	1	0	0	*2*	0	0	0	0	*0*
5:00 PM	**2**	**0**	**2**	**0**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**1**	**2**	**0**	**1**	***4***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**3**	**1**	**2**	**0**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**1**	**2**	**1**	**1**	***5***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
6:00 PM	3	1	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
6:15 PM	1	1	5	0	*7*	0	0	0	0	*0*	0	0	1	0	*1*
6:30 PM	2	1	1	1	*5*	0	0	0	0	*0*	0	0	0	0	*0*
6:45 PM	4	2	0	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	30	13	15	6	*64*	3	2	0	0	*5*	0	0	4	0	*4*
Peak Hour	**7**	**5**	**5**	**2**	***19***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Alana Way				Harney Way				Harney Way				Thomas Mellon Cir				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	2	0	1	0	0	0	0	0	0	0	0	0	0	4	0
4:15 PM	0	0	0	2	0	0	0	0	0	1	0	0	0	0	0	1	4	0
4:30 PM	0	0	1	2	0	0	1	0	0	2	0	0	0	0	0	1	7	0
4:45 PM	0	0	0	5	0	1	0	0	0	1	0	0	0	0	0	1	8	23
5:00 PM	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	23
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	23
5:30 PM	**0**	**0**	**1**	**2**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	22
5:45 PM	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**19**
6:00 PM	0	0	0	3	0	0	1	0	0	0	0	0	0	0	0	0	4	19
6:15 PM	0	0	0	1	0	1	0	0	0	5	0	0	0	0	0	0	7	22
6:30 PM	0	0	0	2	0	0	1	0	0	1	0	0	0	0	0	1	5	21
6:45 PM	0	0	0	4	0	1	1	0	0	0	0	0	0	0	0	0	6	22
Count Total	0	0	5	25	0	5	8	0	0	15	0	0	0	0	0	6	64	0
Peak Hour	**0**	**0**	**3**	**4**	**0**	**1**	**4**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**2**	**19**	**0**

Three-Hour Count Summaries - Bikes

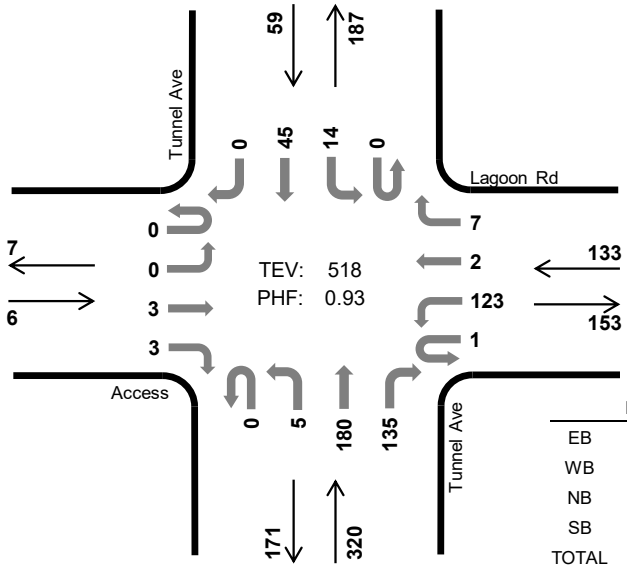
Interval Start	Alana Way			Harney Way			Harney Way			Thomas Mellon Cir			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:15 PM	0	1	0	0	1	0	0	0	0	0	0	0	2	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	0	1	0	0	1	0	0	0	0	0	0	0	2	5
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	4
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	2
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	3	0	0	2	0	0	0	0	0	0	0	5	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

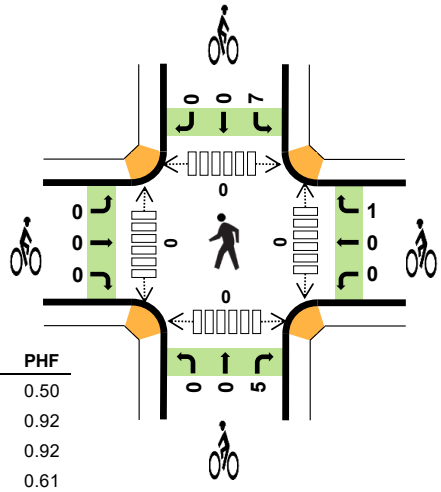
Tunnel Ave
Lagoon Rd

Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour



	HV %:	PHF
EB	0.0%	0.50
WB	10.5%	0.92
NB	6.9%	0.92
SB	15.3%	0.61
TOTAL	8.7%	0.93



Three-Hour Count Summaries

Interval Start		Access Eastbound				Lagoon Rd Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:45 AM		0	0	1	0	0	29	0	3	0	1	46	36	0	7	17	0	140	0
8:00 AM		0	0	0	0	0	28	0	2	0	1	44	34	0	3	16	0	128	0
8:15 AM		0	0	1	2	1	34	0	0	0	0	51	36	0	2	6	0	133	0
8:30 AM		0	0	1	1	0	32	2	2	0	3	39	29	0	2	6	0	117	518
Peak Hour	All	0	0	3	3	1	123	2	7	0	5	180	135	0	14	45	0	518	0
	HV	0	0	0	0	0	12	0	2	0	0	15	7	0	4	5	0	45	0
	HV%	-	-	0%	0%	0%	10%	0%	29%	-	0%	8%	5%	-	29%	11%	-	9%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:45 AM	0	5	3	3	*11*	0	1	0	1	*2*	0	0	0	0	*0*
8:00 AM	0	2	7	5	*14*	0	0	3	3	*6*	0	0	0	0	*0*
8:15 AM	0	5	9	1	*15*	0	0	1	1	*2*	0	0	0	0	*0*
8:30 AM	0	2	3	0	*5*	0	0	1	2	*3*	0	0	0	0	*0*
Peak Hour	0	14	22	9	*45*	0	1	5	7	*13*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Access Eastbound				Lagoon Rd Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	0	0	24	0	0	0	0	34	15	0	3	4	0	80	0
6:45 AM	0	0	0	0	0	27	2	3	0	2	24	21	0	3	7	0	89	0
7:00 AM	0	0	0	0	0	24	1	1	0	0	32	18	0	1	8	0	85	0
7:15 AM	0	0	0	2	0	21	0	2	0	0	46	25	0	1	5	0	102	356
7:30 AM	0	0	0	2	0	27	0	1	0	1	40	26	0	4	6	0	107	383
7:45 AM	**0**	**0**	**1**	**0**	**0**	**29**	**0**	**3**	**0**	**1**	**46**	**36**	**0**	**7**	**17**	**0**	**140**	434
8:00 AM	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**2**	**0**	**1**	**44**	**34**	**0**	**3**	**16**	**0**	**128**	477
8:15 AM	**0**	**0**	**1**	**2**	**1**	**34**	**0**	**0**	**0**	**0**	**51**	**36**	**0**	**2**	**6**	**0**	**133**	508
8:30 AM	**0**	**0**	**1**	**1**	**0**	**32**	**2**	**2**	**0**	**3**	**39**	**29**	**0**	**2**	**6**	**0**	**117**	**518**
8:45 AM	0	0	0	1	0	22	0	2	0	0	21	20	1	5	11	0	83	461
9:00 AM	0	0	0	2	0	36	0	0	0	2	26	23	0	4	7	0	100	433
9:15 AM	0	0	0	0	0	40	0	1	0	0	33	18	0	2	10	0	104	404
Count Total	0	0	3	10	1	344	5	17	0	10	436	301	1	37	103	0	1,268	0
Peak Hour All	**0**	**0**	**3**	**3**	**1**	**123**	**2**	**7**	**0**	**5**	**180**	**135**	**0**	**14**	**45**	**0**	**518**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**2**	**0**	**0**	**15**	**7**	**0**	**4**	**5**	**0**	**45**	**0**
Peak Hour HV%	**-**	**-**	**0%**	**0%**	**0%**	**10%**	**0%**	**29%**	**-**	**0%**	**8%**	**5%**	**-**	**29%**	**11%**	**-**	**9%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
6:30 AM	0	3	4	2	*9*	0	0	0	1	*1*	0	0	0	0	*0*
6:45 AM	0	6	1	3	*10*	0	0	2	1	*3*	0	0	0	2	*2*
7:00 AM	0	4	3	2	*9*	0	0	0	1	*1*	0	0	0	0	*0*
7:15 AM	0	7	14	2	*23*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	0	4	4	3	*11*	0	0	0	3	*3*	0	0	0	0	*0*
7:45 AM	**0**	**5**	**3**	**3**	***11***	**0**	**1**	**0**	**1**	***2***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**2**	**7**	**5**	***14***	**0**	**0**	**3**	**3**	***6***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**5**	**9**	**1**	***15***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**2**	**3**	**0**	***5***	**0**	**0**	**1**	**2**	***3***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	2	1	1	*4*	0	2	2	2	*6*	0	0	0	0	*0*
9:00 AM	0	2	5	2	*9*	0	1	2	1	*4*	0	0	0	0	*0*
9:15 AM	0	7	6	4	*17*	0	0	0	3	*3*	1	0	0	0	*1*
Count Total	0	49	60	28	*137*	0	4	11	19	*34*	1	0	0	2	*3*
Peak Hour	**0**	**14**	**22**	**9**	***45***	**0**	**1**	**5**	**7**	***13***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Access				Lagoon Rd				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	0	0	3	0	0	0	0	3	1	0	1	1	0	9	0
6:45 AM	0	0	0	0	0	5	0	1	0	0	1	0	0	1	2	0	10	0
7:00 AM	0	0	0	0	0	3	0	1	0	0	2	1	0	1	1	0	9	0
7:15 AM	0	0	0	0	0	7	0	0	0	0	7	7	0	1	1	0	23	51
7:30 AM	0	0	0	0	0	4	0	0	0	0	3	1	0	1	2	0	11	53
7:45 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**2**	**1**	**0**	**11**	54
8:00 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**5**	**2**	**0**	**2**	**3**	**0**	**14**	59
8:15 AM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**6**	**3**	**0**	**0**	**1**	**0**	**15**	51
8:30 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**5**	**45**
8:45 AM	0	0	0	0	0	2	0	0	0	0	1	0	0	1	0	0	4	38
9:00 AM	0	0	0	0	0	2	0	0	0	0	4	1	0	2	0	0	9	33
9:15 AM	0	0	0	0	0	6	0	1	0	0	5	1	0	0	4	0	17	35
Count Total	0	0	0	0	0	44	0	5	0	0	41	19	0	12	16	0	137	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**2**	**0**	**0**	**15**	**7**	**0**	**4**	**5**	**0**	**45**	**0**

Three-Hour Count Summaries - Bikes

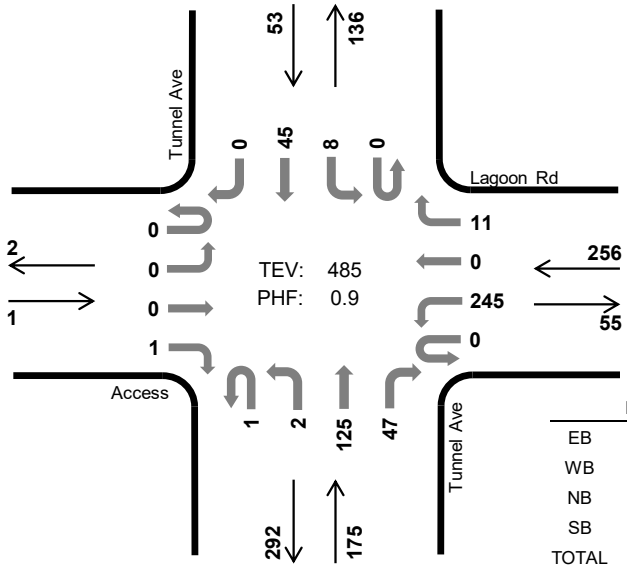
Interval Start	Access			Lagoon Rd			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0
6:45 AM	0	0	0	0	0	0	0	1	1	1	0	0	3	0
7:00 AM	0	0	0	0	0	0	0	0	0	1	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
7:30 AM	0	0	0	0	0	0	0	0	0	2	1	0	3	7
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	6
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**3**	**0**	**0**	**6**	11
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**2**	13
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**3**	**13**
8:45 AM	0	0	0	1	0	1	0	1	1	2	0	0	6	17
9:00 AM	0	0	0	0	0	1	0	0	2	1	0	0	4	15
9:15 AM	0	0	0	0	0	0	0	0	0	3	0	0	3	16
Count Total	0	0	0	1	0	3	0	2	9	18	1	0	34	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**7**	**0**	**0**	**13**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

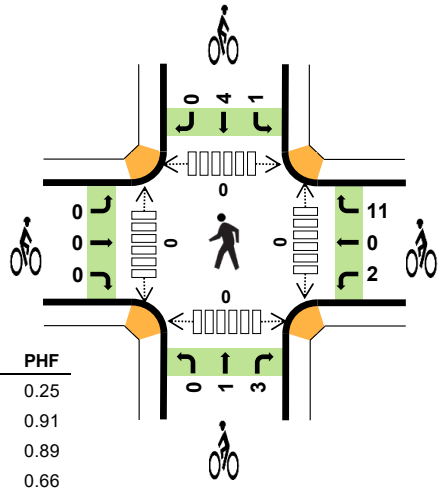
Tunnel Ave
Lagoon Rd

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour



	HV %:	PHF
EB	0.0%	0.25
WB	4.7%	0.91
NB	4.0%	0.89
SB	1.9%	0.66
TOTAL	4.1%	0.90



Three-Hour Count Summaries

Interval Start		Access Eastbound				Lagoon Rd Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM		0	0	0	0	0	68	0	2	0	0	23	22	0	1	19	0	135	0
5:15 PM		0	0	0	1	0	64	0	3	0	1	32	10	0	3	12	0	126	0
5:30 PM		0	0	0	0	0	58	0	1	1	1	40	7	0	2	6	0	116	0
5:45 PM		0	0	0	0	0	55	0	5	0	0	30	8	0	2	8	0	108	485
Peak Hour	All	0	0	0	1	0	245	0	11	1	2	125	47	0	8	45	0	485	0
	HV	0	0	0	0	0	12	0	0	0	0	7	0	0	1	0	0	20	0
	HV%	-	-	-	0%	-	5%	-	0%	0%	0%	6%	0%	-	13%	0%	-	4%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	0	3	2	0	*5*	0	1	1	1	*3*	0	0	0	0	*0*
5:15 PM	0	2	2	0	*4*	0	4	1	1	*6*	0	0	0	0	*0*
5:30 PM	0	5	2	0	*7*	0	6	1	2	*9*	0	0	0	0	*0*
5:45 PM	0	2	1	1	*4*	0	2	1	1	*4*	0	0	0	0	*0*
Peak Hour	0	12	7	1	*20*	0	13	4	5	*22*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Access				Lagoon Rd				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	56	0	3	0	0	20	10	0	3	5	0	97	0
4:15 PM	0	0	0	0	0	51	0	5	0	0	23	17	0	2	8	0	106	0
4:30 PM	0	0	0	0	0	50	0	4	1	0	29	15	0	4	9	0	112	0
4:45 PM	0	0	1	0	0	55	0	2	0	1	18	10	0	3	8	0	98	413
5:00 PM	**0**	**0**	**0**	**0**	**0**	**68**	**0**	**2**	**0**	**0**	**23**	**22**	**0**	**1**	**19**	**0**	**135**	451
5:15 PM	**0**	**0**	**0**	**1**	**0**	**64**	**0**	**3**	**0**	**1**	**32**	**10**	**0**	**3**	**12**	**0**	**126**	471
5:30 PM	**0**	**0**	**0**	**0**	**0**	**58**	**0**	**1**	**1**	**1**	**40**	**7**	**0**	**2**	**6**	**0**	**116**	475
5:45 PM	**0**	**0**	**0**	**0**	**0**	**55**	**0**	**5**	**0**	**0**	**30**	**8**	**0**	**2**	**8**	**0**	**108**	**485**
6:00 PM	0	0	1	1	0	39	0	6	0	0	22	9	0	0	7	0	85	435
6:15 PM	0	0	0	0	0	41	0	1	1	2	22	9	0	2	11	0	89	398
6:30 PM	0	0	0	2	1	49	0	2	1	0	18	6	0	5	5	0	89	371
6:45 PM	0	0	0	0	0	44	0	1	0	0	15	8	0	3	9	0	80	343
Count Total	0	0	2	4	1	630	0	35	4	5	292	131	0	30	107	0	1,241	0
Peak Hour All	**0**	**0**	**0**	**1**	**0**	**245**	**0**	**11**	**1**	**2**	**125**	**47**	**0**	**8**	**45**	**0**	**485**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**1**	**0**	**0**	**20**	**0**
Peak Hour HV%	**-**	**-**	**-**	**0%**	**-**	**5%**	**-**	**0%**	**0%**	**0%**	**6%**	**0%**	**-**	**13%**	**0%**	**-**	**4%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	7	1	0	*8*	0	1	1	0	*2*	0	0	0	0	*0*
4:15 PM	0	2	2	1	*5*	0	1	1	0	*2*	0	0	0	0	*0*
4:30 PM	0	4	1	2	*7*	0	3	0	2	*5*	0	0	0	0	*0*
4:45 PM	0	2	2	0	*4*	0	4	1	1	*6*	0	0	0	2	*2*
5:00 PM	**0**	**3**	**2**	**0**	***5***	**0**	**1**	**1**	**1**	***3***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**2**	**2**	**0**	***4***	**0**	**4**	**1**	**1**	***6***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**5**	**2**	**0**	***7***	**0**	**6**	**1**	**2**	***9***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**0**	**2**	**1**	**1**	***4***	**0**	**2**	**1**	**1**	***4***	**0**	**0**	**0**	**0**	***0***
6:00 PM	0	3	1	1	*5*	0	5	0	0	*5*	0	0	0	0	*0*
6:15 PM	0	2	2	1	*5*	0	5	1	0	*6*	0	0	0	0	*0*
6:30 PM	0	1	1	2	*4*	0	4	0	1	*5*	0	0	0	0	*0*
6:45 PM	0	0	0	1	*1*	0	1	0	1	*2*	0	0	0	0	*0*
Count Total	0	33	17	9	*59*	0	37	8	10	*55*	0	0	0	2	*2*
Peak Hour	**0**	**12**	**7**	**1**	***20***	**0**	**13**	**4**	**5**	***22***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Access				Lagoon Rd				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	7	0	0	0	0	1	0	0	0	0	0	8	0
4:15 PM	0	0	0	0	0	2	0	0	0	0	2	0	0	0	1	0	5	0
4:30 PM	0	0	0	0	0	4	0	0	0	0	0	1	0	2	0	0	7	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	2	0	0	0	0	0	4	24
5:00 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	21
5:15 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	20
5:30 PM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**7**	20
5:45 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**4**	**20**
6:00 PM	0	0	0	0	0	3	0	0	0	0	1	0	0	0	1	0	5	20
6:15 PM	0	0	0	0	0	2	0	0	0	0	1	1	0	1	0	0	5	21
6:30 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	2	0	0	4	18
6:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	15
Count Total	0	0	0	0	0	33	0	0	0	0	15	2	0	6	3	0	59	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**1**	**0**	**0**	**20**	**0**

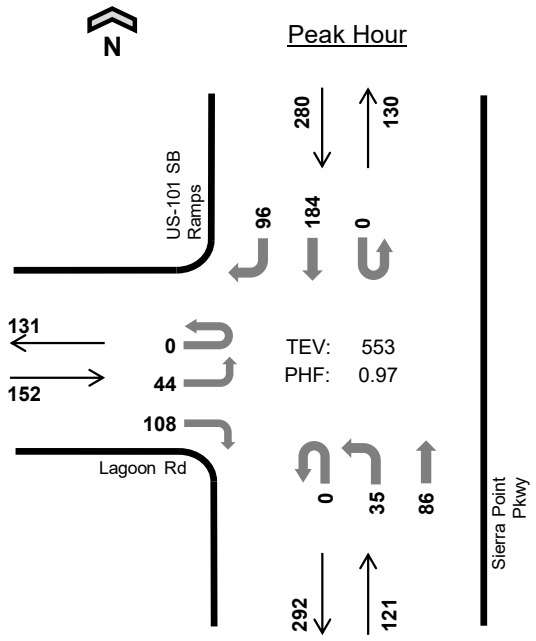
Three-Hour Count Summaries - Bikes

Interval Start	Access			Lagoon Rd			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	1	0	1	0	0	0	0	2	0
4:15 PM	0	0	0	0	0	1	0	0	1	0	0	0	2	0
4:30 PM	0	0	0	1	0	2	0	0	0	1	1	0	5	0
4:45 PM	0	0	0	3	0	1	0	1	0	0	1	0	6	15
5:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**3**	16
5:15 PM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**1**	**0**	**6**	20
5:30 PM	**0**	**0**	**0**	**1**	**0**	**5**	**0**	**0**	**1**	**0**	**2**	**0**	**9**	24
5:45 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**4**	**22**
6:00 PM	0	0	0	3	0	2	0	0	0	0	0	0	5	24
6:15 PM	0	0	0	3	0	2	0	0	1	0	0	0	6	24
6:30 PM	0	0	0	1	0	3	0	0	0	0	1	0	5	20
6:45 PM	0	0	0	0	0	1	0	0	0	0	1	0	2	18
Count Total	0	0	0	13	0	24	0	3	5	2	8	0	55	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**11**	**0**	**1**	**3**	**1**	**4**	**0**	**22**	**0**

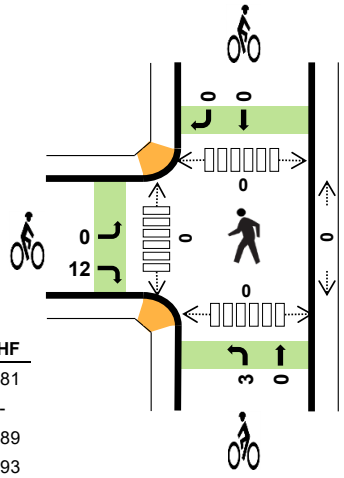
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Sierra Point Pkwy
Lagoon Rd

Peak Hour



Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	7.2%	0.81
WB	-	-
NB	9.9%	0.89
SB	6.1%	0.93
TOTAL	7.2%	0.97

Three-Hour Count Summaries

Interval Start		Lagoon Rd Eastbound				n/a Westbound				Sierra Point Pkwy Northbound				US-101 SB Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:45 AM		0	15	0	32	0	0	0	0	0	9	21	0	0	0	43	23	143	0
8:00 AM		0	9	0	23	0	0	0	0	0	9	25	0	0	0	47	22	135	0
8:15 AM		0	11	0	28	0	0	0	0	0	10	19	0	0	0	47	23	138	0
8:30 AM		0	9	0	25	0	0	0	0	0	7	21	0	0	0	47	28	137	553
Peak Hour	All	0	44	0	108	0	0	0	0	0	35	86	0	0	0	184	96	553	0
	HV	0	4	0	7	0	0	0	0	0	3	9	0	0	0	6	11	40	0
	HV%	-	9%	-	6%	-	-	-	-	-	9%	10%	-	-	-	3%	11%	7%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:45 AM	4	0	4	6	*14*	1	0	1	0	*2*	0	0	0	0	*0*
8:00 AM	2	0	1	4	*7*	6	0	0	0	*6*	0	0	0	0	*0*
8:15 AM	3	0	5	4	*12*	2	0	0	0	*2*	0	0	0	0	*0*
8:30 AM	2	0	2	3	*7*	3	0	2	0	*5*	0	0	0	0	*0*
Peak Hour	11	0	12	17	*40*	12	0	3	0	*15*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Lagoon Rd (Eastbound)				n/a (Westbound)				Sierra Point Pkwy (Northbound)				US-101 SB Ramps (Southbound)				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	8	0	9	0	0	0	0	0	3	15	0	0	0	18	20	73	0
6:45 AM	0	11	0	12	0	0	0	0	0	5	7	0	0	0	13	27	75	0
7:00 AM	0	11	0	10	0	0	0	0	0	3	15	0	0	0	25	24	88	0
7:15 AM	0	6	0	16	0	0	0	0	0	5	11	0	0	0	26	19	83	319
7:30 AM	0	14	0	16	0	0	0	0	0	6	22	0	0	0	35	22	115	361
7:45 AM	**0**	**15**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**9**	**21**	**0**	**0**	**0**	**43**	**23**	**143**	429
8:00 AM	**0**	**9**	**0**	**23**	**0**	**0**	**0**	**0**	**0**	**9**	**25**	**0**	**0**	**0**	**47**	**22**	**135**	476
8:15 AM	**0**	**11**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**10**	**19**	**0**	**0**	**0**	**47**	**23**	**138**	531
8:30 AM	**0**	**9**	**0**	**25**	**0**	**0**	**0**	**0**	**0**	**7**	**21**	**0**	**0**	**0**	**47**	**28**	**137**	**553**
8:45 AM	0	10	0	17	0	0	0	0	0	6	18	0	0	0	43	20	114	524
9:00 AM	0	11	0	16	0	0	0	0	0	9	34	0	0	0	43	30	143	532
9:15 AM	0	10	0	8	0	0	0	0	0	8	21	0	0	0	39	28	114	508
Count Total	0	125	0	212	0	0	0	0	0	80	229	0	0	0	426	286	1,358	0
Peak Hour All	**0**	**44**	**0**	**108**	**0**	**0**	**0**	**0**	**0**	**35**	**86**	**0**	**0**	**0**	**184**	**96**	**553**	**0**
Peak Hour HV	**0**	**4**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**3**	**9**	**0**	**0**	**0**	**6**	**11**	**40**	**0**
Peak Hour HV%	**-**	**9%**	**-**	**6%**	**-**	**-**	**-**	**-**	**-**	**9%**	**10%**	**-**	**-**	**-**	**3%**	**11%**	**7%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	2	0	2	1	*5*	1	0	0	0	*1*	0	0	0	0	*0*
6:45 AM	1	0	1	7	*9*	2	0	0	0	*2*	0	0	0	0	*0*
7:00 AM	2	0	3	5	*10*	1	0	0	0	*1*	0	0	0	0	*0*
7:15 AM	7	0	1	6	*14*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	2	0	4	4	*10*	2	0	0	0	*2*	0	0	0	0	*0*
7:45 AM	**4**	**0**	**4**	**6**	***14***	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**2**	**0**	**1**	**4**	***7***	**6**	**0**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**3**	**0**	**5**	**4**	***12***	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**2**	**0**	**2**	**3**	***7***	**3**	**0**	**2**	**0**	***5***	**0**	**0**	**0**	**0**	***0***
8:45 AM	1	0	4	4	*9*	2	0	0	0	*2*	0	0	0	0	*0*
9:00 AM	3	0	7	4	*14*	3	0	1	0	*4*	0	0	0	0	*0*
9:15 AM	2	0	4	6	*12*	2	0	0	0	*2*	0	0	0	0	*0*
Count Total	31	0	38	54	*123*	25	0	4	0	*29*	0	0	0	0	*0*
Peak Hr	**11**	**0**	**12**	**17**	***40***	**12**	**0**	**3**	**0**	***15***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Lagoon Rd				n/a				Sierra Point Pkwy				US-101 SB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	2	0	0	0	0	0	0	0	1	1	0	0	0	0	1	5	0
6:45 AM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	6	9	0
7:00 AM	0	1	0	1	0	0	0	0	0	1	2	0	0	0	1	4	10	0
7:15 AM	0	0	0	7	0	0	0	0	0	1	0	0	0	0	0	6	14	38
7:30 AM	0	2	0	0	0	0	0	0	0	0	4	0	0	0	1	3	10	43
7:45 AM	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**2**	**4**	**14**	48
8:00 AM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**2**	**7**	45
8:15 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**1**	**3**	**12**	43
8:30 AM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**2**	**7**	**40**
8:45 AM	0	0	0	1	0	0	0	0	0	0	4	0	0	0	2	2	9	35
9:00 AM	0	2	0	1	0	0	0	0	0	2	5	0	0	0	1	3	14	42
9:15 AM	0	1	0	1	0	0	0	0	0	2	2	0	0	0	2	4	12	42
Count Total	0	13	0	18	0	0	0	0	0	10	28	0	0	0	14	40	123	0
Peak Hour	**0**	**4**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**3**	**9**	**0**	**0**	**0**	**6**	**11**	**40**	**0**

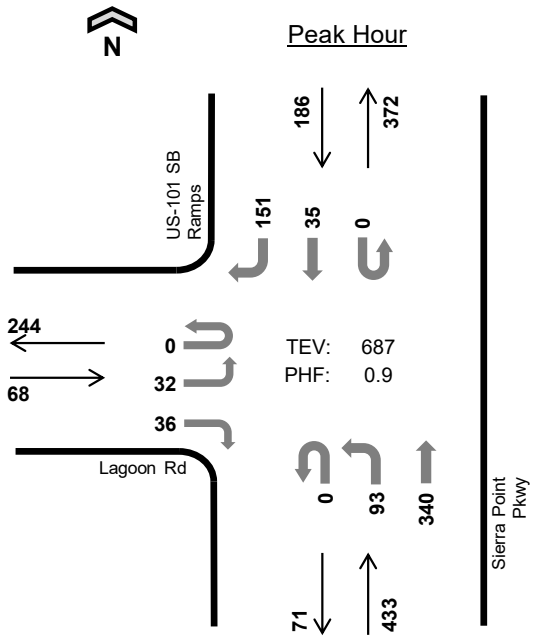
Three-Hour Count Summaries - Bikes

Interval Start	Lagoon Rd			n/a			Sierra Point Pkwy			US-101 SB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
6:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	0
7:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
7:30 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	5
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	5
8:00 AM	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	10
8:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	12
8:30 AM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**5**	**15**
8:45 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	15
9:00 AM	0	0	3	0	0	0	1	0	0	0	0	0	4	13
9:15 AM	0	0	2	0	0	0	0	0	0	0	0	0	2	13
Count Total	0	0	25	0	0	0	4	0	0	0	0	0	29	0
Peak Hour	**0**	**0**	**12**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**15**	**0**

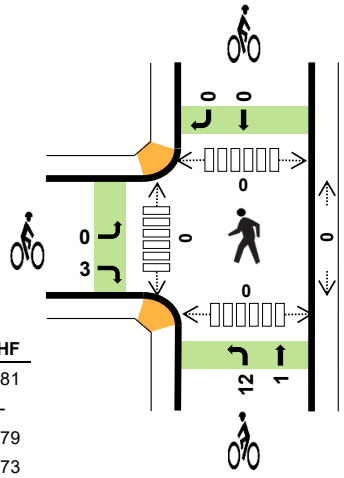
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Sierra Point Pkwy
Lagoon Rd

Peak Hour



Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	4.4%	0.81
WB	-	-
NB	1.8%	0.79
SB	7.0%	0.73
TOTAL	3.5%	0.90

Three-Hour Count Summaries

Interval Start		Lagoon Rd Eastbound				n/a Westbound				Sierra Point Pkwy Northbound				US-101 SB Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	8	0	11	0	0	0	0	0	17	83	0	0	0	4	37	160	0
4:45 PM		0	12	0	2	0	0	0	0	0	18	74	0	0	0	11	37	154	0
5:00 PM		0	7	0	14	0	0	0	0	0	41	96	0	0	0	6	27	191	0
5:15 PM		0	5	0	9	0	0	0	0	0	17	87	0	0	0	14	50	182	687
Peak Hour	All	0	32	0	36	0	0	0	0	0	93	340	0	0	0	35	151	687	0
	HV	0	2	0	1	0	0	0	0	0	2	6	0	0	0	4	9	24	0
	HV%	-	6%	-	3%	-	-	-	-	-	2%	2%	-	-	-	11%	6%	3%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	2	0	1	5	*8*	1	0	3	0	*4*	0	0	0	0	*0*
4:45 PM	1	0	2	2	*5*	0	0	5	0	*5*	0	0	0	0	*0*
5:00 PM	0	0	2	3	*5*	1	0	1	0	*2*	0	0	0	0	*0*
5:15 PM	0	0	3	3	*6*	1	0	4	0	*5*	0	0	0	0	*0*
Peak Hour	3	0	8	13	*24*	3	0	13	0	*16*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Lagoon Rd (Eastbound)				n/a (Westbound)				Sierra Point Pkwy (Northbound)				US-101 SB Ramps (Southbound)				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	9	0	7	0	0	0	0	0	17	74	0	0	0	13	42	162	0
4:15 PM	0	7	0	11	0	0	0	0	0	15	56	0	0	0	10	40	139	0
4:30 PM	**0**	**8**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**17**	**83**	**0**	**0**	**0**	**4**	**37**	**160**	0
4:45 PM	**0**	**12**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**18**	**74**	**0**	**0**	**0**	**11**	**37**	**154**	615
5:00 PM	**0**	**7**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**41**	**96**	**0**	**0**	**0**	**6**	**27**	**191**	644
5:15 PM	**0**	**5**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**17**	**87**	**0**	**0**	**0**	**14**	**50**	**182**	**687**
5:30 PM	0	2	0	7	0	0	0	0	0	15	62	0	0	0	13	42	141	668
5:45 PM	0	2	0	10	0	0	0	0	0	13	52	0	0	0	10	47	134	648
6:00 PM	0	2	0	6	0	0	0	0	0	9	54	0	0	0	10	35	116	573
6:15 PM	0	5	0	6	0	0	0	0	0	11	42	0	0	0	11	29	104	495
6:30 PM	0	3	0	8	0	0	0	0	0	13	40	0	0	0	4	38	106	460
6:45 PM	0	4	0	8	0	0	0	0	0	10	32	0	0	0	14	36	104	430
Count Total	0	66	0	99	0	0	0	0	0	196	752	0	0	0	120	460	1,693	0
Peak Hour All	**0**	**32**	**0**	**36**	**0**	**0**	**0**	**0**	**0**	**93**	**340**	**0**	**0**	**0**	**35**	**151**	**687**	**0**
Peak Hour HV	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**6**	**0**	**0**	**0**	**4**	**9**	**24**	**0**
Peak Hour HV%	**-**	**6%**	**-**	**3%**	**-**	**-**	**-**	**-**	**-**	**2%**	**2%**	**-**	**-**	**-**	**11%**	**6%**	**3%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	3	5	*8*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	0	3	*3*	1	0	1	0	*2*	0	0	0	0	*0*
4:30 PM	**2**	**0**	**1**	**5**	***8***	**1**	**0**	**3**	**0**	***4***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**0**	**2**	**2**	***5***	**0**	**0**	**5**	**0**	***5***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**0**	**2**	**3**	***5***	**1**	**0**	**1**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**3**	**3**	***6***	**1**	**0**	**4**	**0**	***5***	**0**	**0**	**0**	**0**	***0***
5:30 PM	0	0	2	5	*7*	0	0	6	0	*6*	0	0	0	0	*0*
5:45 PM	1	0	0	3	*4*	1	0	4	0	*5*	0	0	0	0	*0*
6:00 PM	0	0	2	4	*6*	0	0	4	0	*4*	0	0	0	0	*0*
6:15 PM	2	0	2	2	*6*	0	0	6	0	*6*	0	0	0	0	*0*
6:30 PM	2	0	1	2	*5*	0	0	4	0	*4*	0	0	0	0	*0*
6:45 PM	0	0	1	1	*2*	0	0	1	0	*1*	0	0	0	0	*0*
Count Total	8	0	19	38	*65*	5	0	39	0	*44*	0	0	0	0	*0*
Peak Hr	**3**	**0**	**8**	**13**	***24***	**3**	**0**	**13**	**0**	***16***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Lagoon Rd				n/a				Sierra Point Pkwy				US-101 SB Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	2	1	0	0	0	1	4	8	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3	3	0
4:30 PM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**4**	**8**	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**1**	**5**	24
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**2**	**5**	21
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**2**	**6**	**24**
5:30 PM	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	4	7	23
5:45 PM	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	2	4	22
6:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3	6	23
6:15 PM	0	2	0	0	0	0	0	0	0	1	1	0	0	0	1	1	6	23
6:30 PM	0	1	0	1	0	0	0	0	0	0	1	0	0	0	1	1	5	21
6:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	19
Count Total	0	6	0	2	0	0	0	0	0	6	13	0	0	0	11	27	65	0
Peak Hour	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**6**	**0**	**0**	**0**	**4**	**9**	**24**	**0**

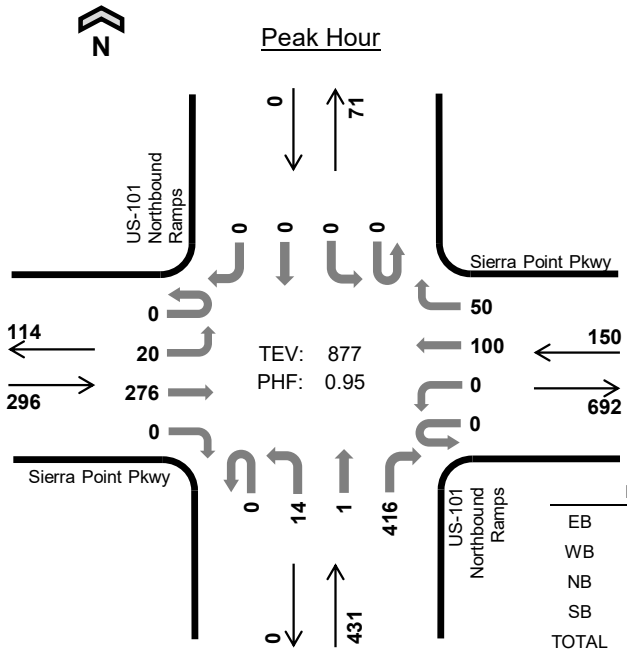
Three-Hour Count Summaries - Bikes

Interval Start	Lagoon Rd			n/a			Sierra Point Pkwy			US-101 SB Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	2	0
4:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**4**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**5**	11
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	13
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**5**	**16**
5:30 PM	0	0	0	0	0	0	6	0	0	0	0	0	6	18
5:45 PM	0	0	1	0	0	0	4	0	0	0	0	0	5	18
6:00 PM	0	0	0	0	0	0	4	0	0	0	0	0	4	20
6:15 PM	0	0	0	0	0	0	6	0	0	0	0	0	6	21
6:30 PM	0	0	0	0	0	0	4	0	0	0	0	0	4	19
6:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	15
Count Total	0	0	5	0	0	0	38	1	0	0	0	0	44	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**0**	**12**	**1**	**0**	**0**	**0**	**0**	**16**	**0**

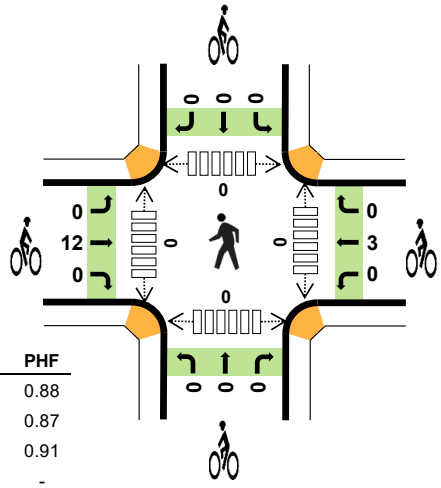
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

US-101 Northbound Ramps
Sierra Point Pkwy

Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	4.1%	0.88
WB	12.7%	0.87
NB	4.6%	0.91
SB	-	-
TOTAL	5.8%	0.95



Three-Hour Count Summaries

Interval Start		Sierra Point Pkwy Eastbound				Sierra Point Pkwy Westbound				US-101 Northbound Ramps Northbound				US-101 Northbound Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:45 AM		0	8	69	0	0	0	28	15	0	0	0	108	0	0	0	0	228	0
8:00 AM		0	3	65	0	0	0	25	14	0	7	0	87	0	0	0	0	201	0
8:15 AM		0	4	80	0	0	0	21	8	0	4	0	115	0	0	0	0	232	0
8:30 AM		0	5	62	0	0	0	26	13	0	3	1	106	0	0	0	0	216	877
Peak Hour	All	0	20	276	0	0	0	100	50	0	14	1	416	0	0	0	0	877	0
	HV	0	4	8	0	0	0	11	8	0	1	0	19	0	0	0	0	51	0
	HV%	-	20%	3%	-	-	-	11%	16%	-	7%	0%	5%	-	-	-	-	6%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:45 AM	4	2	7	0	*13*	1	1	0	0	*2*	0	0	0	0	*0*
8:00 AM	3	5	6	0	*14*	4	0	0	0	*4*	0	0	0	0	*0*
8:15 AM	4	7	4	0	*15*	4	0	0	0	*4*	0	0	0	0	*0*
8:30 AM	1	5	3	0	*9*	3	2	0	0	*5*	0	0	0	0	*0*
Peak Hour	12	19	20	0	*51*	12	3	0	0	*15*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Sierra Point Pkwy Eastbound				Sierra Point Pkwy Westbound				US-101 Northbound Ramps Northbound				US-101 Northbound Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	1	27	0	0	0	14	7	0	1	1	47	0	0	0	0	98	0
6:45 AM	0	2	25	0	0	0	11	9	0	2	1	58	0	0	0	0	108	0
7:00 AM	0	4	33	0	0	0	17	6	0	1	1	42	0	0	0	0	104	0
7:15 AM	0	10	28	0	0	0	18	8	0	2	1	63	0	0	0	0	130	440
7:30 AM	0	8	44	0	0	0	26	13	0	1	0	89	0	0	0	0	181	523
7:45 AM	**0**	**8**	**69**	**0**	**0**	**0**	**28**	**15**	**0**	**0**	**0**	**108**	**0**	**0**	**0**	**0**	**228**	643
8:00 AM	**0**	**3**	**65**	**0**	**0**	**0**	**25**	**14**	**0**	**7**	**0**	**87**	**0**	**0**	**0**	**0**	**201**	740
8:15 AM	**0**	**4**	**80**	**0**	**0**	**0**	**21**	**8**	**0**	**4**	**0**	**115**	**0**	**0**	**0**	**0**	**232**	842
8:30 AM	**0**	**5**	**62**	**0**	**0**	**0**	**26**	**13**	**0**	**3**	**1**	**106**	**0**	**0**	**0**	**0**	**216**	**877**
8:45 AM	0	3	53	0	0	0	26	10	0	3	0	103	0	0	0	0	198	847
9:00 AM	0	2	56	0	0	0	40	10	0	3	0	97	0	0	0	0	208	854
9:15 AM	0	4	45	0	0	0	23	19	0	1	1	84	0	0	0	0	177	799
Count Total	0	54	587	0	0	0	275	132	0	28	6	999	0	0	0	0	2,081	0
Peak Hour All	**0**	**20**	**276**	**0**	**0**	**0**	**100**	**50**	**0**	**14**	**1**	**416**	**0**	**0**	**0**	**0**	**877**	**0**
Peak Hour HV	**0**	**4**	**8**	**0**	**0**	**0**	**11**	**8**	**0**	**1**	**0**	**19**	**0**	**0**	**0**	**0**	**51**	**0**
Peak Hour HV%	**-**	**20%**	**3%**	**-**	**-**	**-**	**11%**	**16%**	**-**	**7%**	**0%**	**5%**	**-**	**-**	**-**	**-**	**6%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	0	2	7	0	*9*	0	0	0	0	*0*	0	0	0	0	*0*
6:45 AM	2	5	8	0	*15*	1	0	0	0	*1*	0	0	0	0	*0*
7:00 AM	3	1	2	0	*6*	1	0	0	0	*1*	0	0	2	2	*4*
7:15 AM	6	2	7	0	*15*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	2	3	5	0	*10*	1	0	0	0	*1*	0	0	0	0	*0*
7:45 AM	**4**	**2**	**7**	**0**	***13***	**1**	**1**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**3**	**5**	**6**	**0**	***14***	**4**	**0**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**4**	**7**	**4**	**0**	***15***	**4**	**0**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**1**	**5**	**3**	**0**	***9***	**3**	**2**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***
8:45 AM	3	4	2	0	*9*	3	1	0	0	*4*	0	0	0	0	*0*
9:00 AM	2	13	4	0	*19*	3	0	0	0	*3*	0	0	0	0	*0*
9:15 AM	2	4	3	0	*9*	3	0	0	0	*3*	0	0	0	0	*0*
Count Total	32	53	58	0	*143*	24	4	0	0	*28*	0	0	2	2	*4*
Peak Hour	**12**	**19**	**20**	**0**	***51***	**12**	**3**	**0**	**0**	***15***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Sierra Point Pkwy				Sierra Point Pkwy				US-101 Northbound Ramps				US-101 Northbound Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	1	1	0	1	1	5	0	0	0	0	9	0
6:45 AM	0	0	2	0	0	0	2	3	0	0	0	8	0	0	0	0	15	0
7:00 AM	0	1	2	0	0	0	1	0	0	0	0	2	0	0	0	0	6	0
7:15 AM	0	5	1	0	0	0	1	1	0	1	1	5	0	0	0	0	15	45
7:30 AM	0	0	2	0	0	0	1	2	0	0	0	5	0	0	0	0	10	46
7:45 AM	**0**	**2**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**13**	44
8:00 AM	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**4**	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**14**	52
8:15 AM	**0**	**1**	**3**	**0**	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**15**	52
8:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**9**	**51**
8:45 AM	0	1	2	0	0	0	4	0	0	0	0	2	0	0	0	0	9	47
9:00 AM	0	0	2	0	0	0	11	2	0	0	0	4	0	0	0	0	19	52
9:15 AM	0	0	2	0	0	0	3	1	0	0	0	3	0	0	0	0	9	46
Count Total	0	11	21	0	0	0	35	18	0	3	2	53	0	0	0	0	143	0
Peak Hour	**0**	**4**	**8**	**0**	**0**	**0**	**11**	**8**	**0**	**1**	**0**	**19**	**0**	**0**	**0**	**0**	**51**	**0**

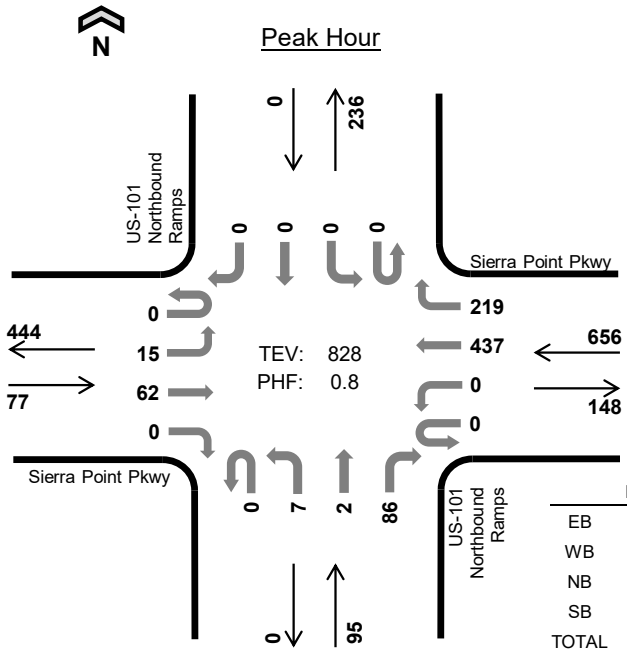
Three-Hour Count Summaries - Bikes

Interval Start	Sierra Point Pkwy			Sierra Point Pkwy			US-101 Northbound Ramps			US-101 Northbound Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6:45 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:00 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	2
7:30 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	3
7:45 AM	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	4
8:00 AM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	7
8:15 AM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	11
8:30 AM	**0**	**3**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**15**
8:45 AM	0	3	0	0	1	0	0	0	0	0	0	0	4	17
9:00 AM	0	3	0	0	0	0	0	0	0	0	0	0	3	16
9:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	3	15
Count Total	0	24	0	0	4	0	0	0	0	0	0	0	28	0
Peak Hour	**0**	**12**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**

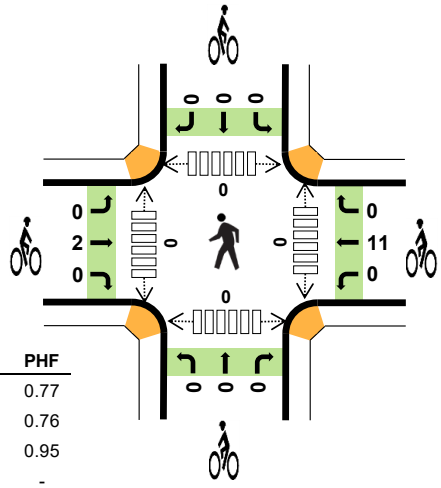
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

US-101 Northbound Ramps
Sierra Point Pkwy

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	7.8%	0.77
WB	2.0%	0.76
NB	3.2%	0.95
SB	-	-
TOTAL	2.7%	0.80



Three-Hour Count Summaries

Interval Start		Sierra Point Pkwy Eastbound				Sierra Point Pkwy Westbound				US-101 Northbound Ramps Northbound				US-101 Northbound Ramps Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	1	17	0	0	0	105	50	0	0	1	23	0	0	0	0	197	0
4:45 PM		0	3	10	0	0	0	94	39	0	0	1	24	0	0	0	0	171	0
5:00 PM		0	6	15	0	0	0	139	77	0	3	0	19	0	0	0	0	259	0
5:15 PM		0	5	20	0	0	0	99	53	0	4	0	20	0	0	0	0	201	828
Peak Hour	All	0	15	62	0	0	0	437	219	0	7	2	86	0	0	0	0	828	0
	HV	0	0	6	0	0	0	8	5	0	1	0	2	0	0	0	0	22	0
	HV%	-	0%	10%	-	-	-	2%	2%	-	14%	0%	2%	-	-	-	-	3%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	2	3	1	0	*6*	0	4	0	0	*4*	0	0	0	0	*0*
4:45 PM	1	5	1	0	*7*	1	2	0	0	*3*	0	0	0	0	*0*
5:00 PM	1	2	0	0	*3*	0	2	0	0	*2*	0	0	0	0	*0*
5:15 PM	2	3	1	0	*6*	1	3	0	0	*4*	0	0	0	0	*0*
Peak Hour	6	13	3	0	*22*	2	11	0	0	*13*	0	0	0	0	*0*

Three-Hour Count Summaries

Interval Start	Sierra Point Pkwy Eastbound				Sierra Point Pkwy Westbound				US-101 Northbound Ramps Northbound				US-101 Northbound Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	5	15	0	0	0	90	39	0	3	1	28	0	0	0	0	181	0
4:15 PM	0	3	17	0	0	0	68	35	0	0	1	22	0	0	0	0	146	0
4:30 PM	**0**	**1**	**17**	**0**	**0**	**0**	**105**	**50**	**0**	**0**	**1**	**23**	**0**	**0**	**0**	**0**	**197**	0
4:45 PM	**0**	**3**	**10**	**0**	**0**	**0**	**94**	**39**	**0**	**0**	**1**	**24**	**0**	**0**	**0**	**0**	**171**	695
5:00 PM	**0**	**6**	**15**	**0**	**0**	**0**	**139**	**77**	**0**	**3**	**0**	**19**	**0**	**0**	**0**	**0**	**259**	773
5:15 PM	**0**	**5**	**20**	**0**	**0**	**0**	**99**	**53**	**0**	**4**	**0**	**20**	**0**	**0**	**0**	**0**	**201**	**828**
5:30 PM	0	3	15	0	0	0	72	62	0	1	0	23	0	0	0	0	176	807
5:45 PM	0	4	19	0	0	0	59	48	0	4	0	25	0	0	0	0	159	795
6:00 PM	0	2	13	0	0	0	65	28	0	0	0	18	0	0	0	0	126	662
6:15 PM	0	3	11	0	0	0	47	19	0	2	0	23	0	0	0	0	105	566
6:30 PM	0	3	11	0	0	0	55	25	0	1	0	24	0	0	0	0	119	509
6:45 PM	0	1	17	0	0	0	41	25	0	2	1	10	0	0	0	0	97	447
Count Total	0	39	180	0	0	0	934	500	0	20	5	259	0	0	0	0	1,937	0
Peak Hour All	**0**	**15**	**62**	**0**	**0**	**0**	**437**	**219**	**0**	**7**	**2**	**86**	**0**	**0**	**0**	**0**	**828**	**0**
Peak Hour HV	**0**	**0**	**6**	**0**	**0**	**0**	**8**	**5**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**22**	**0**
Peak Hour HV%	**-**	**0%**	**10%**	**-**	**-**	**-**	**2%**	**2%**	**-**	**14%**	**0%**	**2%**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	1	3	2	0	*6*	0	0	0	0	*0*	0	0	0	0	*0*
4:15 PM	0	0	3	0	*3*	1	3	0	0	*4*	0	0	0	0	*0*
4:30 PM	**2**	**3**	**1**	**0**	***6***	**0**	**4**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**1**	**5**	**1**	**0**	***7***	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**2**	**0**	**0**	***3***	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**2**	**3**	**1**	**0**	***6***	**1**	**3**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***
5:30 PM	1	3	1	0	*5*	1	6	0	0	*7*	0	0	0	1	*1*
5:45 PM	1	2	1	0	*4*	1	3	0	0	*4*	0	0	0	0	*0*
6:00 PM	1	3	0	0	*4*	0	3	0	0	*3*	0	0	0	0	*0*
6:15 PM	0	1	1	0	*2*	2	7	0	0	*9*	0	0	0	0	*0*
6:30 PM	2	2	1	0	*5*	0	3	0	0	*3*	0	0	0	0	*0*
6:45 PM	1	2	1	0	*4*	0	2	0	0	*2*	0	0	0	0	*0*
Count Total	13	29	13	0	*55*	7	38	0	0	*45*	0	0	0	1	*1*
Peak Hour	**6**	**13**	**3**	**0**	***22***	**2**	**11**	**0**	**0**	***13***	**0**	**0**	**0**	**0**	***0***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Sierra Point Pkwy				Sierra Point Pkwy				US-101 Northbound Ramps				US-101 Northbound Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	1	0	0	0	2	1	0	0	0	2	0	0	0	0	6	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	3	0
4:30 PM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**6**	0
4:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**7**	22
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	19
5:15 PM	**0**	**0**	**2**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**22**
5:30 PM	0	0	1	0	0	0	2	1	0	0	0	1	0	0	0	0	5	21
5:45 PM	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	4	18
6:00 PM	0	0	1	0	0	0	2	1	0	0	0	0	0	0	0	0	4	19
6:15 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	15
6:30 PM	0	1	1	0	0	0	1	1	0	0	0	1	0	0	0	0	5	15
6:45 PM	0	0	1	0	0	0	1	1	0	0	0	1	0	0	0	0	4	15
Count Total	0	1	12	0	0	0	18	11	0	1	0	12	0	0	0	0	55	0
Peak Hour	**0**	**0**	**6**	**0**	**0**	**0**	**8**	**5**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**22**	**0**

Three-Hour Count Summaries - Bikes

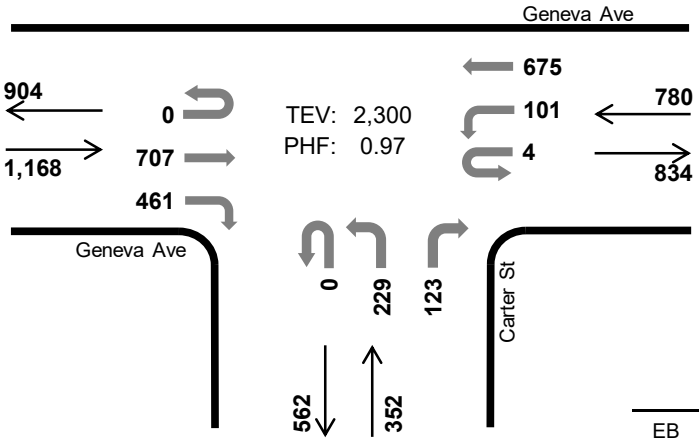
Interval Start	Sierra Point Pkwy			Sierra Point Pkwy			US-101 Northbound Ramps			US-101 Northbound Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:15 PM	0	1	0	0	3	0	0	0	0	0	0	0	4	0
4:30 PM	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	0
4:45 PM	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	11
5:00 PM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	13
5:15 PM	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**13**
5:30 PM	0	1	0	0	6	0	0	0	0	0	0	0	7	16
5:45 PM	0	1	0	0	3	0	0	0	0	0	0	0	4	17
6:00 PM	0	0	0	0	3	0	0	0	0	0	0	0	3	18
6:15 PM	0	2	0	0	7	0	0	0	0	0	0	0	9	23
6:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	3	19
6:45 PM	0	0	0	0	2	0	0	0	0	0	0	0	2	17
Count Total	0	7	0	0	38	0	0	0	0	0	0	0	45	0
Peak Hour	**0**	**2**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**

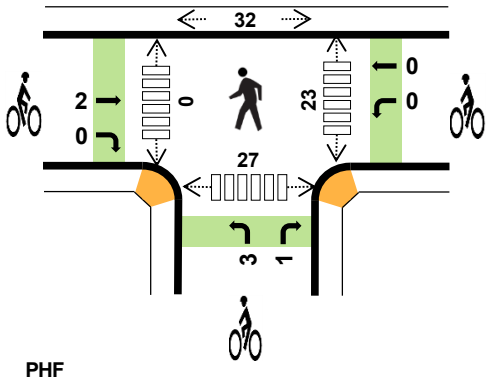
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Carter St
Geneva Ave

Peak Hour

Date: 03-11-2020
Count Period: 6:30 AM to 9:30 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	2.1%	0.97
WB	4.4%	0.94
NB	4.0%	0.93
SB	-	-
TOTAL	3.1%	0.97

Three-Hour Count Summaries

Interval Start		Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				n/a Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:45 AM		0	0	174	126	2	22	162	0	0	54	0	36	0	0	0	0	576	0
8:00 AM		0	0	188	106	1	32	175	0	0	61	0	32	0	0	0	0	595	0
8:15 AM		0	0	176	121	1	20	169	0	0	65	0	30	0	0	0	0	582	0
8:30 AM		0	0	169	108	0	27	169	0	0	49	0	25	0	0	0	0	547	2,300
Peak Hour	All	0	0	707	461	4	101	675	0	0	229	0	123	0	0	0	0	2,300	0
	HV	0	0	22	2	0	3	31	0	0	4	0	10	0	0	0	0	72	0
	HV%	-	-	3%	0%	0%	3%	5%	-	-	2%	-	8%	-	-	-	-	3%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:45 AM	4	7	1	0	*12*	0	0	0	0	*0*	8	0	7	8	*23*
8:00 AM	11	13	4	0	*28*	1	0	3	0	*4*	5	0	11	7	*23*
8:15 AM	6	5	5	0	*16*	1	0	0	0	*1*	7	0	10	9	*26*
8:30 AM	3	9	4	0	*16*	0	0	1	0	*1*	3	0	4	3	*10*
Peak Hour	24	34	14	0	*72*	2	0	4	0	*6*	23	0	32	27	*82*

Three-Hour Count Summaries

Interval Start	Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				n/a Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	92	56	1	8	45	0	0	27	0	23	0	0	0	0	252	0
6:45 AM	0	0	116	70	1	6	53	0	0	29	0	19	0	0	0	0	294	0
7:00 AM	0	0	109	60	2	18	96	0	0	34	0	22	0	0	0	0	341	0
7:15 AM	0	0	113	75	2	23	114	0	0	71	0	27	0	0	0	0	425	1,312
7:30 AM	0	0	141	112	2	23	157	0	0	76	0	22	0	0	0	0	533	1,593
7:45 AM	**0**	**0**	**174**	**126**	**2**	**22**	**162**	**0**	**0**	**54**	**0**	**36**	**0**	**0**	**0**	**0**	**576**	1,875
8:00 AM	**0**	**0**	**188**	**106**	**1**	**32**	**175**	**0**	**0**	**61**	**0**	**32**	**0**	**0**	**0**	**0**	**595**	2,129
8:15 AM	**0**	**0**	**176**	**121**	**1**	**20**	**169**	**0**	**0**	**65**	**0**	**30**	**0**	**0**	**0**	**0**	**582**	2,286
8:30 AM	**0**	**0**	**169**	**108**	**0**	**27**	**169**	**0**	**0**	**49**	**0**	**25**	**0**	**0**	**0**	**0**	**547**	**2,300**
8:45 AM	0	0	162	104	0	16	113	0	0	46	0	19	0	0	0	0	460	2,184
9:00 AM	0	0	142	72	2	16	93	0	0	31	0	25	0	0	0	0	381	1,970
9:15 AM	0	0	112	57	0	18	121	0	0	23	0	15	0	0	0	0	346	1,734
Count Total	0	0	1,694	1,067	14	229	1,467	0	0	566	0	295	0	0	0	0	5,332	0
Peak Hour All	**0**	**0**	**707**	**461**	**4**	**101**	**675**	**0**	**0**	**229**	**0**	**123**	**0**	**0**	**0**	**0**	**2,300**	**0**
Peak Hour HV	**0**	**0**	**22**	**2**	**0**	**3**	**31**	**0**	**0**	**4**	**0**	**10**	**0**	**0**	**0**	**0**	**72**	**0**
Peak Hour HV%	**-**	**-**	**3%**	**0%**	**0%**	**3%**	**5%**	**-**	**-**	**2%**	**-**	**8%**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
6:30 AM	1	2	0	0	*3*	2	0	0	0	*2*	2	0	0	4	*6*
6:45 AM	4	3	3	0	*10*	2	1	0	0	*3*	5	0	0	8	*13*
7:00 AM	4	13	0	0	*17*	1	1	0	0	*2*	9	0	1	5	*15*
7:15 AM	7	9	4	0	*20*	1	0	3	0	*4*	9	0	6	2	*17*
7:30 AM	5	13	2	0	*20*	2	0	1	0	*3*	7	0	7	10	*24*
7:45 AM	**4**	**7**	**1**	**0**	***12***	**0**	**0**	**0**	**0**	***0***	**8**	**0**	**7**	**8**	*23*
8:00 AM	**11**	**13**	**4**	**0**	***28***	**1**	**0**	**3**	**0**	***4***	**5**	**0**	**11**	**7**	*23*
8:15 AM	**6**	**5**	**5**	**0**	***16***	**1**	**0**	**0**	**0**	***1***	**7**	**0**	**10**	**9**	*26*
8:30 AM	**3**	**9**	**4**	**0**	***16***	**0**	**0**	**1**	**0**	***1***	**3**	**0**	**4**	**3**	***10***
8:45 AM	2	6	5	0	*13*	3	1	0	0	*4*	4	0	7	10	*21*
9:00 AM	8	6	1	0	*15*	2	0	0	0	*2*	3	0	4	3	*10*
9:15 AM	8	8	2	0	*18*	0	1	1	0	*2*	9	0	7	8	*24*
Count Total	63	94	31	0	*188*	15	4	9	0	*28*	71	0	64	77	*212*
Peak Hr	**24**	**34**	**14**	**0**	***72***	**2**	**0**	**4**	**0**	***6***	**23**	**0**	**32**	**27**	***82***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave				Geneva Ave				Carter St				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
6:30 AM	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	0	3	0
6:45 AM	0	0	4	0	0	0	3	0	0	1	0	2	0	0	0	0	10	0
7:00 AM	0	0	3	1	0	2	11	0	0	0	0	0	0	0	0	0	17	0
7:15 AM	0	0	7	0	0	0	9	0	0	2	0	2	0	0	0	0	20	50
7:30 AM	0	0	5	0	0	1	12	0	0	2	0	0	0	0	0	0	20	67
7:45 AM	**0**	**0**	**4**	**0**	**0**	**1**	**6**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	69
8:00 AM	**0**	**0**	**10**	**1**	**0**	**1**	**12**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**28**	80
8:15 AM	**0**	**0**	**6**	**0**	**0**	**0**	**5**	**0**	**0**	**3**	**0**	**2**	**0**	**0**	**0**	**0**	**16**	76
8:30 AM	**0**	**0**	**2**	**1**	**0**	**1**	**8**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**16**	**72**
8:45 AM	0	0	2	0	0	1	5	0	0	4	0	1	0	0	0	0	13	73
9:00 AM	0	0	7	1	0	1	5	0	0	0	0	1	0	0	0	0	15	60
9:15 AM	0	0	8	0	0	1	7	0	0	0	0	2	0	0	0	0	18	62
Count Total	0	0	59	4	0	10	84	0	0	13	0	18	0	0	0	0	188	0
Peak Hour	**0**	**0**	**22**	**2**	**0**	**3**	**31**	**0**	**0**	**4**	**0**	**10**	**0**	**0**	**0**	**0**	**72**	**0**

Three-Hour Count Summaries - Bikes

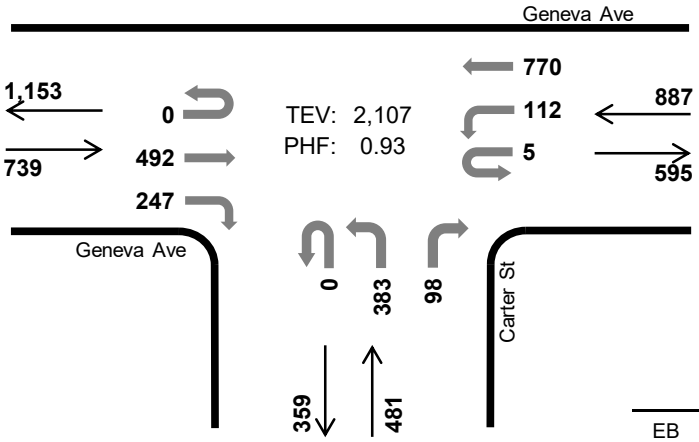
Interval Start	Geneva Ave			Geneva Ave			Carter St			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
6:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
6:45 AM	0	1	1	0	1	0	0	0	0	0	0	0	3	0
7:00 AM	0	1	0	0	1	0	0	0	0	0	0	0	2	0
7:15 AM	0	1	0	0	0	0	3	0	0	0	0	0	4	11
7:30 AM	0	2	0	0	0	0	1	0	0	0	0	0	3	12
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	9
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**4**	11
8:15 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	8
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**6**
8:45 AM	0	3	0	0	1	0	0	0	0	0	0	0	4	10
9:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	8
9:15 AM	0	0	0	0	1	0	1	0	0	0	0	0	2	9
Count Total	0	14	1	0	4	0	8	0	1	0	0	0	28	0
Peak Hour	**0**	**2**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**6**	**0**

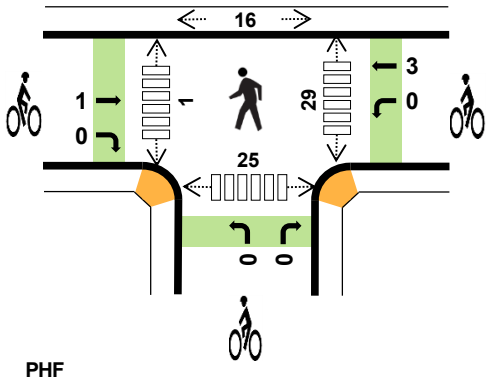
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Carter St
Geneva Ave

Peak Hour

Date: 03-11-2020
Count Period: 4:00 PM to 7:00 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	2.7%	0.90
WB	1.5%	0.92
NB	0.4%	0.88
SB	-	-
TOTAL	1.7%	0.93

Three-Hour Count Summaries

Interval Start		Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				n/a Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
5:00 PM		0	0	117	56	0	27	173	0	0	113	0	23	0	0	0	0	509	0
5:15 PM		0	0	108	61	4	28	204	0	0	107	0	14	0	0	0	0	526	0
5:30 PM		0	0	146	60	0	32	210	0	0	87	0	33	0	0	0	0	568	0
5:45 PM		0	0	121	70	1	25	183	0	0	76	0	28	0	0	0	0	504	2,107
Peak Hour	All	0	0	492	247	5	112	770	0	0	383	0	98	0	0	0	0	2,107	0
	HV	0	0	20	0	0	1	12	0	0	1	0	1	0	0	0	0	35	0
	HV%	-	-	4%	0%	0%	1%	2%	-	-	0%	-	1%	-	-	-	-	2%	0

Note: For all three-hour count summary, see next page.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
5:00 PM	5	3	0	0	*8*	1	0	0	0	*1*	5	0	6	2	*13*
5:15 PM	4	3	0	0	*7*	0	1	0	0	*1*	8	1	2	6	*17*
5:30 PM	5	2	2	0	*9*	0	1	0	0	*1*	3	0	4	5	*12*
5:45 PM	6	5	0	0	*11*	0	1	0	0	*1*	13	0	4	12	*29*
Peak Hour	20	13	2	0	*35*	1	3	0	0	*4*	29	1	16	25	*71*

Three-Hour Count Summaries

Interval Start	Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				n/a Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	119	40	2	16	155	0	0	79	0	27	0	0	0	0	438	0
4:15 PM	0	0	138	42	3	28	158	0	0	57	0	29	0	0	0	0	455	0
4:30 PM	0	0	109	55	1	29	171	0	0	79	0	26	0	0	0	0	470	0
4:45 PM	0	0	131	52	1	34	174	0	1	82	0	19	0	0	0	0	494	1,857
5:00 PM	**0**	**0**	**117**	**56**	**0**	**27**	**173**	**0**	**0**	**113**	**0**	**23**	**0**	**0**	**0**	**0**	**509**	1,928
5:15 PM	**0**	**0**	**108**	**61**	**4**	**28**	**204**	**0**	**0**	**107**	**0**	**14**	**0**	**0**	**0**	**0**	**526**	1,999
5:30 PM	**0**	**0**	**146**	**60**	**0**	**32**	**210**	**0**	**0**	**87**	**0**	**33**	**0**	**0**	**0**	**0**	**568**	2,097
5:45 PM	**0**	**0**	**121**	**70**	**1**	**25**	**183**	**0**	**0**	**76**	**0**	**28**	**0**	**0**	**0**	**0**	**504**	**2,107**
6:00 PM	0	0	114	49	1	31	153	0	0	83	0	32	0	0	0	0	463	2,061
6:15 PM	0	0	119	56	2	15	148	0	0	78	0	25	0	0	0	0	443	1,978
6:30 PM	0	0	120	47	0	18	167	0	0	69	0	23	0	0	0	0	444	1,854
6:45 PM	0	0	111	44	1	21	144	0	0	55	0	13	0	0	0	0	389	1,739
Count Total	0	0	1,453	632	16	304	2,040	0	1	965	0	292	0	0	0	0	5,703	0
Peak Hour All	**0**	**0**	**492**	**247**	**5**	**112**	**770**	**0**	**0**	**383**	**0**	**98**	**0**	**0**	**0**	**0**	**2,107**	**0**
Peak Hour HV	**0**	**0**	**20**	**0**	**0**	**1**	**12**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**35**	**0**
Peak Hour HV%	**-**	**-**	**4%**	**0%**	**0%**	**1%**	**2%**	**-**	**-**	**0%**	**-**	**1%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Three-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	6	5	4	0	*15*	2	0	0	0	*2*	6	0	6	4	*16*
4:15 PM	11	5	1	0	*17*	0	1	0	0	*1*	6	0	5	5	*16*
4:30 PM	4	1	2	0	*7*	1	0	0	0	*1*	9	0	2	5	*16*
4:45 PM	7	3	1	0	*11*	0	0	1	0	*1*	5	1	4	4	*14*
5:00 PM	**5**	**3**	**0**	**0**	***8***	**1**	**0**	**0**	**0**	***1***	**5**	**0**	**6**	**2**	*13*
5:15 PM	**4**	**3**	**0**	**0**	***7***	**0**	**1**	**0**	**0**	***1***	**8**	**1**	**2**	**6**	*17*
5:30 PM	**5**	**2**	**2**	**0**	***9***	**0**	**1**	**0**	**0**	***1***	**3**	**0**	**4**	**5**	*12*
5:45 PM	**6**	**5**	**0**	**0**	***11***	**0**	**1**	**0**	**0**	***1***	**13**	**0**	**4**	**12**	***29***
6:00 PM	1	1	0	0	*2*	0	1	0	0	*1*	3	0	1	4	*8*
6:15 PM	4	4	1	0	*9*	4	0	1	0	*5*	7	0	0	4	*11*
6:30 PM	5	2	2	0	*9*	0	1	0	0	*1*	2	0	8	8	*18*
6:45 PM	4	3	0	0	*7*	0	0	1	0	*1*	3	0	6	8	*17*
Count Total	62	37	13	0	*112*	8	6	3	0	*17*	70	2	48	67	*187*
Peak Hr	**20**	**13**	**2**	**0**	***35***	**1**	**3**	**0**	**0**	***4***	**29**	**1**	**16**	**25**	***71***

Three-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave				Geneva Ave				Carter St				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	6	0	0	1	4	0	0	0	0	4	0	0	0	0	15	0
4:15 PM	0	0	11	0	0	0	5	0	0	0	0	1	0	0	0	0	17	0
4:30 PM	0	0	4	0	0	0	1	0	0	2	0	0	0	0	0	0	7	0
4:45 PM	0	0	5	2	0	0	3	0	0	0	0	1	0	0	0	0	11	50
5:00 PM	**0**	**0**	**5**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	43
5:15 PM	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	33
5:30 PM	**0**	**0**	**5**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**9**	35
5:45 PM	**0**	**0**	**6**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**35**
6:00 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	2	29
6:15 PM	0	0	4	0	0	0	4	0	0	0	0	1	0	0	0	0	9	31
6:30 PM	0	0	5	0	0	0	2	0	0	0	0	2	0	0	0	0	9	31
6:45 PM	0	0	4	0	0	0	3	0	0	0	0	0	0	0	0	0	7	27
Count Total	0	0	60	2	0	2	35	0	0	3	0	10	0	0	0	0	112	0
Peak Hour	**0**	**0**	**20**	**0**	**0**	**1**	**12**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**35**	**0**

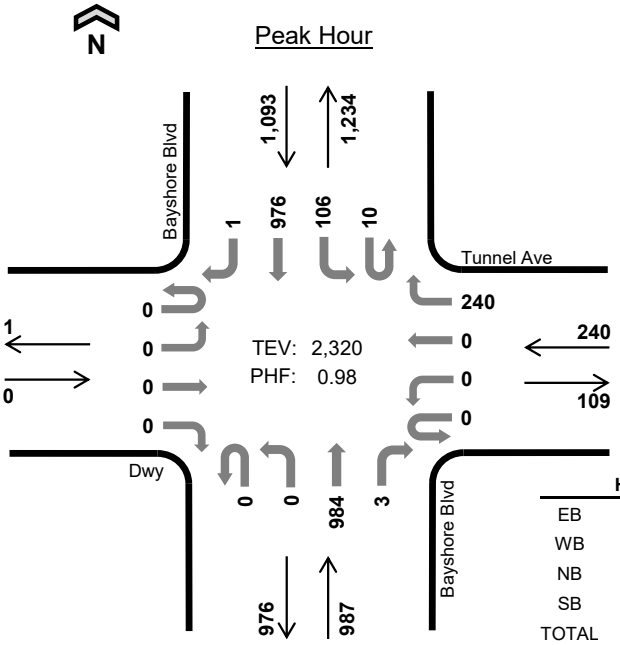
Three-Hour Count Summaries - Bikes

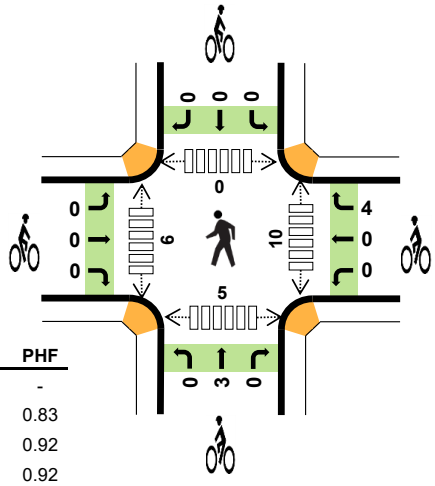
Interval Start	Geneva Ave			Geneva Ave			Carter St			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	2	0	0	0	0	0	0	0	0	0	2	0
4:15 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:30 PM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	5
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
5:15 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
5:30 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	4
5:45 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**4**
6:00 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	4
6:15 PM	0	2	2	0	0	0	0	0	1	0	0	0	5	8
6:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	8
6:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	8
Count Total	0	4	4	0	6	0	2	0	1	0	0	0	17	0
Peak Hour	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Tunnel Ave

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	-	-
WB	2.1%	0.83
NB	3.2%	0.92
SB	1.8%	0.92
TOTAL	2.5%	0.98

Two-Hour Count Summaries

Interval Start	Dwy Eastbound				Tunnel Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	69	0	0	223	1	3	29	234	0	559	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**60**	**0**	**0**	**265**	**2**	**8**	**22**	**235**	**0**	**592**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**41**	**0**	**0**	**262**	**0**	**1**	**27**	**236**	**0**	**567**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**67**	**0**	**0**	**221**	**1**	**1**	**27**	**267**	**1**	**585**	2,303
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**72**	**0**	**0**	**236**	**0**	**0**	**30**	**238**	**0**	**576**	**2,320**
5:45 PM	0	0	0	0	0	0	0	52	0	0	230	1	5	38	240	0	566	2,294
6:00 PM	0	0	0	0	0	0	0	41	0	0	215	1	3	24	232	0	516	2,243
6:15 PM	0	0	0	0	0	0	0	38	0	0	217	1	3	30	216	0	505	2,163
Count Total	0	0	0	0	0	0	0	440	0	0	1,869	7	24	227	1,898	1	4,466	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**240**	**0**	**0**	**984**	**3**	**10**	**106**	**976**	**1**	**2,320**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**32**	**0**	**0**	**3**	**17**	**0**	**57**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2%**	**-**	**-**	**3%**	**0%**	**0%**	**3%**	**2%**	**0%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	0	3	10	13	*26*	0	0	0	0	*0*	3	1	0	1	*5*
4:45 PM	**0**	**3**	**13**	**6**	***22***	**0**	**3**	**0**	**0**	***3***	**2**	**3**	**0**	**1**	***6***
5:00 PM	**0**	**0**	**8**	**3**	***11***	**0**	**0**	**1**	**0**	***1***	**2**	**1**	**0**	**0**	***3***
5:15 PM	**0**	**1**	**4**	**5**	***10***	**0**	**1**	**0**	**0**	***1***	**0**	**2**	**0**	**3**	***5***
5:30 PM	**0**	**1**	**7**	**6**	***14***	**0**	**0**	**2**	**0**	***2***	**6**	**0**	**0**	**1**	***7***
5:45 PM	0	0	4	7	*11*	0	0	0	0	*0*	2	1	0	1	*4*
6:00 PM	0	4	10	7	*21*	0	0	0	1	*1*	0	0	0	0	*0*
6:15 PM	0	1	8	7	*16*	0	2	0	0	*2*	2	0	0	2	*4*
Count Total	0	13	64	54	*131*	0	6	3	1	*10*	17	8	0	9	*34*
Peak Hour	**0**	**5**	**32**	**20**	***57***	**0**	**4**	**3**	**0**	***7***	**10**	**6**	**0**	**5**	***21***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Dwy				Tunnel Ave				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	3	0	0	10	0	0	2	11	0	26	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**13**	**0**	**0**	**1**	**5**	**0**	**22**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**1**	**2**	**0**	**11**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**0**	**1**	**4**	**0**	**10**	69
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**7**	**0**	**0**	**0**	**6**	**0**	**14**	**57**
5:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	7	0	11	46
6:00 PM	0	0	0	0	0	0	0	4	0	0	10	0	0	0	7	0	21	56
6:15 PM	0	0	0	0	0	0	0	1	0	0	8	0	0	1	6	0	16	62
Count Total	0	0	0	0	0	0	0	13	0	0	64	0	0	6	48	0	131	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**32**	**0**	**0**	**3**	**17**	**0**	**57**	**0**

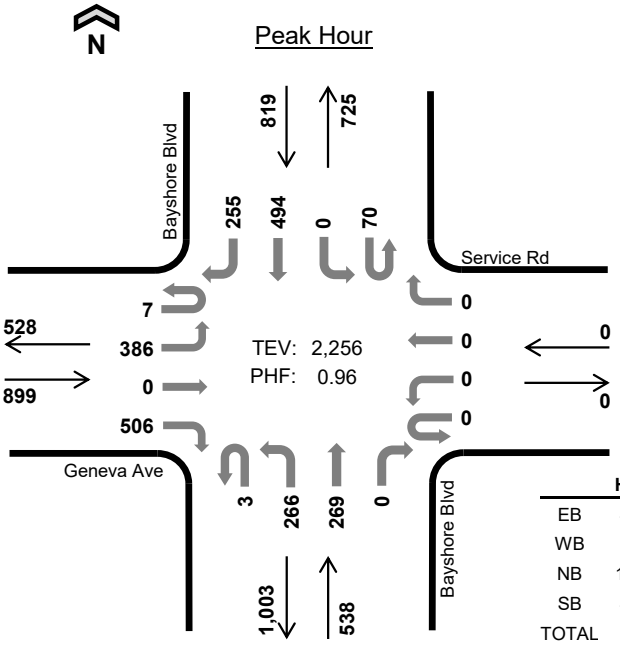
Two-Hour Count Summaries - Bikes

Interval Start	Dwy			Tunnel Ave			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	5
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**7**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	4
6:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	2	5
Count Total	0	0	0	0	0	6	0	3	0	1	0	0	10	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**7**	**0**

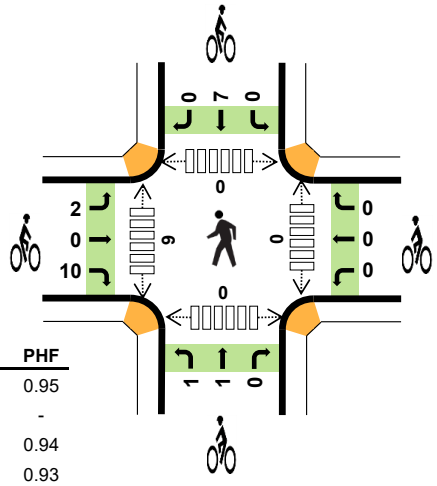
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Geneva Ave

Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	4.8%	0.95
WB	-	-
NB	10.4%	0.94
SB	4.4%	0.93
TOTAL	6.0%	0.96



Two-Hour Count Summaries

Interval Start		Geneva Ave Eastbound				Service Rd Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		1	105	0	87	0	0	0	0	1	60	51	0	24	0	85	39	453	0
7:15 AM		2	94	0	100	0	0	0	0	1	65	56	0	12	0	106	51	487	0
7:30 AM		1	93	0	131	0	0	0	0	0	50	51	0	17	0	121	51	515	0
7:45 AM		**0**	**86**	**0**	**135**	**0**	**0**	**0**	**0**	**0**	**73**	**70**	**0**	**15**	**0**	**142**	**64**	**585**	2,040
8:00 AM		**3**	**96**	**0**	**126**	**0**	**0**	**0**	**0**	**2**	**61**	**58**	**0**	**15**	**0**	**121**	**65**	**547**	2,134
8:15 AM		**3**	**100**	**0**	**114**	**0**	**0**	**0**	**0**	**0**	**61**	**70**	**0**	**18**	**0**	**110**	**68**	**544**	2,191
8:30 AM		**1**	**104**	**0**	**131**	**0**	**0**	**0**	**0**	**1**	**71**	**71**	**0**	**22**	**0**	**121**	**58**	**580**	**2,256**
8:45 AM		1	87	0	93	0	0	0	0	3	67	51	0	16	0	105	65	488	2,159
Count Total		12	765	0	917	0	0	0	0	8	508	478	0	139	0	911	461	4,199	0
Peak Hour	**All**	**7**	**386**	**0**	**506**	**0**	**0**	**0**	**0**	**3**	**266**	**269**	**0**	**70**	**0**	**494**	**255**	**2,256**	**0**
	HV	**0**	**24**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**16**	**40**	**0**	**2**	**0**	**27**	**7**	**135**	**0**
	HV%	**0%**	**6%**	**-**	**4%**	**-**	**-**	**-**	**-**	**0%**	**6%**	**15%**	**-**	**3%**	**-**	**5%**	**3%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	13	0	12	13	*38*	2	0	1	0	*3*	0	2	2	0	*4*
7:15 AM	7	0	17	15	*39*	1	0	3	1	*5*	0	5	0	2	*7*
7:30 AM	15	0	9	7	*31*	4	0	0	2	*6*	0	5	0	1	*6*
7:45 AM	**12**	**0**	**14**	**7**	***33***	**2**	**0**	**0**	**0**	***2***	**0**	**2**	**0**	**0**	*2*
8:00 AM	**11**	**0**	**8**	**10**	***29***	**2**	**0**	**0**	**1**	***3***	**0**	**2**	**0**	**0**	*2*
8:15 AM	**8**	**0**	**16**	**10**	***34***	**6**	**0**	**0**	**6**	***12***	**0**	**3**	**0**	**0**	*3*
8:30 AM	**12**	**0**	**18**	**9**	***39***	**2**	**0**	**2**	**0**	***4***	**0**	**2**	**0**	**0**	**2**
8:45 AM	8	0	9	11	*28*	1	0	0	0	*1*	1	1	0	2	*4*
Count Total	86	0	103	82	*271*	20	0	6	10	*36*	1	22	2	5	*30*
Peak Hour	**43**	**0**	**56**	**36**	***135***	**12**	**0**	**2**	**7**	***21***	**0**	**9**	**0**	**0**	**9**

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave Eastbound				Service Rd Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	10	0	3	0	0	0	0	0	4	8	0	1	0	7	5	38	0
7:15 AM	0	5	0	2	0	0	0	0	0	6	11	0	1	0	7	7	39	0
7:30 AM	0	10	0	5	0	0	0	0	0	2	7	0	2	0	3	2	31	0
7:45 AM	**0**	**5**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**6**	**8**	**0**	**0**	**0**	**5**	**2**	**33**	141
8:00 AM	**0**	**6**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**2**	**6**	**0**	**2**	**0**	**8**	**0**	**29**	132
8:15 AM	**0**	**6**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**2**	**14**	**0**	**0**	**0**	**7**	**3**	**34**	127
8:30 AM	**0**	**7**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**6**	**12**	**0**	**0**	**0**	**7**	**2**	**39**	**135**
8:45 AM	0	6	0	2	0	0	0	0	0	3	6	0	0	0	6	5	28	130
Count Total	0	55	0	31	0	0	0	0	0	31	72	0	6	0	50	26	271	0
Peak Hour	**0**	**24**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**16**	**40**	**0**	**2**	**0**	**27**	**7**	**135**	**0**

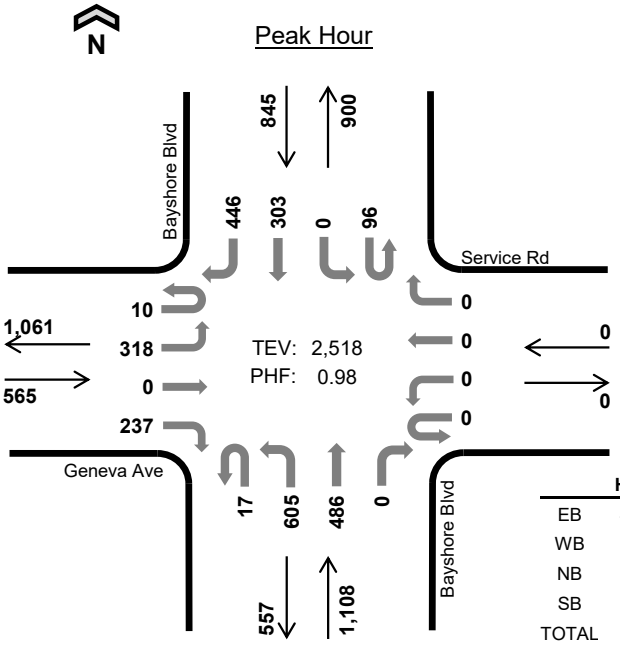
Two-Hour Count Summaries - Bikes

Interval Start	Geneva Ave Eastbound			Service Rd Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	1	0	1	0	0	0	0	1	0	0	0	0	3	0
7:15 AM	1	0	0	0	0	0	1	2	0	0	1	0	5	0
7:30 AM	0	0	4	0	0	0	0	0	0	0	2	0	6	0
7:45 AM	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	16
8:00 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	16
8:15 AM	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**12**	23
8:30 AM	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**4**	**21**
8:45 AM	1	0	0	0	0	0	0	0	0	0	0	0	1	20
Count Total	5	0	15	0	0	0	2	4	0	0	10	0	36	0
Peak Hour	**2**	**0**	**10**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**7**	**0**	**21**	**0**

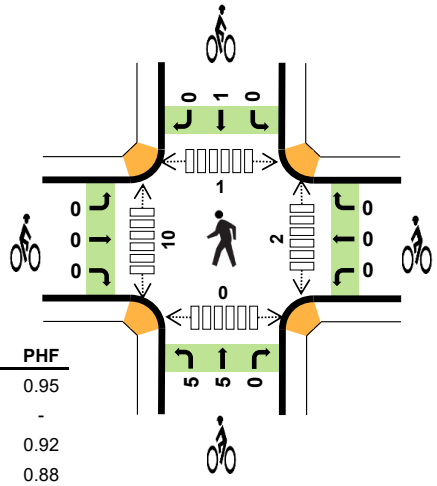
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Geneva Ave

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	4.1%	0.95
WB	-	-
NB	1.4%	0.92
SB	1.4%	0.88
TOTAL	2.0%	0.98



Two-Hour Count Summaries

Interval Start		Geneva Ave Eastbound				Service Rd Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		5	77	0	62	0	0	0	0	1	113	105	0	25	0	81	88	557	0
4:45 PM		0	83	0	52	0	0	0	0	2	129	115	0	33	0	91	98	603	0
5:00 PM		**2**	**74**	**0**	**72**	**0**	**0**	**0**	**0**	**2**	**161**	**139**	**0**	**22**	**0**	**66**	**99**	**637**	0
5:15 PM		**0**	**70**	**0**	**58**	**0**	**0**	**0**	**0**	**7**	**146**	**122**	**0**	**25**	**0**	**84**	**130**	**642**	2,439
5:30 PM		**5**	**79**	**0**	**63**	**0**	**0**	**0**	**0**	**2**	**147**	**117**	**0**	**24**	**0**	**84**	**112**	**633**	2,515
5:45 PM		**3**	**95**	**0**	**44**	**0**	**0**	**0**	**0**	**6**	**151**	**108**	**0**	**25**	**0**	**69**	**105**	**606**	**2,518**
6:00 PM		2	73	0	51	0	0	0	0	2	138	97	0	21	0	55	113	552	2,433
6:15 PM		2	81	0	47	0	0	0	0	1	124	85	0	32	0	74	97	543	2,334
Count Total		19	632	0	449	0	0	0	0	23	1,109	888	0	207	0	604	842	4,773	0
Peak Hour	**All**	**10**	**318**	**0**	**237**	**0**	**0**	**0**	**0**	**17**	**605**	**486**	**0**	**96**	**0**	**303**	**446**	**2,518**	**0**
	HV	**1**	**12**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**5**	**11**	**0**	**0**	**0**	**9**	**3**	**51**	**0**
	HV%	**10%**	**4%**	**-**	**4%**	**-**	**-**	**-**	**-**	**0%**	**1%**	**2%**	**-**	**0%**	**-**	**3%**	**1%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	5	0	7	8	*20*	0	0	1	0	*1*	0	5	2	0	*7*
4:45 PM	10	0	7	4	*21*	0	0	2	1	*3*	0	5	0	0	*5*
5:00 PM	**8**	**0**	**5**	**3**	***16***	**0**	**0**	**3**	**1**	***4***	**0**	**3**	**0**	**0**	*3*
5:15 PM	**6**	**0**	**5**	**1**	***12***	**0**	**0**	**2**	**0**	***2***	**0**	**2**	**0**	**0**	*2*
5:30 PM	**5**	**0**	**2**	**5**	***12***	**0**	**0**	**4**	**0**	***4***	**1**	**4**	**1**	**0**	*6*
5:45 PM	**4**	**0**	**4**	**3**	***11***	**0**	**0**	**1**	**0**	***1***	**1**	**1**	**0**	**0**	***2***
6:00 PM	4	0	6	5	*15*	0	0	3	0	*3*	3	4	3	3	*13*
6:15 PM	5	0	3	5	*13*	0	0	0	0	*0*	3	3	1	2	*9*
Count Total	47	0	39	34	*120*	0	0	16	2	*18*	8	27	7	5	*47*
Peak Hour	**23**	**0**	**16**	**12**	***51***	**0**	**0**	**10**	**1**	***11***	**2**	**10**	**1**	**0**	***13***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave Eastbound				Service Rd Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	4	0	1	0	0	0	0	0	2	5	0	1	0	4	3	20	0
4:45 PM	0	7	0	3	0	0	0	0	0	0	7	0	0	0	2	2	21	0
5:00 PM	**0**	**4**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**3**	**0**	**16**	0
5:15 PM	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**1**	**0**	**12**	69
5:30 PM	**1**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**1**	**12**	61
5:45 PM	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**2**	**11**	**51**
6:00 PM	0	3	0	1	0	0	0	0	0	2	4	0	2	0	3	0	15	50
6:15 PM	0	4	0	1	0	0	0	0	0	0	3	0	1	0	2	2	13	51
Count Total	1	30	0	16	0	0	0	0	0	9	30	0	4	0	20	10	120	0
Peak Hour	**1**	**12**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**5**	**11**	**0**	**0**	**0**	**9**	**3**	**51**	**0**

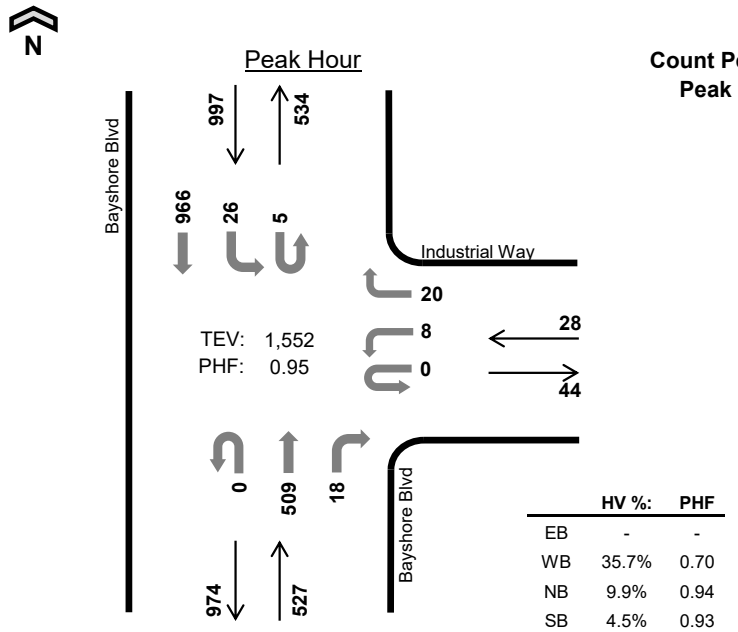
Two-Hour Count Summaries - Bikes

Interval Start	Geneva Ave Eastbound			Service Rd Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	1	1	0	0	0	1	3	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**1**	**0**	**4**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**0**	**2**	10
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**0**	**4**	13
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**11**
6:00 PM	0	0	0	0	0	0	1	2	0	0	0	0	3	10
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	8
Count Total	0	0	0	0	0	0	8	8	0	0	1	1	18	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**5**	**0**	**0**	**1**	**0**	**11**	**0**

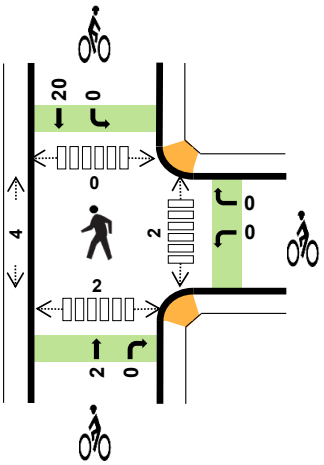
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Industrial Way

Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	-	-
WB	35.7%	0.70
NB	9.9%	0.94
SB	4.5%	0.93
TOTAL	6.9%	0.95



Two-Hour Count Summaries

Interval Start		n/a Eastbound				Industrial Way Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	0	0	5	0	8	0	0	103	6	1	11	166	0	300	0
7:15 AM		0	0	0	0	0	3	0	11	0	0	110	6	0	11	193	0	334	0
7:30 AM		0	0	0	0	0	3	0	10	0	0	96	2	0	3	252	0	366	0
7:45 AM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**131**	**5**	**2**	**7**	**258**	**0**	**410**	1,410
8:00 AM		**0**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	**0**	**0**	**112**	**3**	**0**	**6**	**252**	**0**	**381**	1,491
8:15 AM		**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**0**	**136**	**4**	**1**	**5**	**215**	**0**	**371**	1,528
8:30 AM		**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**130**	**6**	**2**	**8**	**241**	**0**	**390**	**1,552**
8:45 AM		0	0	0	0	0	3	0	6	0	0	120	7	1	11	190	0	338	1,480
Count Total		0	0	0	0	0	22	0	55	0	0	938	39	7	62	1,767	0	2,890	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**20**	**0**	**0**	**509**	**18**	**5**	**26**	**966**	**0**	**1,552**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**8**	**0**	**0**	**48**	**4**	**0**	**5**	**40**	**0**	**107**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**25%**	**-**	**40%**	**-**	**-**	**9%**	**22%**	**0%**	**19%**	**4%**	**-**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	4	11	10	*25*	0	0	3	1	*4*	0	0	0	0	*0*
7:15 AM	0	4	10	8	*22*	0	0	2	1	*3*	0	0	0	0	*0*
7:30 AM	0	5	8	8	*21*	0	0	0	6	*6*	0	4	0	1	*5*
7:45 AM	**0**	**3**	**11**	**11**	***25***	**0**	**0**	**0**	**2**	***2***	**0**	**1**	**0**	**0**	*1*
8:00 AM	**0**	**3**	**7**	**14**	***24***	**0**	**0**	**0**	**4**	***4***	**0**	**1**	**0**	**0**	*1*
8:15 AM	**0**	**3**	**16**	**9**	***28***	**0**	**0**	**0**	**12**	***12***	**0**	**1**	**0**	**1**	*2*
8:30 AM	**0**	**1**	**18**	**11**	***30***	**0**	**0**	**2**	**2**	***4***	**2**	**1**	**0**	**1**	***4***
8:45 AM	0	2	8	10	*20*	0	0	0	0	*0*	1	1	0	0	*2*
Count Total	0	25	89	81	*195*	0	0	7	28	*35*	3	9	0	3	*15*
Peak Hr	**0**	**10**	**52**	**45**	***107***	**0**	**0**	**2**	**20**	***22***	**2**	**4**	**0**	**2**	***8***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Industrial Way				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	0	3	0	0	11	0	0	3	7	0	25	0
7:15 AM	0	0	0	0	0	0	0	4	0	0	10	0	0	3	5	0	22	0
7:30 AM	0	0	0	0	0	1	0	4	0	0	8	0	0	1	7	0	21	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**10**	**1**	**0**	**1**	**10**	**0**	**25**	93
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**7**	**0**	**0**	**2**	**12**	**0**	**24**	92
8:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**15**	**1**	**0**	**1**	**8**	**0**	**28**	98
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**16**	**2**	**0**	**1**	**10**	**0**	**30**	**107**
8:45 AM	0	0	0	0	0	0	0	2	0	0	8	0	0	3	7	0	20	102
Count Total	0	0	0	0	0	4	0	21	0	0	85	4	0	15	66	0	195	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**8**	**0**	**0**	**48**	**4**	**0**	**5**	**40**	**0**	**107**	**0**

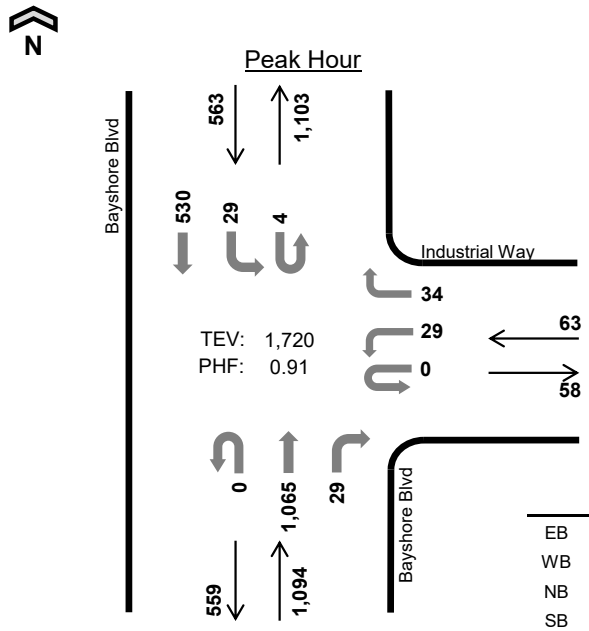
Two-Hour Count Summaries - Bikes

Interval Start	n/a			Industrial Way			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	3	0	0	1	0	4	0
7:15 AM	0	0	0	0	0	0	0	2	0	0	1	0	3	0
7:30 AM	0	0	0	0	0	0	0	0	0	1	5	0	6	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	15
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	15
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**12**	24
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**4**	**22**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	20
Count Total	0	0	0	0	0	0	0	7	0	1	27	0	35	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**20**	**0**	**22**	**0**

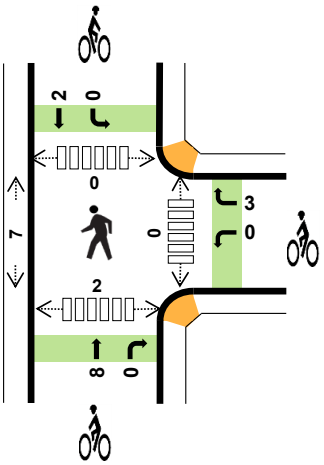
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Industrial Way

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	6.3%	0.79
NB	1.7%	0.91
SB	3.9%	0.93
TOTAL	2.6%	0.91



Two-Hour Count Summaries

Interval Start	n/a Eastbound				Industrial Way Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	10	0	10	0	0	220	3	2	16	123	0	384	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**9**	**0**	**0**	**249**	**12**	**1**	**16**	**125**	**0**	**422**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**12**	**0**	**0**	**293**	**6**	**0**	**8**	**144**	**0**	**471**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**7**	**0**	**0**	**260**	**7**	**2**	**2**	**120**	**0**	**404**	1,681
5:30 PM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**6**	**0**	**0**	**263**	**4**	**1**	**3**	**141**	**0**	**423**	**1,720**
5:45 PM	0	0	0	0	0	7	0	6	0	0	256	1	3	8	99	0	380	1,678
6:00 PM	0	0	0	0	0	10	0	9	0	0	225	0	2	5	101	0	352	1,559
6:15 PM	0	0	0	0	0	7	0	13	0	0	188	4	6	6	115	0	339	1,494
Count Total	0	0	0	0	0	63	0	72	0	0	1,954	37	17	64	968	0	3,175	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**29**	**0**	**34**	**0**	**0**	**1,065**	**29**	**4**	**29**	**530**	**0**	**1,720**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**17**	**2**	**0**	**2**	**20**	**0**	**45**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**3%**	**-**	**9%**	**-**	**-**	**2%**	**7%**	**0%**	**7%**	**4%**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	0	2	6	5	*13*	0	1	0	0	*1*	0	3	0	2	*5*
4:45 PM	**0**	**1**	**8**	**5**	***14***	**0**	**1**	**2**	**0**	***3***	**0**	**1**	**0**	**1**	*2*
5:00 PM	**0**	**2**	**4**	**7**	***13***	**0**	**0**	**2**	**1**	***3***	**0**	**1**	**0**	**0**	*1*
5:15 PM	**0**	**1**	**5**	**4**	***10***	**0**	**1**	**2**	**0**	***3***	**0**	**1**	**0**	**0**	*1*
5:30 PM	**0**	**0**	**2**	**6**	***8***	**0**	**1**	**2**	**1**	***4***	**0**	**4**	**0**	**1**	***5***
5:45 PM	0	0	4	2	*6*	0	0	1	0	*1*	0	1	0	0	*1*
6:00 PM	0	0	6	4	*10*	0	1	3	0	*4*	0	0	0	0	*0*
6:15 PM	0	0	3	3	*6*	0	0	1	1	*2*	0	0	0	0	*0*
Count Total	0	6	38	36	*80*	0	5	13	3	*21*	0	11	0	4	*15*
Peak Hr	**0**	**4**	**19**	**22**	***45***	**0**	**3**	**8**	**2**	***13***	**0**	**7**	**0**	**2**	***9***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Industrial Way				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	1	0	1	0	0	5	1	0	3	2	0	13	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**7**	**1**	**0**	**0**	**5**	**0**	**14**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**3**	**1**	**0**	**2**	**5**	**0**	**13**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**0**	**10**	50
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**6**	**0**	**8**	**45**
5:45 PM	0	0	0	0	0	0	0	0	0	0	4	0	0	0	2	0	6	37
6:00 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	1	3	0	10	34
6:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	30
Count Total	0	0	0	0	0	2	0	4	0	0	35	3	0	6	30	0	80	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**17**	**2**	**0**	**2**	**20**	**0**	**45**	**0**

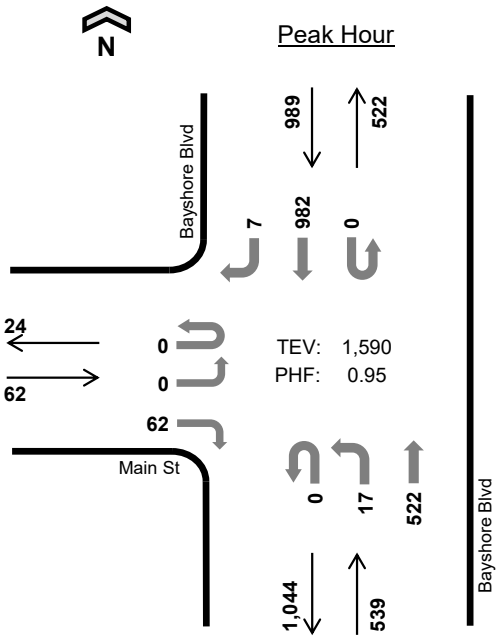
Two-Hour Count Summaries - Bikes

Interval Start	n/a			Industrial Way			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**3**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**3**	10
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**1**	**0**	**4**	**13**
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	11
6:00 PM	0	0	0	0	0	1	0	3	0	0	0	0	4	12
6:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	11
Count Total	0	0	0	0	0	5	0	13	0	0	3	0	21	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**8**	**0**	**0**	**2**	**0**	**13**	**0**

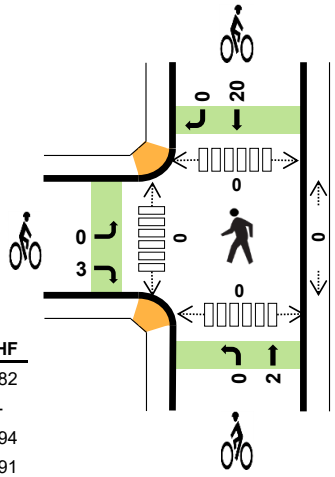
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Main St

Peak Hour



Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	0.0%	0.82
WB	-	-
NB	9.6%	0.94
SB	4.2%	0.91
TOTAL	5.9%	0.95

Two-Hour Count Summaries

Interval Start	Main St Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	17	0	0	0	0	0	3	112	0	0	0	163	2	297	0
7:15 AM	0	0	0	14	0	0	0	0	0	4	112	0	0	0	195	2	327	0
7:30 AM	0	0	0	26	0	0	0	0	0	8	103	0	0	0	245	3	385	0
7:45 AM	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**4**	**129**	**0**	**0**	**0**	**270**	**2**	**417**	1,426
8:00 AM	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**4**	**121**	**0**	**0**	**0**	**239**	**2**	**385**	1,514
8:15 AM	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**4**	**134**	**0**	**0**	**0**	**232**	**1**	**383**	1,570
8:30 AM	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**5**	**138**	**0**	**0**	**0**	**241**	**2**	**405**	**1,590**
8:45 AM	0	0	0	15	0	0	0	0	0	6	129	0	0	0	185	1	336	1,509
Count Total	0	0	0	134	0	0	0	0	0	38	978	0	0	0	1,770	15	2,935	0
Peak Hour All	**0**	**0**	**0**	**62**	**0**	**0**	**0**	**0**	**0**	**17**	**522**	**0**	**0**	**0**	**982**	**7**	**1,590**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**0**	**0**	**0**	**41**	**1**	**94**	**0**
Peak Hour HV%	**-**	**-**	**-**	**0%**	**-**	**-**	**-**	**-**	**-**	**0%**	**10%**	**-**	**-**	**-**	**4%**	**14%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	0	10	9	*19*	0	0	3	1	*4*	0	0	0	0	*0*
7:15 AM	0	0	12	5	*17*	1	0	2	1	*4*	0	0	0	0	*0*
7:30 AM	0	0	8	8	*16*	2	0	0	5	*7*	0	1	0	0	*1*
7:45 AM	**0**	**0**	**11**	**10**	***21***	**1**	**0**	**0**	**2**	***3***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**7**	**12**	***19***	**0**	**0**	**0**	**3**	***3***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**0**	**14**	**10**	***24***	**1**	**0**	**0**	**13**	***14***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**0**	**20**	**10**	***30***	**1**	**0**	**2**	**2**	***5***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	0	9	7	*16*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	0	0	91	71	*162*	6	0	7	27	*40*	0	1	0	0	*1*
Peak Hr	**0**	**0**	**52**	**42**	***94***	**3**	**0**	**2**	**20**	***25***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Main St				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	10	0	0	0	8	1	19	0
7:15 AM	0	0	0	0	0	0	0	0	0	1	11	0	0	0	5	0	17	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	8	0	0	0	8	0	16	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**10**	**0**	**21**	73
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**12**	**0**	**19**	73
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**10**	**0**	**24**	80
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**0**	**9**	**1**	**30**	**94**
8:45 AM	0	0	0	0	0	0	0	0	0	0	9	0	0	0	7	0	16	89
Count Total	0	0	0	0	0	0	0	0	0	1	90	0	0	0	69	2	162	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**52**	**0**	**0**	**0**	**41**	**1**	**94**	**0**

Two-Hour Count Summaries - Bikes

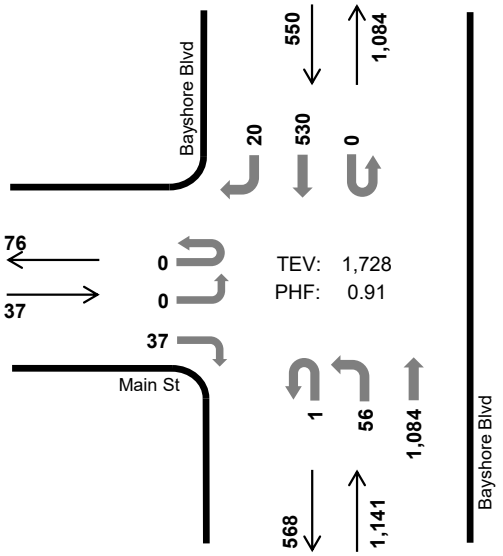
Interval Start	Main St			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	3	0	0	1	0	4	0
7:15 AM	0	0	1	0	0	0	0	2	0	0	1	0	4	0
7:30 AM	0	0	2	0	0	0	0	0	0	0	4	1	7	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	18
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	17
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**14**	27
8:30 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**5**	**25**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	22
Count Total	0	0	6	0	0	0	0	7	0	0	26	1	40	0
Peak Hour	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**20**	**0**	**25**	**0**

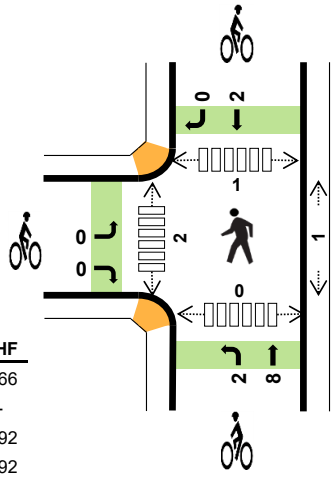
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Main St

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM

Peak Hour





	HV %:	PHF
EB	2.7%	0.66
WB	-	-
NB	1.7%	0.92
SB	3.5%	0.92
TOTAL	2.3%	0.91

Two-Hour Count Summaries

Interval Start	Main St Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	9	0	0	0	0	0	13	230	0	0	0	137	3	392	0
4:45 PM	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**1**	**16**	**259**	**0**	**0**	**0**	**126**	**4**	**413**	0
5:00 PM	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**0**	**15**	**294**	**0**	**0**	**0**	**148**	**2**	**473**	0
5:15 PM	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**14**	**266**	**0**	**0**	**0**	**120**	**9**	**420**	1,698
5:30 PM	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**11**	**265**	**0**	**0**	**0**	**136**	**5**	**422**	**1,728**
5:45 PM	0	0	0	5	0	0	0	0	0	20	253	0	0	0	101	11	390	1,705
6:00 PM	0	0	0	8	0	0	0	0	0	11	236	0	0	0	102	3	360	1,592
6:15 PM	0	0	0	4	0	0	0	0	0	10	196	0	0	0	113	10	333	1,505
Count Total	0	0	0	63	0	0	0	0	1	110	1,999	0	0	0	983	47	3,203	0
Peak Hour All	**0**	**0**	**0**	**37**	**0**	**0**	**0**	**0**	**1**	**56**	**1,084**	**0**	**0**	**0**	**530**	**20**	**1,728**	**0**
Peak Hour HV	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**18**	**1**	**39**	**0**
Peak Hour HV%	**-**	**-**	**-**	**3%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**2%**	**-**	**-**	**-**	**3%**	**5%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	0	0	6	4	*10*	0	0	0	0	*0*	0	0	0	0	*0*
4:45 PM	**0**	**0**	**8**	**5**	***13***	**0**	**0**	**2**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**1**	**0**	**4**	**5**	***10***	**0**	**0**	**4**	**1**	***5***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**6**	**4**	***10***	**0**	**0**	**2**	**0**	***2***	**0**	**0**	**1**	**0**	*1*
5:30 PM	**0**	**0**	**1**	**5**	***6***	**0**	**0**	**2**	**1**	***3***	**1**	**2**	**0**	**0**	***3***
5:45 PM	0	0	5	3	*8*	0	0	1	0	*1*	0	1	0	0	*1*
6:00 PM	0	0	6	3	*9*	0	0	3	0	*3*	0	0	0	0	*0*
6:15 PM	0	0	3	3	*6*	0	0	1	1	*2*	0	0	0	0	*0*
Count Total	1	0	39	32	*72*	0	0	15	3	*18*	1	3	1	0	*5*
Peak Hr	**1**	**0**	**19**	**19**	***39***	**0**	**0**	**10**	**2**	***12***	**1**	**2**	**1**	**0**	***4***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Main St				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	4	0	10	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**5**	**0**	**13**	0
5:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**5**	**0**	**10**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**4**	**0**	**10**	43
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**1**	**6**	**39**
5:45 PM	0	0	0	0	0	0	0	0	0	1	4	0	0	0	3	0	8	34
6:00 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	3	0	9	33
6:15 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	0	3	0	6	29
Count Total	0	0	0	1	0	0	0	0	0	1	38	0	0	0	31	1	72	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**19**	**0**	**0**	**0**	**18**	**1**	**39**	**0**

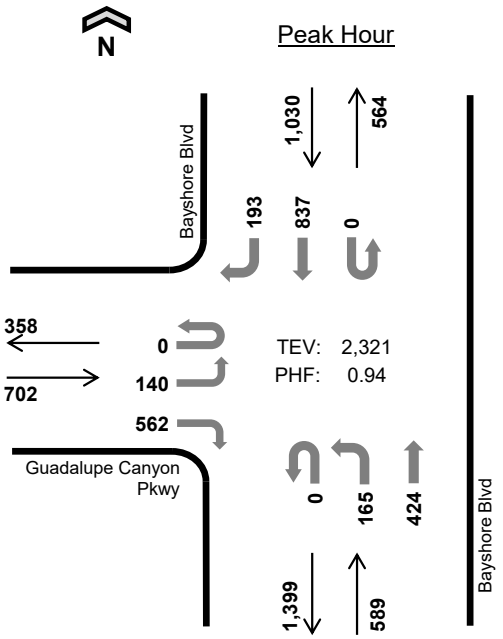
Two-Hour Count Summaries - Bikes

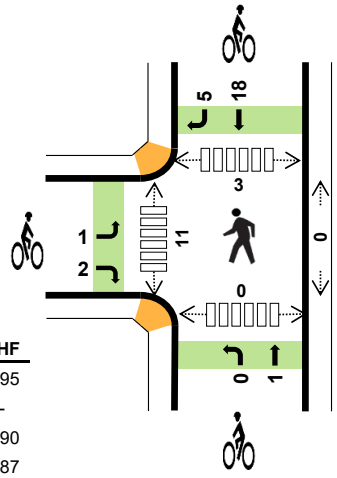
Interval Start	Main St			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**1**	**0**	**5**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	9
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	**12**
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	11
6:00 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	9
6:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	9
Count Total	0	0	0	0	0	0	2	13	0	0	3	0	18	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**8**	**0**	**0**	**2**	**0**	**12**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Guadalupe Canyon Pkwy

Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	1.0%	0.95
WB	-	-
NB	9.0%	0.90
SB	4.4%	0.87
TOTAL	4.5%	0.94

Two-Hour Count Summaries

Interval Start		Guadalupe Canyon Pkwy Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	26	0	87	0	0	0	0	0	26	92	0	0	0	146	34	411	0
7:15 AM		0	21	0	113	0	0	0	0	0	34	96	0	0	0	168	27	459	0
7:30 AM		0	30	0	143	0	0	0	0	0	32	83	0	0	0	182	51	521	0
7:45 AM		**0**	**38**	**0**	**144**	**0**	**0**	**0**	**0**	**0**	**40**	**96**	**0**	**0**	**0**	**240**	**57**	**615**	2,006
8:00 AM		**0**	**25**	**0**	**137**	**0**	**0**	**0**	**0**	**0**	**37**	**104**	**0**	**0**	**0**	**201**	**44**	**548**	2,143
8:15 AM		**0**	**42**	**0**	**143**	**0**	**0**	**0**	**0**	**0**	**45**	**104**	**0**	**0**	**0**	**198**	**45**	**577**	2,261
8:30 AM		**0**	**35**	**0**	**138**	**0**	**0**	**0**	**0**	**0**	**43**	**120**	**0**	**0**	**0**	**198**	**47**	**581**	**2,321**
8:45 AM		0	27	0	112	0	0	0	0	0	47	120	0	0	0	180	36	522	2,228
Count Total		0	244	0	1,017	0	0	0	0	0	304	815	0	0	0	1,513	341	4,234	0
Peak Hour	**All**	**0**	**140**	**0**	**562**	**0**	**0**	**0**	**0**	**0**	**165**	**424**	**0**	**0**	**0**	**837**	**193**	**2,321**	**0**
	HV	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**53**	**0**	**0**	**0**	**39**	**6**	**105**	**0**
	HV%	**-**	**3%**	**-**	**1%**	**-**	**-**	**-**	**-**	**-**	**0%**	**13%**	**-**	**-**	**-**	**5%**	**3%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	3	0	10	10	*23*	1	0	2	1	*4*	1	1	1	0	*3*
7:15 AM	5	0	10	4	*19*	2	0	0	2	*4*	0	3	0	0	*3*
7:30 AM	3	0	10	9	*22*	0	0	0	3	*3*	0	2	2	0	*4*
7:45 AM	**3**	**0**	**10**	**12**	***25***	**0**	**0**	**0**	**5**	***5***	**0**	**7**	**2**	**0**	*9*
8:00 AM	**1**	**0**	**9**	**10**	***20***	**1**	**0**	**0**	**2**	***3***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**2**	**0**	**14**	**13**	***29***	**1**	**0**	**0**	**14**	***15***	**0**	**3**	**1**	**0**	*4*
8:30 AM	**1**	**0**	**20**	**10**	***31***	**1**	**0**	**1**	**2**	***4***	**0**	**1**	**0**	**0**	***1***
8:45 AM	1	0	13	7	*21*	0	0	0	1	*1*	1	3	0	0	*4*
Count Total	19	0	96	75	*190*	6	0	3	30	*39*	2	20	6	0	*28*
Peak Hr	**7**	**0**	**53**	**45**	***105***	**3**	**0**	**1**	**23**	***27***	**0**	**11**	**3**	**0**	***14***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Guadalupe Canyon Pkwy				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	0	1	0	0	0	0	0	1	9	0	0	0	8	2	23	0
7:15 AM	0	3	0	2	0	0	0	0	0	0	10	0	0	0	3	1	19	0
7:30 AM	0	2	0	1	0	0	0	0	0	4	6	0	0	0	9	0	22	0
7:45 AM	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**0**	**11**	**1**	**25**	89
8:00 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**8**	**2**	**20**	86
8:15 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**10**	**3**	**29**	96
8:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**0**	**10**	**0**	**31**	**105**
8:45 AM	0	0	0	1	0	0	0	0	0	2	11	0	0	0	6	1	21	101
Count Total	0	11	0	8	0	0	0	0	0	7	89	0	0	0	65	10	190	0
Peak Hour	**0**	**4**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**53**	**0**	**0**	**0**	**39**	**6**	**105**	**0**

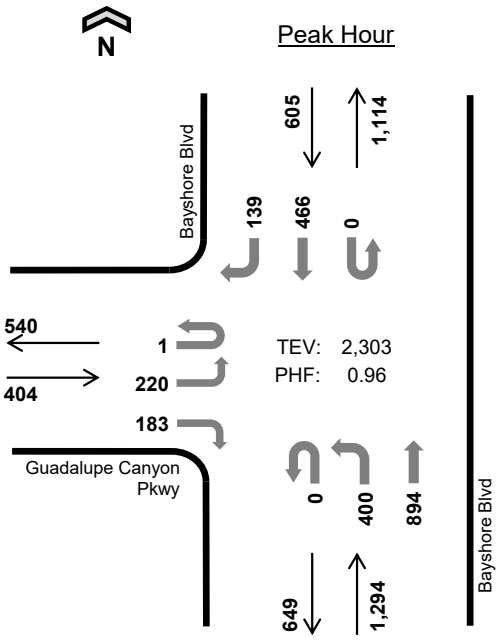
Two-Hour Count Summaries - Bikes

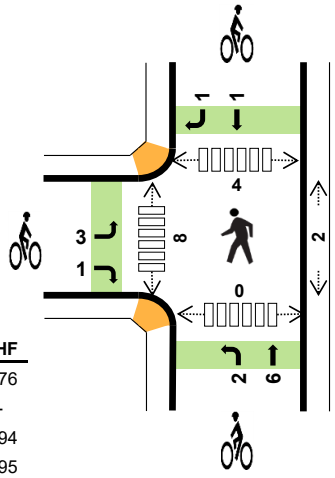
Interval Start	Guadalupe Canyon Pkwy			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	1	0	0	0	0	0	0	2	0	0	1	0	4	0
7:15 AM	2	0	0	0	0	0	0	0	0	0	2	0	4	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	2	3	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**5**	16
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	15
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**3**	**15**	26
8:30 AM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**4**	**27**
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	23
Count Total	4	0	2	0	0	0	0	3	0	0	23	7	39	0
Peak Hour	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**18**	**5**	**27**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Guadalupe Canyon Pkwy

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	2.2%	0.76
WB	-	-
NB	1.2%	0.94
SB	3.5%	0.95
TOTAL	2.0%	0.96

Two-Hour Count Summaries

Interval Start		Guadalupe Canyon Pkwy Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	68	0	54	0	0	0	0	0	74	172	0	0	0	111	42	521	0
4:45 PM		**1**	**55**	**0**	**36**	**0**	**0**	**0**	**0**	**0**	**95**	**213**	**0**	**0**	**0**	**114**	**34**	**548**	0
5:00 PM		**0**	**80**	**0**	**53**	**0**	**0**	**0**	**0**	**0**	**82**	**222**	**0**	**0**	**0**	**130**	**30**	**597**	0
5:15 PM		**0**	**42**	**0**	**49**	**0**	**0**	**0**	**0**	**0**	**109**	**230**	**0**	**0**	**0**	**107**	**30**	**567**	2,233
5:30 PM		**0**	**43**	**0**	**45**	**0**	**0**	**0**	**0**	**0**	**114**	**229**	**0**	**0**	**0**	**115**	**45**	**591**	**2,303**
5:45 PM		0	43	0	41	0	0	0	0	0	85	225	0	0	0	77	27	498	2,253
6:00 PM		0	32	0	37	0	0	0	0	0	90	209	0	0	0	91	23	482	2,138
6:15 PM		0	19	0	42	0	0	0	0	0	78	180	0	0	0	101	27	447	2,018
Count Total		1	382	0	357	0	0	0	0	0	727	1,680	0	0	0	846	258	4,251	0
Peak Hour	**All**	**1**	**220**	**0**	**183**	**0**	**0**	**0**	**0**	**0**	**400**	**894**	**0**	**0**	**0**	**466**	**139**	**2,303**	**0**
	HV	**0**	**4**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**1**	**15**	**0**	**0**	**0**	**18**	**3**	**46**	**0**
	HV%	**0%**	**2%**	**-**	**3%**	**-**	**-**	**-**	**-**	**-**	**0%**	**2%**	**-**	**-**	**-**	**4%**	**2%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	4	0	4	5	*13*	2	0	1	0	*3*	0	3	2	0	*5*
4:45 PM	**3**	**0**	**7**	**7**	***17***	**1**	**0**	**1**	**0**	***2***	**1**	**1**	**0**	**0**	*2*
5:00 PM	**4**	**0**	**3**	**6**	***13***	**2**	**0**	**2**	**1**	***5***	**0**	**2**	**3**	**0**	*5*
5:15 PM	**2**	**0**	**5**	**5**	***12***	**1**	**0**	**1**	**0**	***2***	**0**	**4**	**1**	**0**	*5*
5:30 PM	**0**	**0**	**1**	**3**	***4***	**0**	**0**	**4**	**1**	***5***	**1**	**1**	**0**	**0**	***2***
5:45 PM	2	0	5	3	*10*	1	0	1	0	*2*	0	1	1	0	*2*
6:00 PM	1	0	5	4	*10*	0	0	3	0	*3*	0	0	0	0	*0*
6:15 PM	2	0	3	3	*8*	0	0	1	1	*2*	0	0	0	0	*0*
Count Total	18	0	33	36	*87*	7	0	14	3	*24*	2	12	7	0	*21*
Peak Hr	**9**	**0**	**16**	**21**	***46***	**4**	**0**	**8**	**2**	***14***	**2**	**8**	**4**	**0**	***14***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Guadalupe Canyon Pkwy				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	2	0	2	0	0	0	0	0	0	4	0	0	0	2	3	13	0
4:45 PM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**7**	**0**	**17**	0
5:00 PM	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**5**	**1**	**13**	0
5:15 PM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**1**	**12**	55
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**1**	**4**	**46**
5:45 PM	0	1	0	1	0	0	0	0	0	0	5	0	0	0	3	0	10	39
6:00 PM	0	1	0	0	0	0	0	0	0	0	5	0	0	0	3	1	10	36
6:15 PM	0	1	0	1	0	0	0	0	0	1	2	0	0	0	2	1	8	32
Count Total	0	9	0	9	0	0	0	0	0	2	31	0	0	0	28	8	87	0
Peak Hour	**0**	**4**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**1**	**15**	**0**	**0**	**0**	**18**	**3**	**46**	**0**

Two-Hour Count Summaries - Bikes

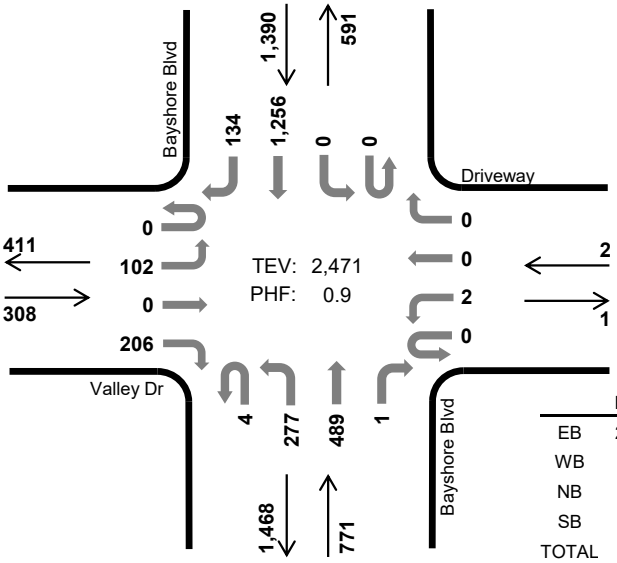
Interval Start	Guadalupe Canyon Pkwy			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	1	0	1	0	0	0	1	0	0	0	0	0	3	0
4:45 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	0
5:00 PM	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**5**	0
5:15 PM	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	12
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**1**	**5**	**14**
5:45 PM	1	0	0	0	0	0	0	1	0	0	0	0	2	14
6:00 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	12
6:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	12
Count Total	5	0	2	0	0	0	3	11	0	0	2	1	24	0
Peak Hour	**3**	**0**	**1**	**0**	**0**	**0**	**2**	**6**	**0**	**0**	**1**	**1**	**14**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

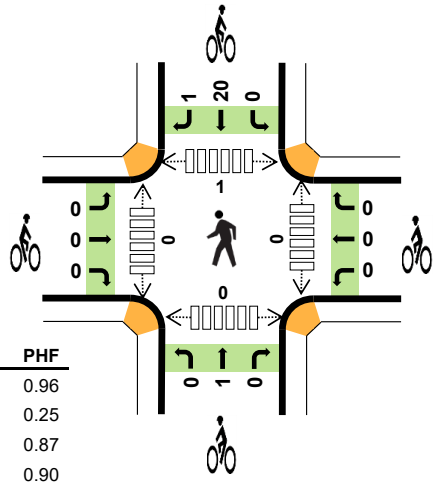
Bayshore Blvd
Valley Dr

Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour



	HV %:	PHF
EB	26.0%	0.96
WB	0.0%	0.25
NB	7.4%	0.87
SB	2.8%	0.90
TOTAL	7.1%	0.90



Two-Hour Count Summaries

Interval Start	Valley Dr Eastbound				Driveway Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	16	0	37	0	0	1	0	1	71	104	0	0	0	223	17	470	0
7:15 AM	0	15	0	42	0	0	0	0	0	75	109	1	0	0	243	35	520	0
7:30 AM	0	17	0	51	0	0	1	1	0	80	93	1	0	0	300	24	568	0
7:45 AM	**0**	**16**	**0**	**62**	**0**	**2**	**0**	**0**	**1**	**91**	**129**	**1**	**0**	**0**	**337**	**48**	**687**	2,245
8:00 AM	**0**	**22**	**0**	**50**	**0**	**0**	**0**	**0**	**1**	**59**	**110**	**0**	**0**	**0**	**314**	**29**	**585**	2,360
8:15 AM	**0**	**27**	**0**	**53**	**0**	**0**	**0**	**0**	**1**	**66**	**123**	**0**	**0**	**0**	**301**	**38**	**609**	2,449
8:30 AM	**0**	**37**	**0**	**41**	**0**	**0**	**0**	**0**	**1**	**61**	**127**	**0**	**0**	**0**	**304**	**19**	**590**	**2,471**
8:45 AM	0	25	0	47	0	0	0	1	0	76	138	0	0	1	291	23	602	2,386
Count Total	0	175	0	383	0	2	2	2	5	579	933	3	0	1	2,313	233	4,631	0
Peak Hour All	**0**	**102**	**0**	**206**	**0**	**2**	**0**	**0**	**4**	**277**	**489**	**1**	**0**	**0**	**1,256**	**134**	**2,471**	**0**
Peak Hour HV	**0**	**28**	**0**	**52**	**0**	**0**	**0**	**0**	**0**	**32**	**25**	**0**	**0**	**0**	**23**	**16**	**176**	**0**
Peak Hour HV%	**-**	**27%**	**-**	**25%**	**-**	**0%**	**-**	**-**	**0%**	**12%**	**5%**	**0%**	**-**	**-**	**2%**	**12%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	17	0	12	9	*38*	0	0	2	1	*3*	2	1	1	1	*5*
7:15 AM	22	0	14	5	*41*	0	0	0	1	*1*	0	0	0	0	*0*
7:30 AM	25	1	15	11	*52*	0	0	0	2	*2*	0	2	2	0	*4*
7:45 AM	**20**	**0**	**20**	**11**	***51***	**0**	**0**	**0**	**4**	***4***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**14**	**0**	**10**	**10**	***34***	**0**	**0**	**0**	**4**	***4***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**27**	**0**	**9**	**11**	***47***	**0**	**0**	**1**	**8**	***9***	**0**	**0**	**1**	**0**	*1*
8:30 AM	**19**	**0**	**18**	**7**	***44***	**0**	**0**	**0**	**5**	***5***	**0**	**0**	**0**	**0**	***0***
8:45 AM	12	0	17	10	*39*	0	0	0	0	*0*	1	0	0	1	*2*
Count Total	156	1	115	74	*346*	0	0	3	25	*28*	3	3	4	2	*12*
Peak Hour	**80**	**0**	**57**	**39**	***176***	**0**	**0**	**1**	**21**	***22***	**0**	**0**	**1**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Valley Dr				Driveway				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	5	0	12	0	0	0	0	0	7	5	0	0	0	6	3	38	0
7:15 AM	0	6	0	16	0	0	0	0	0	9	4	1	0	0	3	2	41	0
7:30 AM	0	3	0	22	0	0	0	1	0	10	5	0	0	0	11	0	52	0
7:45 AM	**0**	**2**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**12**	**8**	**0**	**0**	**0**	**7**	**4**	**51**	182
8:00 AM	**0**	**3**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**5**	**5**	**0**	**0**	**0**	**3**	**7**	**34**	178
8:15 AM	**0**	**12**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**5**	**4**	**0**	**0**	**0**	**7**	**4**	**47**	184
8:30 AM	**0**	**11**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**10**	**8**	**0**	**0**	**0**	**6**	**1**	**44**	**176**
8:45 AM	0	5	0	7	0	0	0	0	0	9	8	0	0	0	5	5	39	164
Count Total	0	47	0	109	0	0	0	1	0	67	47	1	0	0	48	26	346	0
Peak Hour	**0**	**28**	**0**	**52**	**0**	**0**	**0**	**0**	**0**	**32**	**25**	**0**	**0**	**0**	**23**	**16**	**176**	**0**

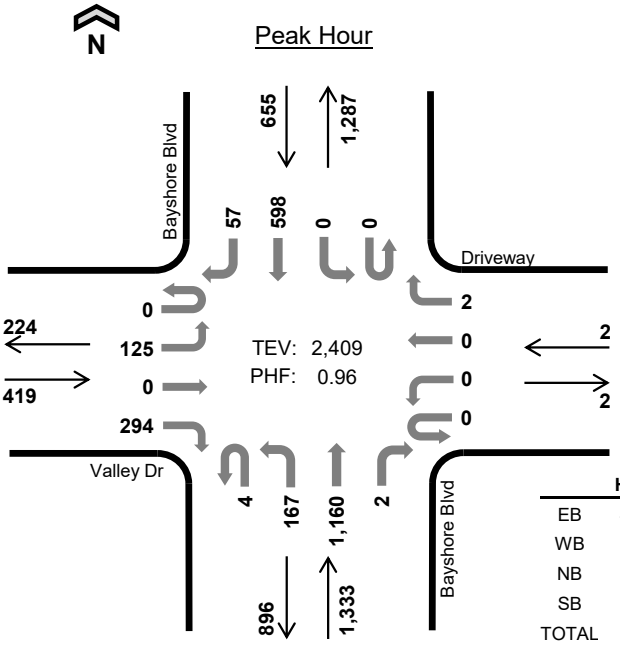
Two-Hour Count Summaries - Bikes

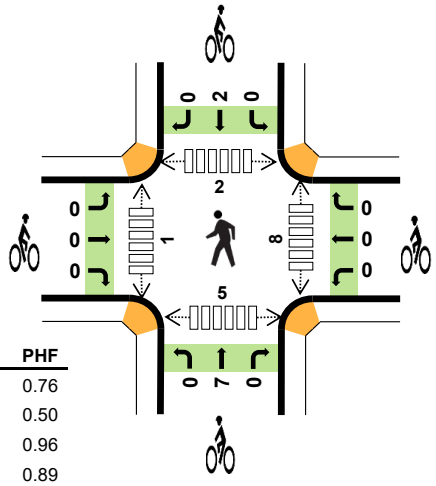
Interval Start	Valley Dr			Driveway			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	2	0	0	1	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**4**	10
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	11
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**8**	**0**	**9**	19
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**22**
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	18
Count Total	0	0	0	0	0	0	0	3	0	0	24	1	28	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**20**	**1**	**22**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Valley Dr

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	4.1%	0.76
WB	0.0%	0.50
NB	3.5%	0.96
SB	3.7%	0.89
TOTAL	3.6%	0.96

Two-Hour Count Summaries

Interval Start	Valley Dr Eastbound				Driveway Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	24	0	66	0	0	0	0	0	55	209	0	0	0	157	14	525	0
4:45 PM	**0**	**27**	**0**	**68**	**0**	**0**	**0**	**0**	**2**	**53**	**288**	**0**	**0**	**0**	**138**	**19**	**595**	0
5:00 PM	**0**	**34**	**0**	**104**	**0**	**0**	**0**	**1**	**0**	**33**	**273**	**1**	**0**	**0**	**170**	**13**	**629**	0
5:15 PM	**0**	**33**	**0**	**71**	**0**	**0**	**0**	**0**	**1**	**48**	**298**	**0**	**0**	**0**	**138**	**10**	**599**	2,348
5:30 PM	**0**	**31**	**0**	**51**	**0**	**0**	**0**	**1**	**1**	**33**	**301**	**1**	**0**	**0**	**152**	**15**	**586**	**2,409**
5:45 PM	0	16	0	49	0	0	0	0	1	49	289	0	0	0	105	12	521	2,335
6:00 PM	0	28	0	51	0	0	0	0	2	61	240	0	0	0	118	10	510	2,216
6:15 PM	0	11	0	41	0	0	0	0	1	53	248	0	0	0	114	18	486	2,103
Count Total	0	204	0	501	0	0	0	2	8	385	2,146	2	0	0	1,092	111	4,451	0
Peak Hour All	**0**	**125**	**0**	**294**	**0**	**0**	**0**	**2**	**4**	**167**	**1,160**	**2**	**0**	**0**	**598**	**57**	**2,409**	**0**
Peak Hour HV	**0**	**4**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**34**	**12**	**0**	**0**	**0**	**22**	**2**	**87**	**0**
Peak Hour HV%	**-**	**3%**	**-**	**4%**	**-**	**-**	**-**	**0%**	**0%**	**20%**	**1%**	**0%**	**-**	**-**	**4%**	**4%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	1	0	17	4	*22*	0	0	0	0	*0*	2	0	0	1	*3*
4:45 PM	**5**	**0**	**16**	**8**	***29***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**3**	**0**	**12**	**8**	***23***	**0**	**0**	**3**	**2**	***5***	**4**	**1**	**1**	**2**	*8*
5:15 PM	**7**	**0**	**10**	**5**	***22***	**0**	**0**	**1**	**0**	***1***	**3**	**0**	**1**	**2**	*6*
5:30 PM	**2**	**0**	**8**	**3**	***13***	**0**	**0**	**3**	**0**	***3***	**1**	**0**	**0**	**1**	***2***
5:45 PM	4	0	15	3	*22*	0	0	1	0	*1*	1	0	0	0	*1*
6:00 PM	2	0	6	4	*12*	0	0	3	0	*3*	0	0	0	0	*0*
6:15 PM	4	0	15	2	*21*	0	0	1	1	*2*	0	1	1	0	*2*
Count Total	28	0	99	37	*164*	0	0	12	3	*15*	11	2	3	6	*22*
Peak Hour	**17**	**0**	**46**	**24**	***87***	**0**	**0**	**7**	**2**	***9***	**8**	**1**	**2**	**5**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Valley Dr				Driveway				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	1	0	0	0	0	0	0	0	14	3	0	0	0	4	0	22	0
4:45 PM	**0**	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**11**	**5**	**0**	**0**	**0**	**8**	**0**	**29**	0
5:00 PM	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**8**	**4**	**0**	**0**	**0**	**6**	**2**	**23**	0
5:15 PM	**0**	**2**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**5**	**0**	**22**	96
5:30 PM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**7**	**1**	**0**	**0**	**0**	**3**	**0**	**13**	**87**
5:45 PM	0	0	0	4	0	0	0	0	0	9	6	0	0	0	3	0	22	80
6:00 PM	0	2	0	0	0	0	0	0	0	4	2	0	0	0	3	1	12	69
6:15 PM	0	0	0	4	0	0	0	0	0	12	3	0	0	0	2	0	21	68
Count Total	0	7	0	21	0	0	0	0	0	73	26	0	0	0	34	3	164	0
Peak Hour	**0**	**4**	**0**	**13**	**0**	**0**	**0**	**0**	**0**	**34**	**12**	**0**	**0**	**0**	**22**	**2**	**87**	**0**

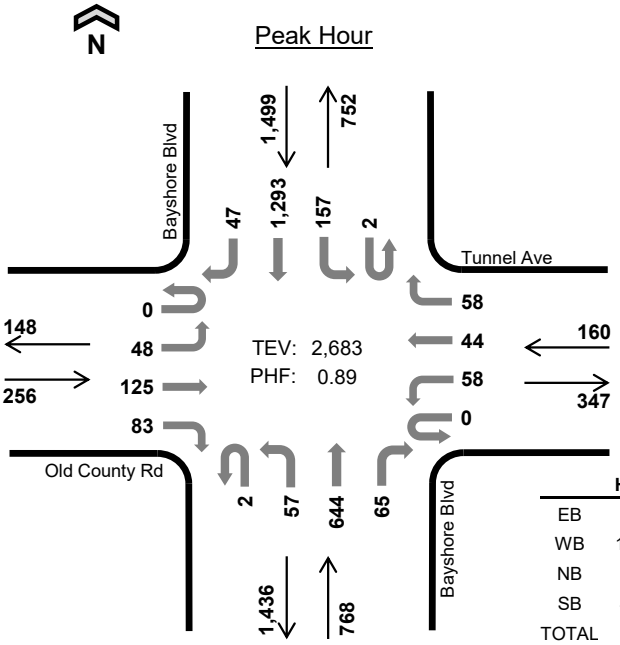
Two-Hour Count Summaries - Bikes

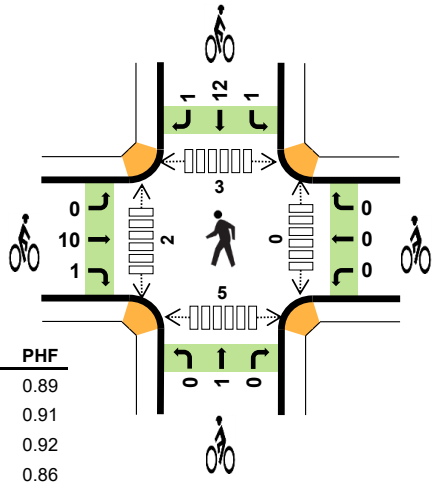
Interval Start	Valley Dr			Driveway			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**2**	**0**	**5**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	6
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**9**
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	10
6:00 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	8
6:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	9
Count Total	0	0	0	0	0	0	0	12	0	0	3	0	15	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**2**	**0**	**9**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Old County Rd

Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	0.8%	0.89
WB	10.0%	0.91
NB	7.6%	0.92
SB	4.9%	0.86
TOTAL	5.6%	0.89

Two-Hour Count Summaries

Interval Start	Old County Rd Eastbound				Tunnel Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	6	37	23	0	2	7	21	0	5	161	17	1	14	234	10	538	0
7:15 AM	0	12	33	13	0	5	7	17	1	7	162	18	0	29	256	6	566	0
7:30 AM	0	5	39	20	0	5	9	10	1	15	155	12	0	32	266	8	577	0
7:45 AM	**0**	**12**	**33**	**21**	**0**	**14**	**12**	**18**	**0**	**18**	**171**	**20**	**2**	**43**	**375**	**15**	**754**	2,435
8:00 AM	**0**	**15**	**29**	**19**	**0**	**20**	**9**	**12**	**1**	**17**	**144**	**14**	**0**	**37**	**270**	**9**	**596**	2,493
8:15 AM	**0**	**11**	**39**	**22**	**0**	**15**	**14**	**9**	**0**	**8**	**169**	**14**	**0**	**42**	**318**	**9**	**670**	2,597
8:30 AM	**0**	**10**	**24**	**21**	**0**	**9**	**9**	**19**	**1**	**14**	**160**	**17**	**0**	**35**	**330**	**14**	**663**	**2,683**
8:45 AM	0	17	23	24	0	8	15	22	1	14	159	13	0	21	289	18	624	2,553
Count Total	0	88	257	163	0	78	82	128	5	98	1,281	125	3	253	2,338	89	4,988	0
Peak Hour All	**0**	**48**	**125**	**83**	**0**	**58**	**44**	**58**	**2**	**57**	**644**	**65**	**2**	**157**	**1,293**	**47**	**2,683**	**0**
Peak Hour HV	**0**	**0**	**0**	**2**	**0**	**7**	**0**	**9**	**0**	**2**	**48**	**8**	**0**	**12**	**61**	**1**	**150**	**0**
Peak Hour HV%	**-**	**0%**	**0%**	**2%**	**-**	**12%**	**0%**	**16%**	**0%**	**4%**	**7%**	**12%**	**0%**	**8%**	**5%**	**2%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	4	13	16	*35*	0	0	1	1	*2*	0	0	1	2	*3*
7:15 AM	2	3	12	20	*37*	2	0	0	0	*2*	0	0	0	3	*3*
7:30 AM	1	3	14	28	*46*	1	1	0	2	*4*	0	0	0	3	*3*
7:45 AM	**2**	**5**	**19**	**31**	***57***	**1**	**0**	**0**	**2**	***3***	**0**	**1**	**1**	**0**	*2*
8:00 AM	**0**	**2**	**9**	**11**	***22***	**2**	**0**	**0**	**3**	***5***	**0**	**1**	**2**	**2**	*5*
8:15 AM	**0**	**5**	**8**	**18**	***31***	**8**	**0**	**1**	**1**	***10***	**0**	**0**	**0**	**2**	*2*
8:30 AM	**0**	**4**	**22**	**14**	***40***	**0**	**0**	**0**	**8**	***8***	**0**	**0**	**0**	**1**	***1***
8:45 AM	1	5	13	15	*34*	0	0	0	1	*1*	0	1	0	0	*1*
Count Total	8	31	110	153	*302*	14	1	2	18	*35*	0	3	4	13	*20*
Peak Hour	**2**	**16**	**58**	**74**	***150***	**11**	**0**	**1**	**14**	***26***	**0**	**2**	**3**	**5**	***10***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Old County Rd				Tunnel Ave				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	1	0	0	3	1	0	0	11	2	0	0	15	1	35	0
7:15 AM	0	0	2	0	0	1	0	2	0	0	11	1	0	4	15	1	37	0
7:30 AM	0	0	1	0	0	1	0	2	0	1	12	1	0	9	19	0	46	0
7:45 AM	**0**	**0**	**0**	**2**	**0**	**3**	**0**	**2**	**0**	**0**	**17**	**2**	**0**	**6**	**24**	**1**	**57**	175
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**8**	**1**	**0**	**2**	**9**	**0**	**22**	162
8:15 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**2**	**0**	**0**	**7**	**1**	**0**	**2**	**16**	**0**	**31**	156
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**2**	**16**	**4**	**0**	**2**	**12**	**0**	**40**	**150**
8:45 AM	0	1	0	0	0	1	1	3	0	1	11	1	0	3	11	1	34	127
Count Total	0	2	3	3	0	10	4	17	0	4	93	13	0	28	121	4	302	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**7**	**0**	**9**	**0**	**2**	**48**	**8**	**0**	**12**	**61**	**1**	**150**	**0**

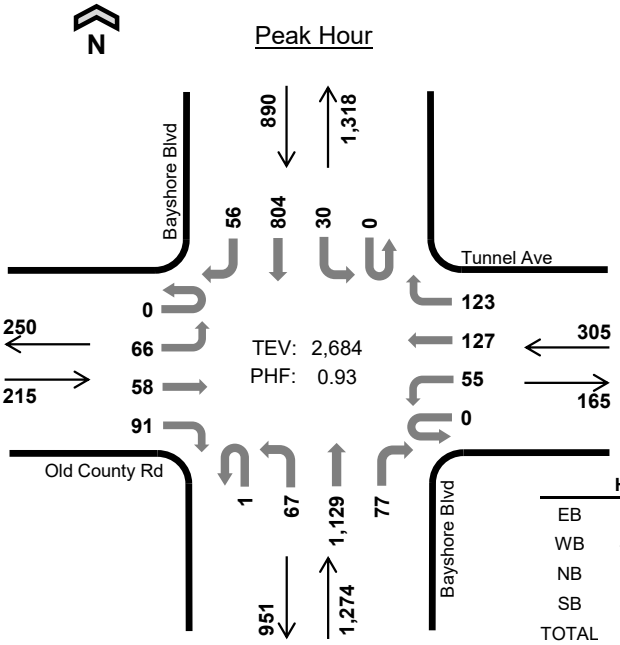
Two-Hour Count Summaries - Bikes

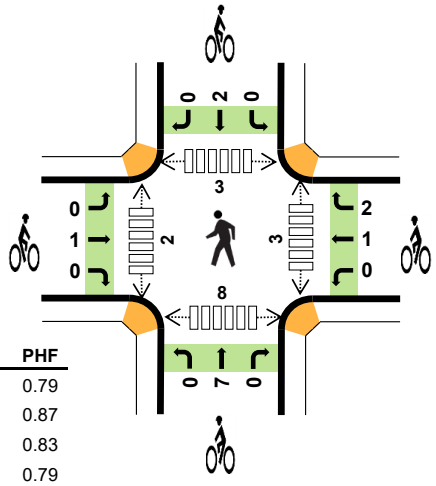
Interval Start	Old County Rd			Tunnel Ave			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
7:15 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
7:30 AM	0	1	0	0	1	0	0	0	0	0	2	0	4	0
7:45 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	11
8:00 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**1**	**5**	14
8:15 AM	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**10**	22
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	**0**	**8**	**26**
8:45 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	24
Count Total	0	13	1	0	1	0	0	2	0	1	16	1	35	0
Peak Hour	**0**	**10**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**12**	**1**	**26**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Old County Rd

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	0.5%	0.79
WB	4.6%	0.87
NB	2.9%	0.83
SB	3.8%	0.79
TOTAL	3.2%	0.93

Two-Hour Count Summaries

Interval Start	Old County Rd Eastbound				Tunnel Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	15	21	21	0	10	26	22	0	20	238	9	0	19	204	14	619	0
4:45 PM	**0**	**21**	**22**	**25**	**0**	**10**	**34**	**34**	**0**	**19**	**258**	**12**	**0**	**7**	**172**	**17**	**631**	0
5:00 PM	**0**	**16**	**9**	**21**	**0**	**18**	**30**	**31**	**0**	**13**	**284**	**16**	**0**	**14**	**254**	**12**	**718**	0
5:15 PM	**0**	**14**	**15**	**21**	**0**	**24**	**28**	**36**	**1**	**14**	**258**	**16**	**0**	**5**	**183**	**13**	**628**	2,596
5:30 PM	**0**	**15**	**12**	**24**	**0**	**3**	**35**	**22**	**0**	**21**	**329**	**33**	**0**	**4**	**195**	**14**	**707**	**2,684**
5:45 PM	0	14	18	21	0	10	40	33	0	16	265	30	0	10	128	15	600	2,653
6:00 PM	0	10	8	26	0	6	28	25	1	13	286	13	0	3	151	16	586	2,521
6:15 PM	0	12	11	9	0	6	29	25	0	7	256	17	0	7	135	15	529	2,422
Count Total	0	117	116	168	0	87	250	228	2	123	2,174	146	0	69	1,422	116	5,018	0
Peak Hour All	**0**	**66**	**58**	**91**	**0**	**55**	**127**	**123**	**1**	**67**	**1,129**	**77**	**0**	**30**	**804**	**56**	**2,684**	**0**
Peak Hour HV	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**10**	**0**	**0**	**34**	**3**	**0**	**4**	**26**	**4**	**86**	**0**
Peak Hour HV%	**-**	**2%**	**0%**	**0%**	**-**	**5%**	**1%**	**8%**	**0%**	**0%**	**3%**	**4%**	**-**	**13%**	**3%**	**7%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	0	4	14	4	*22*	0	1	0	0	*1*	0	1	0	1	*2*
4:45 PM	**1**	**4**	**12**	**9**	***26***	**0**	**0**	**2**	**0**	***2***	**1**	**1**	**2**	**3**	*7*
5:00 PM	**0**	**5**	**9**	**10**	***24***	**0**	**1**	**2**	**2**	***5***	**1**	**1**	**0**	**2**	*4*
5:15 PM	**0**	**3**	**10**	**11**	***24***	**1**	**0**	**2**	**0**	***3***	**0**	**0**	**0**	**1**	*1*
5:30 PM	**0**	**2**	**6**	**4**	***12***	**0**	**2**	**1**	**0**	***3***	**1**	**0**	**1**	**2**	***4***
5:45 PM	2	1	15	7	*25*	0	3	0	0	*3*	2	0	2	1	*5*
6:00 PM	0	2	8	3	*13*	0	2	2	0	*4*	1	0	1	1	*3*
6:15 PM	0	4	13	6	*23*	0	1	1	1	*3*	0	0	0	1	*1*
Count Total	3	25	87	54	*169*	1	10	10	3	*24*	6	3	6	12	*27*
Peak Hour	**1**	**14**	**37**	**34**	***86***	**1**	**3**	**7**	**2**	***13***	**3**	**2**	**3**	**8**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Old County Rd				Tunnel Ave				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	1	0	3	0	0	14	0	0	1	3	0	22	0
4:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**12**	**0**	**0**	**2**	**5**	**2**	**26**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	**0**	**0**	**7**	**2**	**0**	**1**	**9**	**0**	**24**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**10**	**0**	**0**	**1**	**9**	**1**	**24**	96
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**5**	**1**	**0**	**0**	**3**	**1**	**12**	**86**
5:45 PM	0	0	0	2	0	0	0	1	0	0	13	2	0	2	4	1	25	85
6:00 PM	0	0	0	0	0	1	0	1	0	0	7	1	0	0	2	1	13	74
6:15 PM	0	0	0	0	0	2	0	2	0	0	13	0	0	1	5	0	23	73
Count Total	0	1	0	2	0	7	1	17	0	0	81	6	0	8	40	6	169	0
Peak Hour	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**10**	**0**	**0**	**34**	**3**	**0**	**4**	**26**	**4**	**86**	**0**

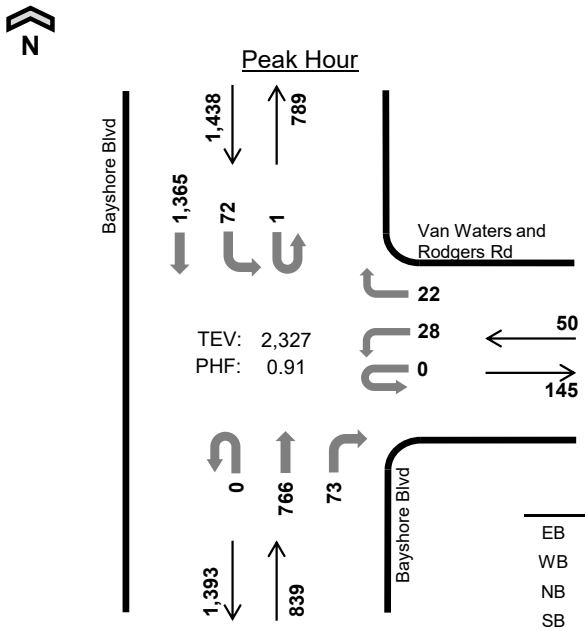
Two-Hour Count Summaries - Bikes

Interval Start	Old County Rd			Tunnel Ave			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	1	0	0	0	0	0	0	0	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	0
5:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**5**	0
5:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**3**	11
5:30 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**13**
5:45 PM	0	0	0	0	3	0	0	0	0	0	0	0	3	14
6:00 PM	0	0	0	1	1	0	0	2	0	0	0	0	4	13
6:15 PM	0	0	0	1	0	0	0	1	0	0	1	0	3	13
Count Total	0	1	0	3	5	2	0	10	0	0	3	0	24	0
Peak Hour	**0**	**1**	**0**	**0**	**1**	**2**	**0**	**7**	**0**	**0**	**2**	**0**	**13**	**0**

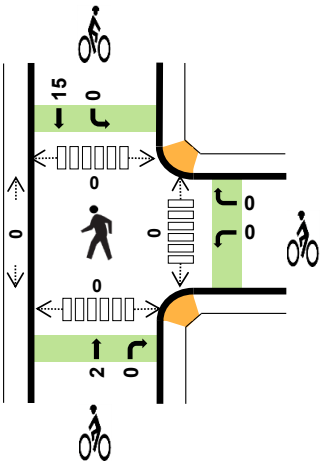
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Van Waters and Rodgers Rd

Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	-	-
WB	6.0%	0.54
NB	6.9%	0.89
SB	5.0%	0.90
TOTAL	5.7%	0.91



Two-Hour Count Summaries

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	5	0	2	1	0	163	17	1	8	236	0	433	0
7:15 AM	0	0	0	0	0	1	0	1	1	0	190	9	0	5	259	0	466	0
7:30 AM	0	0	0	0	0	3	0	0	0	0	186	16	0	3	298	0	506	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	**0**	**0**	**216**	**19**	**0**	**18**	**383**	**0**	**642**	2,047
8:00 AM	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**7**	**0**	**0**	**174**	**20**	**1**	**24**	**313**	**0**	**555**	2,169
8:15 AM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**4**	**0**	**0**	**188**	**11**	**0**	**10**	**348**	**0**	**568**	2,271
8:30 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**8**	**0**	**0**	**188**	**23**	**0**	**20**	**321**	**0**	**562**	**2,327**
8:45 AM	0	0	0	0	0	3	0	7	0	0	197	23	0	31	312	0	573	2,258
Count Total	0	0	0	0	0	40	0	32	2	0	1,502	138	2	119	2,470	0	4,305	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**28**	**0**	**22**	**0**	**0**	**766**	**73**	**1**	**72**	**1,365**	**0**	**2,327**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**58**	**0**	**0**	**3**	**69**	**0**	**133**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**14%**	**-**	**-**	**8%**	**0%**	**0%**	**4%**	**5%**	**-**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	1	13	17	*31*	0	0	2	0	*2*	0	0	0	0	*0*
7:15 AM	0	1	14	15	*30*	0	0	0	1	*1*	0	0	0	0	*0*
7:30 AM	0	0	14	22	*36*	0	0	0	2	*2*	0	0	0	0	*0*
7:45 AM	**0**	**2**	**17**	**27**	***46***	**0**	**0**	**1**	**5**	***6***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**11**	**12**	***23***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**1**	**6**	**20**	***27***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**0**	**24**	**13**	***37***	**0**	**0**	**0**	**7**	***7***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	1	11	12	*24*	0	0	1	1	*2*	0	0	0	0	*0*
Count Total	0	6	110	138	*254*	0	0	5	19	*24*	0	0	0	0	*0*
Peak Hr	**0**	**3**	**58**	**72**	***133***	**0**	**0**	**2**	**15**	***17***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	1	0	0	0	0	13	0	0	0	17	0	31	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	14	0	0	1	14	0	30	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	14	0	0	0	22	0	36	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**17**	**0**	**0**	**1**	**26**	**0**	**46**	143
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**1**	**11**	**0**	**23**	135
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**1**	**19**	**0**	**27**	132
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**24**	**0**	**0**	**0**	**13**	**0**	**37**	**133**
8:45 AM	0	0	0	0	0	0	0	1	0	0	11	0	0	1	11	0	24	111
Count Total	0	0	0	0	0	1	0	5	0	0	110	0	0	5	133	0	254	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**58**	**0**	**0**	**3**	**69**	**0**	**133**	**0**

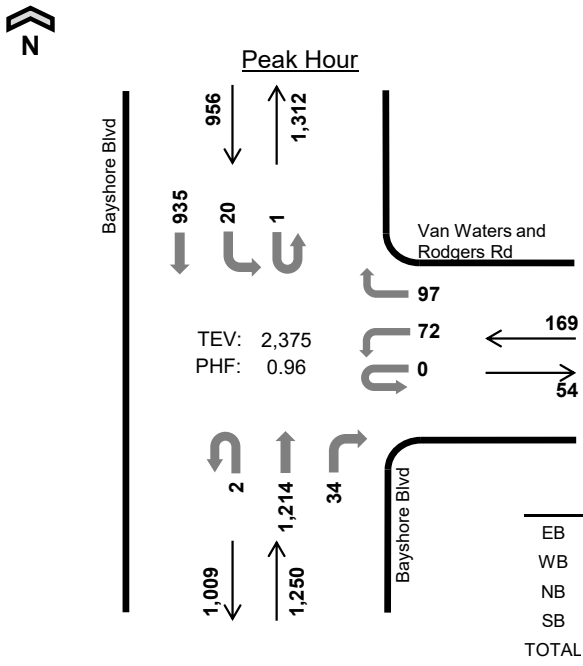
Two-Hour Count Summaries - Bikes

Interval Start	n/a			Van Waters and Rodgers Rd			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	2	0	0	0	0	2	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	**0**	**6**	11
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	11
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	12
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**	**17**
8:45 AM	0	0	0	0	0	0	0	0	1	0	1	0	2	13
Count Total	0	0	0	0	0	0	0	4	1	0	19	0	24	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**15**	**0**	**17**	**0**

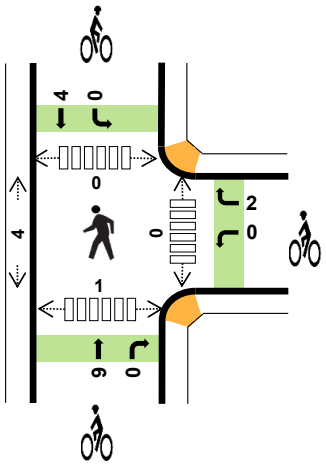
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Van Waters and Rodgers Rd

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM



	HV %:	PHF
EB	-	-
WB	3.6%	0.50
NB	3.2%	0.94
SB	2.9%	0.89
TOTAL	3.1%	0.96



Two-Hour Count Summaries

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	12	0	11	0	0	254	3	0	4	213	0	497	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**16**	**2**	**0**	**288**	**5**	**0**	**2**	**227**	**0**	**548**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**18**	**0**	**0**	**282**	**12**	**1**	**4**	**264**	**0**	**590**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**16**	**0**	**0**	**322**	**11**	**0**	**8**	**246**	**0**	**620**	2,255
5:30 PM	**0**	**0**	**0**	**0**	**0**	**38**	**0**	**47**	**0**	**0**	**322**	**6**	**0**	**6**	**198**	**0**	**617**	**2,375**
5:45 PM	0	0	0	0	0	15	0	15	0	0	312	7	0	6	174	0	529	2,356
6:00 PM	0	0	0	0	0	11	0	9	0	0	301	4	0	5	172	0	502	2,268
6:15 PM	0	0	0	0	0	4	0	13	1	0	260	5	0	3	156	0	442	2,090
Count Total	0	0	0	0	0	114	0	145	3	0	2,341	53	1	38	1,650	0	4,345	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**72**	**0**	**97**	**2**	**0**	**1,214**	**34**	**1**	**20**	**935**	**0**	**2,375**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**0**	**0**	**37**	**3**	**0**	**3**	**25**	**0**	**74**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**3%**	**-**	**4%**	**0%**	**-**	**3%**	**9%**	**0%**	**15%**	**3%**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	0	2	10	6	*18*	0	0	1	1	*2*	0	0	0	1	*1*
4:45 PM	**0**	**2**	**10**	**4**	***16***	**0**	**0**	**3**	**1**	***4***	**0**	**1**	**0**	**1**	*2*
5:00 PM	**0**	**0**	**10**	**10**	***20***	**0**	**0**	**2**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**2**	**13**	**10**	***25***	**0**	**0**	**3**	**3**	***6***	**0**	**3**	**0**	**0**	*3*
5:30 PM	**0**	**2**	**7**	**4**	***13***	**0**	**2**	**1**	**0**	***3***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	3	11	6	*20*	0	0	2	0	*2*	1	1	0	0	*2*
6:00 PM	0	0	10	3	*13*	0	0	1	1	*2*	0	2	0	0	*2*
6:15 PM	0	1	11	7	*19*	0	0	0	2	*2*	0	0	0	0	*0*
Count Total	0	12	82	50	*144*	0	2	13	8	*23*	1	7	0	2	*10*
Peak Hr	**0**	**6**	**40**	**28**	***74***	**0**	**2**	**9**	**4**	***15***	**0**	**4**	**0**	**1**	***5***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	n/a				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	1	0	1	0	0	10	0	0	2	4	0	18	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**10**	**0**	**0**	**0**	**4**	**0**	**16**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**0**	**2**	**8**	**0**	**20**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**10**	**3**	**0**	**0**	**10**	**0**	**25**	79
5:30 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**1**	**3**	**0**	**13**	**74**
5:45 PM	0	0	0	0	0	0	0	3	0	0	11	0	0	1	5	0	20	78
6:00 PM	0	0	0	0	0	0	0	0	0	0	10	0	0	1	2	0	13	71
6:15 PM	0	0	0	0	0	0	0	1	0	0	10	1	0	1	6	0	19	65
Count Total	0	0	0	0	0	3	0	9	0	0	78	4	0	8	42	0	144	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**4**	**0**	**0**	**37**	**3**	**0**	**3**	**25**	**0**	**74**	**0**

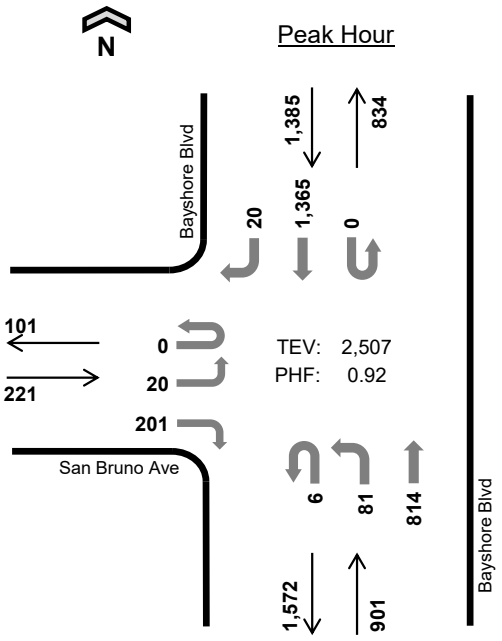
Two-Hour Count Summaries - Bikes

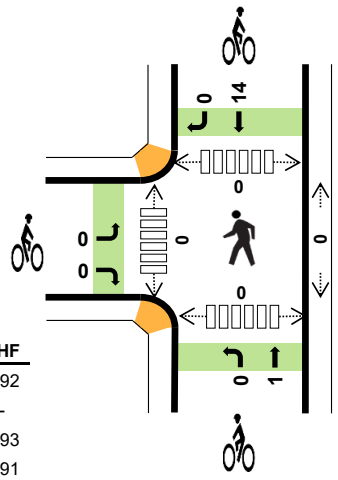
Interval Start	n/a			Van Waters and Rodgers Rd			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**3**	**0**	**6**	14
5:30 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	**15**
5:45 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	13
6:00 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	13
6:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	2	9
Count Total	0	0	0	0	0	2	0	13	0	0	8	0	23	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**9**	**0**	**0**	**4**	**0**	**15**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
San Bruno Ave

Date: 05-01-2019
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	1.8%	0.92
WB	-	-
NB	6.3%	0.93
SB	5.2%	0.91
TOTAL	5.3%	0.92

Two-Hour Count Summaries

Interval Start	San Bruno Ave Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	0	31	0	0	0	0	0	21	164	0	0	0	248	1	467	0
7:15 AM	0	3	0	35	0	0	0	0	5	14	194	0	0	0	259	2	512	0
7:30 AM	0	5	0	39	0	0	0	0	0	20	199	0	0	0	320	2	585	0
7:45 AM	**0**	**5**	**0**	**53**	**0**	**0**	**0**	**0**	**1**	**20**	**220**	**0**	**0**	**0**	**376**	**3**	**678**	2,242
8:00 AM	**0**	**6**	**0**	**51**	**0**	**0**	**0**	**0**	**0**	**22**	**200**	**0**	**0**	**0**	**310**	**6**	**595**	2,370
8:15 AM	**0**	**5**	**0**	**55**	**0**	**0**	**0**	**0**	**3**	**13**	**179**	**0**	**0**	**0**	**333**	**5**	**593**	2,451
8:30 AM	**0**	**4**	**0**	**42**	**0**	**0**	**0**	**0**	**2**	**26**	**215**	**0**	**0**	**0**	**346**	**6**	**641**	**2,507**
8:45 AM	0	1	0	41	0	0	0	0	1	12	220	0	0	0	284	3	562	2,391
Count Total	0	31	0	347	0	0	0	0	12	148	1,591	0	0	0	2,476	28	4,633	0
Peak Hour All	**0**	**20**	**0**	**201**	**0**	**0**	**0**	**0**	**6**	**81**	**814**	**0**	**0**	**0**	**1,365**	**20**	**2,507**	**0**
Peak Hour HV	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**54**	**0**	**0**	**0**	**72**	**0**	**133**	**0**
Peak Hour HV%	**-**	**15%**	**-**	**0%**	**-**	**-**	**-**	**-**	**17%**	**2%**	**7%**	**-**	**-**	**-**	**5%**	**0%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	2	0	11	18	*31*	0	0	1	0	*1*	0	0	0	0	*0*
7:15 AM	0	0	15	14	*29*	0	0	0	1	*1*	0	0	0	0	*0*
7:30 AM	3	0	12	21	*36*	0	0	1	2	*3*	0	0	0	0	*0*
7:45 AM	**0**	**0**	**19**	**28**	***47***	**0**	**0**	**0**	**4**	***4***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**3**	**0**	**11**	**13**	***27***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**0**	**0**	**5**	**17**	***22***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**1**	**0**	**22**	**14**	***37***	**0**	**0**	**0**	**7**	***7***	**0**	**0**	**0**	**0**	***0***
8:45 AM	2	0	13	11	*26*	0	0	1	1	*2*	0	0	0	0	*0*
Count Total	11	0	108	136	*255*	0	0	4	18	*22*	0	0	0	0	*0*
Peak Hr	**4**	**0**	**57**	**72**	***133***	**0**	**0**	**1**	**14**	***15***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	San Bruno Ave				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	1	0	0	0	0	0	1	10	0	0	0	18	0	31	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	15	0	0	0	14	0	29	0
7:30 AM	0	1	0	2	0	0	0	0	0	0	12	0	0	0	21	0	36	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**17**	**0**	**0**	**0**	**28**	**0**	**47**	143
8:00 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**10**	**0**	**0**	**0**	**13**	**0**	**27**	139
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**17**	**0**	**22**	132
8:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**22**	**0**	**0**	**0**	**14**	**0**	**37**	**133**
8:45 AM	0	1	0	1	0	0	0	0	0	0	13	0	0	0	10	1	26	112
Count Total	0	6	0	5	0	0	0	0	1	3	104	0	0	0	135	1	255	0
Peak Hour	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**54**	**0**	**0**	**0**	**72**	**0**	**133**	**0**

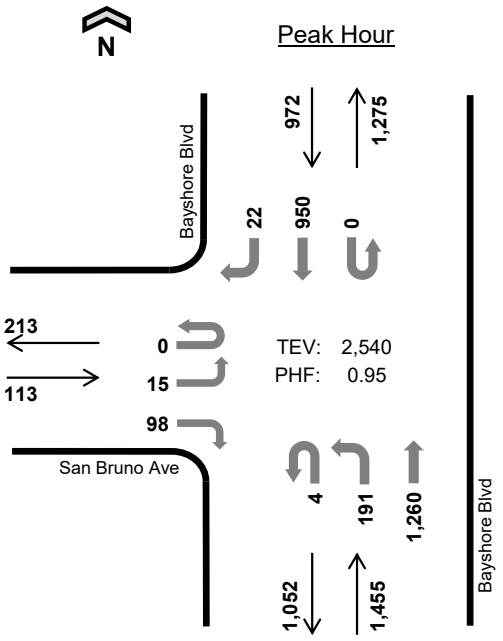
Two-Hour Count Summaries - Bikes

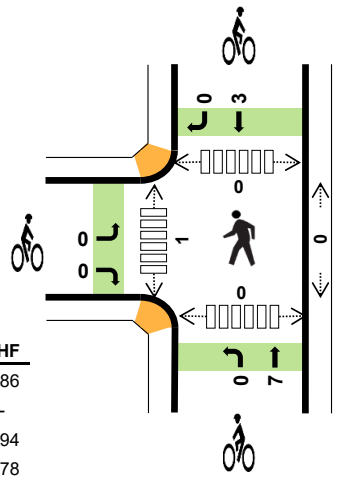
Interval Start	San Bruno Ave			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:30 AM	0	0	0	0	0	0	0	1	0	0	2	0	3	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	9
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	10
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	11
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**7**	**15**
8:45 AM	0	0	0	0	0	0	0	1	0	0	1	0	2	13
Count Total	0	0	0	0	0	0	0	4	0	0	18	0	22	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**14**	**0**	**15**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
San Bruno Ave

Date: 05-01-2019
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	3.5%	0.86
WB	-	-
NB	2.5%	0.94
SB	2.9%	0.78
TOTAL	2.7%	0.95

Two-Hour Count Summaries

Interval Start		San Bruno Ave Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	1	0	32	0	0	0	0	2	44	262	0	0	0	233	6	580	0
4:45 PM		0	1	0	17	0	0	0	0	2	39	292	0	0	0	207	8	566	0
5:00 PM		**0**	**5**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**40**	**285**	**0**	**0**	**0**	**303**	**7**	**668**	0
5:15 PM		**0**	**1**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**52**	**334**	**0**	**0**	**0**	**238**	**5**	**648**	2,462
5:30 PM		**0**	**4**	**0**	**24**	**0**	**0**	**0**	**0**	**2**	**49**	**313**	**0**	**0**	**0**	**245**	**3**	**640**	2,522
5:45 PM		**0**	**5**	**0**	**28**	**0**	**0**	**0**	**0**	**2**	**50**	**328**	**0**	**0**	**0**	**164**	**7**	**584**	**2,540**
6:00 PM		0	4	0	31	0	0	0	0	3	56	296	0	0	0	177	7	574	2,446
6:15 PM		0	4	0	24	0	0	0	0	4	40	260	0	0	0	156	5	493	2,291
Count Total		0	25	0	202	0	0	0	0	15	370	2,370	0	0	0	1,723	48	4,753	0
Peak Hour	**All**	**0**	**15**	**0**	**98**	**0**	**0**	**0**	**0**	**4**	**191**	**1,260**	**0**	**0**	**0**	**950**	**22**	**2,540**	**0**
	HV	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**34**	**0**	**0**	**0**	**28**	**0**	**68**	**0**
	HV%	**-**	**27%**	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**1%**	**3%**	**-**	**-**	**-**	**3%**	**0%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:30 PM	0	0	8	5	*13*	0	0	1	1	*2*	0	0	0	0	*0*
4:45 PM	1	0	13	5	*19*	0	0	3	1	*4*	0	0	0	0	*0*
5:00 PM	**2**	**0**	**6**	**9**	***17***	**0**	**0**	**2**	**1**	***3***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**14**	**9**	***23***	**0**	**0**	**2**	**2**	***4***	**0**	**1**	**0**	**0**	*1*
5:30 PM	**2**	**0**	**5**	**5**	***12***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**0**	**0**	**11**	**5**	***16***	**0**	**0**	**2**	**0**	***2***	**0**	**0**	**0**	**0**	***0***
6:00 PM	2	0	8	3	*13*	0	0	0	1	*1*	0	0	0	0	*0*
6:15 PM	1	0	12	6	*19*	0	0	0	1	*1*	0	0	0	0	*0*
Count Total	8	0	77	47	*132*	0	0	11	7	*18*	0	1	0	0	*1*
Peak Hr	**4**	**0**	**36**	**28**	***68***	**0**	**0**	**7**	**3**	***10***	**0**	**1**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	San Bruno Ave				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	0	0	1	7	0	0	0	5	0	13	0
4:45 PM	0	0	0	1	0	0	0	0	0	0	13	0	0	0	5	0	19	0
5:00 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**9**	**0**	**17**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**12**	**0**	**0**	**0**	**9**	**0**	**23**	72
5:30 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**5**	**0**	**12**	71
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**5**	**0**	**16**	**68**
6:00 PM	0	2	0	0	0	0	0	0	0	0	8	0	0	0	3	0	13	64
6:15 PM	0	0	0	1	0	0	0	0	0	0	12	0	0	0	6	0	19	60
Count Total	0	6	0	2	0	0	0	0	0	3	74	0	0	0	47	0	132	0
Peak Hour	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**34**	**0**	**0**	**0**	**28**	**0**	**68**	**0**

Two-Hour Count Summaries - Bikes

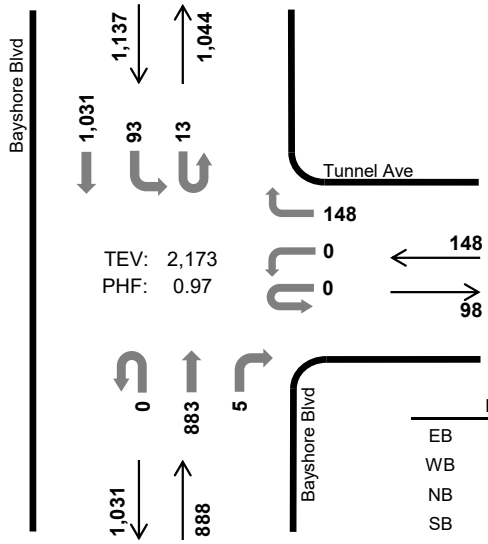
Interval Start	San Bruno Ave			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	0
4:45 PM	0	0	0	0	0	0	0	3	0	0	1	0	4	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**4**	13
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	12
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**10**
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	8
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	5
Count Total	0	0	0	0	0	0	0	11	0	0	7	0	18	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**3**	**0**	**10**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

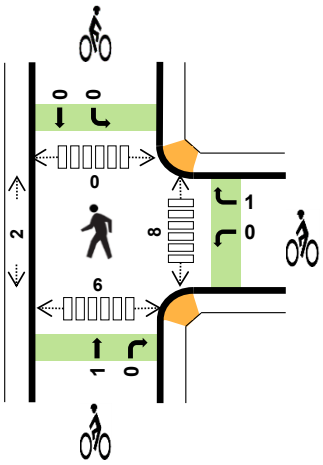
Bayshore Blvd
Tunnel Ave

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour



	HV %:	PHF
EB	-	-
WB	2.0%	0.77
NB	2.8%	0.93
SB	3.5%	0.99
TOTAL	3.1%	0.97



Two-Hour Count Summaries

Interval Start	N/A Eastbound UT	LT	TH	RT	Tunnel Ave Westbound UT	LT	TH	RT	Bayshore Blvd Northbound UT	LT	TH	RT	Bayshore Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:30 PM	0	0	0	0	0	0	0	52	0	0	234	1	4	26	226	0	543	0
4:45 PM	0	0	0	0	0	0	0	42	0	0	217	0	2	20	243	0	524	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**40**	**0**	**0**	**238**	**1**	**2**	**22**	**258**	**0**	**561**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**27**	**0**	**0**	**223**	**1**	**6**	**26**	**254**	**0**	**537**	2,165
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**33**	**0**	**0**	**214**	**2**	**1**	**14**	**271**	**0**	**535**	2,157
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**48**	**0**	**0**	**208**	**1**	**4**	**31**	**248**	**0**	**540**	**2,173**
6:00 PM	0	0	0	0	0	0	0	43	0	0	175	0	3	19	184	0	424	2,036
6:15 PM	0	0	0	0	0	0	0	27	0	0	140	0	1	14	187	0	369	1,868
Count Total	0	0	0	0	0	0	0	312	0	0	1,649	6	23	172	1,871	0	4,033	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**148**	**0**	**0**	**883**	**5**	**13**	**93**	**1,031**	**0**	**2,173**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**25**	**0**	**0**	**4**	**36**	**0**	**68**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**2%**	**-**	**-**	**3%**	**0%**	**0%**	**4%**	**3%**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:30 PM	0	5	6	11	*22*	0	2	0	0	*2*	2	2	0	1	*5*
4:45 PM	0	0	9	12	*21*	0	1	0	1	*2*	2	1	0	0	*3*
5:00 PM	**0**	**1**	**6**	**7**	***14***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**2**	**12**	***14***	**0**	**1**	**0**	**0**	***1***	**3**	**1**	**0**	**5**	*9*
5:30 PM	**0**	**1**	**10**	**15**	***26***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**0**	**1**	**7**	**6**	***14***	**0**	**0**	**0**	**0**	***0***	**5**	**1**	**0**	**1**	***7***
6:00 PM	0	1	7	8	*16*	0	0	0	1	*1*	4	1	0	1	*6*
6:15 PM	0	2	6	7	*15*	0	1	0	0	*1*	0	0	0	0	*0*
Count Total	0	11	53	78	*142*	0	5	1	2	*8*	16	6	0	8	*30*
Peak Hr	**0**	**3**	**25**	**40**	***68***	**0**	**1**	**1**	**0**	***2***	**8**	**2**	**0**	**6**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	N/A				Tunnel Ave				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	5	0	0	6	0	0	2	9	0	22	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	9	0	0	1	11	0	21	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**0**	**7**	**0**	**14**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**11**	**0**	**14**	71
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**10**	**0**	**0**	**0**	**15**	**0**	**26**	75
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**7**	**0**	**0**	**3**	**3**	**0**	**14**	**68**
6:00 PM	0	0	0	0	0	0	0	1	0	0	7	0	0	2	6	0	16	70
6:15 PM	0	0	0	0	0	0	0	2	0	0	6	0	0	0	7	0	15	71
Count Total	0	0	0	0	0	0	0	11	0	0	53	0	0	9	69	0	142	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**25**	**0**	**0**	**4**	**36**	**0**	**68**	**0**

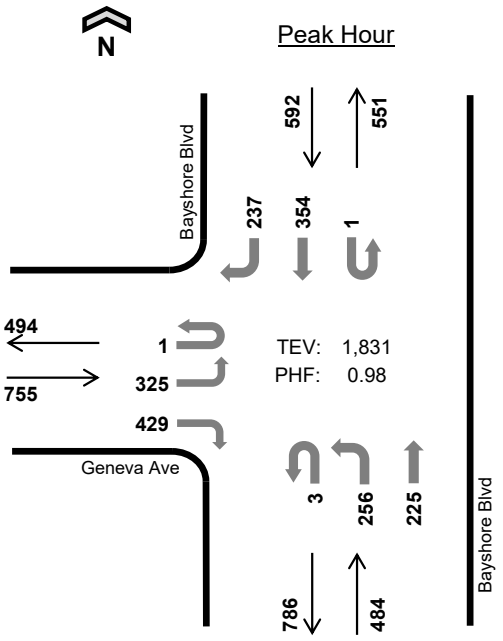
Two-Hour Count Summaries - Bikes

Interval Start	N/A			Tunnel Ave			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	2	0
4:45 PM	0	0	0	0	0	1	0	0	0	1	0	0	2	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	5
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	4
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**
6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	1	3
6:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	3
Count Total	0	0	0	0	0	5	0	1	0	2	0	0	8	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**

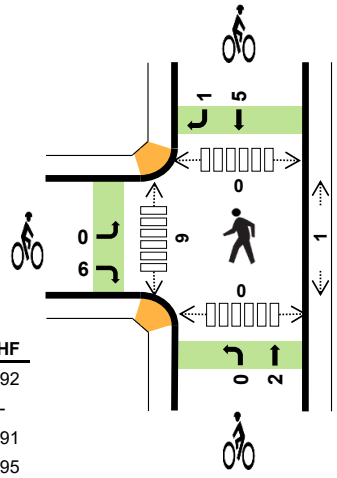
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Geneva Ave

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	6.0%	0.92
WB	-	-
NB	15.1%	0.91
SB	9.1%	0.95
TOTAL	9.4%	0.98



Two-Hour Count Summaries

Interval Start	Geneva Ave Eastbound				N/A Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	105	0	71	0	0	0	0	0	55	67	0	0	0	99	34	431	0
7:15 AM	0	103	0	99	0	0	0	0	0	50	73	0	0	0	90	33	448	0
7:30 AM	**0**	**93**	**0**	**113**	**0**	**0**	**0**	**0**	**1**	**55**	**60**	**0**	**0**	**0**	**82**	**54**	**458**	0
7:45 AM	**0**	**82**	**0**	**105**	**0**	**0**	**0**	**0**	**1**	**61**	**54**	**0**	**0**	**0**	**100**	**50**	**453**	1,790
8:00 AM	**1**	**76**	**0**	**102**	**0**	**0**	**0**	**0**	**1**	**74**	**58**	**0**	**0**	**0**	**86**	**69**	**467**	1,826
8:15 AM	**0**	**74**	**0**	**109**	**0**	**0**	**0**	**0**	**0**	**66**	**53**	**0**	**1**	**0**	**86**	**64**	**453**	**1,831**
8:30 AM	0	67	0	112	0	0	0	0	1	61	46	0	0	0	80	67	434	1,807
8:45 AM	0	58	0	90	0	0	0	0	0	53	42	0	1	0	95	61	400	1,754
Count Total	1	658	0	801	0	0	0	0	4	475	453	0	2	0	718	432	3,544	0
Peak Hour All	**1**	**325**	**0**	**429**	**0**	**0**	**0**	**0**	**3**	**256**	**225**	**0**	**1**	**0**	**354**	**237**	**1,831**	**0**
Peak Hour HV	**0**	**29**	**0**	**16**	**0**	**0**	**0**	**0**	**1**	**21**	**51**	**0**	**1**	**0**	**30**	**23**	**172**	**0**
Peak Hour HV%	**0%**	**9%**	**-**	**4%**	**-**	**-**	**-**	**-**	**33%**	**8%**	**23%**	**-**	**100%**	**-**	**8%**	**10%**	**9%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	18	0	21	10	*49*	1	0	0	3	*4*	1	4	0	0	*5*
7:15 AM	17	0	23	15	*55*	1	0	0	0	*1*	1	4	0	1	*6*
7:30 AM	**11**	**0**	**20**	**14**	***45***	**0**	**0**	**1**	**1**	***2***	**1**	**2**	**0**	**0**	*3*
7:45 AM	**7**	**0**	**16**	**18**	***41***	**0**	**0**	**0**	**2**	***2***	**0**	**4**	**0**	**0**	*4*
8:00 AM	**15**	**0**	**19**	**12**	***46***	**2**	**0**	**1**	**3**	***6***	**0**	**1**	**0**	**0**	*1*
8:15 AM	**12**	**0**	**18**	**10**	***40***	**4**	**0**	**0**	**0**	***4***	**0**	**2**	**0**	**0**	***2***
8:30 AM	13	0	11	12	*36*	3	0	0	1	*4*	1	3	0	1	*5*
8:45 AM	9	0	9	17	*35*	2	0	0	2	*4*	0	0	0	1	*1*
Count Total	102	0	137	108	*347*	13	0	2	12	*27*	4	20	0	3	*27*
Peak Hr	**45**	**0**	**73**	**54**	***172***	**6**	**0**	**2**	**6**	***14***	**1**	**9**	**0**	**0**	***10***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave Eastbound				N/A Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	10	0	8	0	0	0	0	0	8	13	0	0	0	6	4	49	0
7:15 AM	0	5	0	12	0	0	0	0	0	4	19	0	0	0	9	6	55	0
7:30 AM	**0**	**6**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**3**	**16**	**0**	**0**	**0**	**7**	**7**	**45**	0
7:45 AM	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**7**	**9**	**0**	**0**	**0**	**10**	**8**	**41**	190
8:00 AM	**0**	**10**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**6**	**13**	**0**	**0**	**0**	**9**	**3**	**46**	187
8:15 AM	**0**	**8**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**5**	**13**	**0**	**1**	**0**	**4**	**5**	**40**	**172**
8:30 AM	0	7	0	6	0	0	0	0	0	5	6	0	0	0	6	6	36	163
8:45 AM	0	7	0	2	0	0	0	0	0	3	6	0	1	0	8	8	35	157
Count Total	0	58	0	44	0	0	0	0	1	41	95	0	2	0	59	47	347	0
Peak Hour	**0**	**29**	**0**	**16**	**0**	**0**	**0**	**0**	**1**	**21**	**51**	**0**	**1**	**0**	**30**	**23**	**172**	**0**

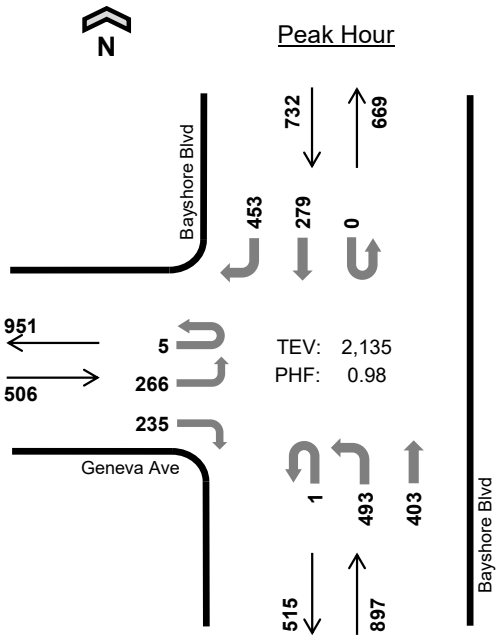
Two-Hour Count Summaries - Bikes

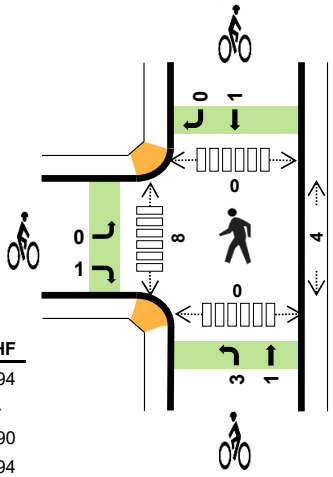
Interval Start	Geneva Ave Eastbound			N/A Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	1	0	0	0	0	0	0	0	3	0	4	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	9
8:00 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**1**	**6**	11
8:15 AM	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**14**
8:30 AM	0	0	3	0	0	0	0	0	0	0	1	0	4	16
8:45 AM	0	0	2	0	0	0	0	0	0	0	2	0	4	18
Count Total	0	0	13	0	0	0	0	2	0	0	11	1	27	0
Peak Hour	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**5**	**1**	**14**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Geneva Ave

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	4.5%	0.94
WB	-	-
NB	1.8%	0.90
SB	3.7%	0.94
TOTAL	3.1%	0.98

Two-Hour Count Summaries

Interval Start		Geneva Ave Eastbound				N/A Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		2	71	0	67	0	0	0	0	1	115	100	0	0	0	58	85	499	0
4:45 PM		**0**	**64**	**0**	**70**	**0**	**0**	**0**	**0**	**0**	**113**	**98**	**0**	**0**	**0**	**69**	**104**	**518**	0
5:00 PM		**2**	**71**	**0**	**51**	**0**	**0**	**0**	**0**	**0**	**103**	**116**	**0**	**0**	**0**	**83**	**111**	**537**	0
5:15 PM		**3**	**53**	**0**	**63**	**0**	**0**	**0**	**0**	**0**	**135**	**114**	**0**	**0**	**0**	**71**	**99**	**538**	2,092
5:30 PM		**0**	**78**	**0**	**51**	**0**	**0**	**0**	**0**	**1**	**142**	**75**	**0**	**0**	**0**	**56**	**139**	**542**	**2,135**
5:45 PM		1	80	0	56	0	0	0	0	1	124	85	0	0	0	60	106	513	2,130
6:00 PM		2	52	0	55	0	0	0	0	0	106	74	0	0	0	65	91	445	2,038
6:15 PM		0	53	0	53	0	0	0	0	0	86	63	0	0	0	36	82	373	1,873
Count Total		10	522	0	466	0	0	0	0	3	924	725	0	0	0	498	817	3,965	0
Peak Hour	**All**	**5**	**266**	**0**	**235**	**0**	**0**	**0**	**0**	**1**	**493**	**403**	**0**	**0**	**0**	**279**	**453**	**2,135**	**0**
	HV	**0**	**13**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**2**	**14**	**0**	**0**	**0**	**13**	**14**	**66**	**0**
	HV%	**0%**	**5%**	**-**	**4%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**3%**	**-**	**-**	**-**	**5%**	**3%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:30 PM	6	0	8	9	*23*	1	0	0	0	*1*	0	3	0	1	*4*
4:45 PM	**7**	**0**	**4**	**7**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**0**	**0**	*3*
5:00 PM	**6**	**0**	**1**	**2**	***9***	**0**	**0**	**1**	**0**	***1***	**3**	**2**	**0**	**0**	*5*
5:15 PM	**4**	**0**	**6**	**6**	***16***	**0**	**0**	**2**	**1**	***3***	**0**	**1**	**0**	**0**	*1*
5:30 PM	**6**	**0**	**5**	**12**	***23***	**1**	**0**	**1**	**0**	***2***	**1**	**2**	**0**	**0**	***3***
5:45 PM	5	0	7	4	*16*	0	0	0	1	*1*	2	2	0	0	*4*
6:00 PM	6	0	4	4	*14*	3	0	0	1	*4*	1	1	0	1	*3*
6:15 PM	7	0	2	6	*15*	0	0	3	0	*3*	2	1	0	1	*4*
Count Total	47	0	37	50	*134*	5	0	7	3	*15*	9	15	0	3	*27*
Peak Hr	**23**	**0**	**16**	**27**	***66***	**1**	**0**	**4**	**1**	***6***	**4**	**8**	**0**	**0**	***12***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave				N/A				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	3	0	3	0	0	0	0	0	5	3	0	0	0	6	3	23	0
4:45 PM	**0**	**5**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**0**	**0**	**0**	**5**	**2**	**18**	0
5:00 PM	**0**	**4**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**9**	0
5:15 PM	**0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**5**	**0**	**0**	**0**	**4**	**2**	**16**	66
5:30 PM	**0**	**3**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**3**	**9**	**23**	**66**
5:45 PM	0	3	0	2	0	0	0	0	0	2	5	0	0	0	2	2	16	64
6:00 PM	0	6	0	0	0	0	0	0	0	2	2	0	0	0	3	1	14	69
6:15 PM	0	4	0	3	0	0	0	0	0	1	1	0	0	0	2	4	15	68
Count Total	0	29	0	18	0	0	0	0	0	12	25	0	0	0	26	24	134	0
Peak Hour	**0**	**13**	**0**	**10**	**0**	**0**	**0**	**0**	**0**	**2**	**14**	**0**	**0**	**0**	**13**	**14**	**66**	**0**

Two-Hour Count Summaries - Bikes

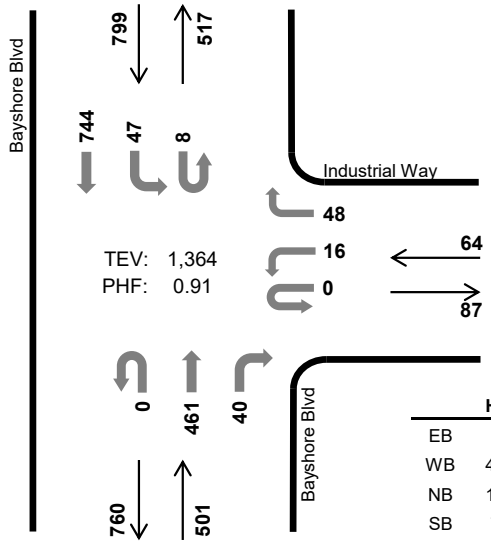
Interval Start	Geneva Ave			N/A			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	1	0	0	0	0	0	0	0	0	0	0	0	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**3**	5
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**6**
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	7
6:00 PM	0	0	3	0	0	0	0	0	0	0	1	0	4	10
6:15 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	10
Count Total	1	0	4	0	0	0	3	4	0	0	3	0	15	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**1**	**0**	**6**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

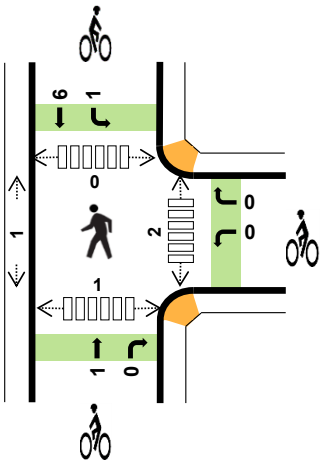
Bayshore Blvd
Industrial Way

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM

Peak Hour



	HV %:	PHF
EB	-	-
WB	46.9%	0.80
NB	13.4%	0.81
SB	7.6%	0.97
TOTAL	11.6%	0.91



Two-Hour Count Summaries

Interval Start	N/A Eastbound				Industrial Way Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	10	0	17	0	0	90	8	5	11	158	0	299	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**12**	**0**	**0**	**118**	**11**	**3**	**17**	**166**	**0**	**331**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**11**	**0**	**0**	**92**	**3**	**4**	**10**	**192**	**0**	**315**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**10**	**0**	**0**	**141**	**14**	**0**	**12**	**192**	**0**	**373**	1,318
8:00 AM	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**15**	**0**	**0**	**110**	**12**	**1**	**8**	**194**	**0**	**345**	**1,364**
8:15 AM	0	0	0	0	0	2	0	7	0	0	88	11	2	9	179	0	298	1,331
8:30 AM	0	0	0	0	0	3	0	7	0	0	104	3	2	2	191	0	312	1,328
8:45 AM	0	0	0	0	0	3	0	3	0	0	82	6	0	7	168	0	269	1,224
Count Total	0	0	0	0	0	34	0	82	0	0	825	68	17	76	1,440	0	2,542	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**48**	**0**	**0**	**461**	**40**	**8**	**47**	**744**	**0**	**1,364**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**24**	**0**	**0**	**61**	**6**	**1**	**7**	**53**	**0**	**158**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**38%**	**-**	**50%**	**-**	**-**	**13%**	**15%**	**13%**	**15%**	**7%**	**-**	**12%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	11	15	14	*40*	0	0	0	6	*6*	0	0	0	0	*0*
7:15 AM	**0**	**7**	**18**	**22**	***47***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***
7:30 AM	**0**	**6**	**12**	**11**	***29***	**0**	**0**	**1**	**1**	***2***	**2**	**0**	**0**	**1**	***3***
7:45 AM	**0**	**4**	**21**	**13**	***38***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	***0***
8:00 AM	**0**	**13**	**16**	**15**	***44***	**0**	**0**	**0**	**3**	***3***	**0**	**1**	**0**	**0**	***1***
8:15 AM	0	8	10	7	*25*	0	0	0	5	*5*	1	1	0	0	*2*
8:30 AM	0	3	8	13	*24*	0	0	0	4	*4*	0	0	0	1	*1*
8:45 AM	0	2	8	9	*19*	0	0	0	3	*3*	2	1	0	0	*3*
Count Total	0	54	108	104	*266*	0	0	1	25	*26*	5	3	0	2	*10*
Peak Hr	**0**	**30**	**67**	**61**	***158***	**0**	**0**	**1**	**7**	***8***	**2**	**1**	**0**	**1**	***4***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	N/A				Industrial Way				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	2	0	9	0	0	15	0	2	0	12	0	40	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**5**	**0**	**0**	**18**	**0**	**0**	**2**	**20**	**0**	**47**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**11**	**1**	**1**	**1**	**9**	**0**	**29**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**3**	**0**	**0**	**18**	**3**	**0**	**4**	**9**	**0**	**38**	154
8:00 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**10**	**0**	**0**	**14**	**2**	**0**	**0**	**15**	**0**	**44**	**158**
8:15 AM	0	0	0	0	0	2	0	6	0	0	9	1	0	0	7	0	25	136
8:30 AM	0	0	0	0	0	1	0	2	0	0	7	1	0	0	13	0	24	131
8:45 AM	0	0	0	0	0	1	0	1	0	0	7	1	0	1	8	0	19	112
Count Total	0	0	0	0	0	12	0	42	0	0	99	9	3	8	93	0	266	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**24**	**0**	**0**	**61**	**6**	**1**	**7**	**53**	**0**	**158**	**0**

Two-Hour Count Summaries - Bikes

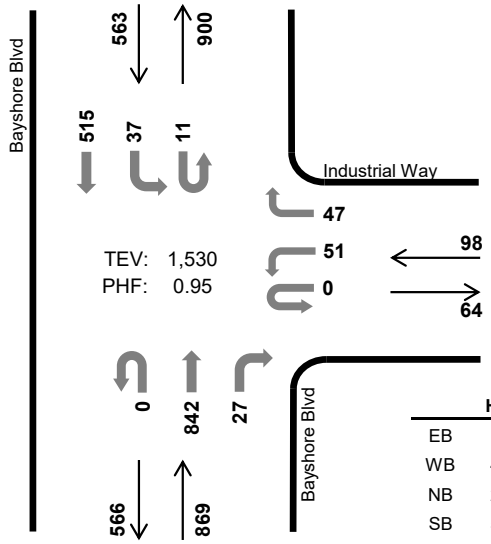
Interval Start	N/A			Industrial Way			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	2	4	0	6	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	11
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**3**	**8**
8:15 AM	0	0	0	0	0	0	0	0	0	0	5	0	5	12
8:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	4	14
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	15
Count Total	0	0	0	0	0	0	0	1	0	3	22	0	26	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**6**	**0**	**8**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

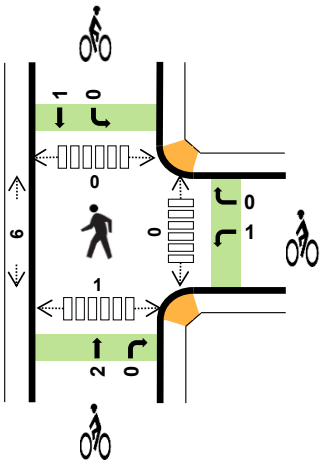
Bayshore Blvd
Industrial Way

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM

Peak Hour



	HV %:	PHF
EB	-	-
WB	4.1%	0.82
NB	2.2%	0.93
SB	5.3%	0.90
TOTAL	3.5%	0.95



Two-Hour Count Summaries

Interval Start	N/A Eastbound				Industrial Way Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**13**	**0**	**0**	**199**	**6**	**0**	**11**	**115**	**0**	**361**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**11**	**0**	**0**	**199**	**8**	**5**	**10**	**141**	**0**	**385**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**12**	**0**	**0**	**217**	**7**	**2**	**8**	**124**	**0**	**383**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**10**	**0**	**11**	**0**	**0**	**227**	**6**	**4**	**8**	**135**	**0**	**401**	**1,530**
5:30 PM	0	0	0	0	0	11	0	12	0	0	201	5	0	6	101	0	336	1,505
5:45 PM	0	0	0	0	0	5	0	9	0	0	196	4	1	5	115	0	335	1,455
6:00 PM	0	0	0	0	0	6	0	10	0	0	169	1	2	8	114	0	310	1,382
6:15 PM	0	0	0	0	0	3	0	9	0	0	140	4	0	5	82	0	243	1,224
Count Total	0	0	0	0	0	76	0	87	0	0	1,548	41	14	61	927	0	2,754	0
Peak Hour **All**	**0**	**0**	**0**	**0**	**0**	**51**	**0**	**47**	**0**	**0**	**842**	**27**	**11**	**37**	**515**	**0**	**1,530**	**0**
Peak Hour **HV**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**17**	**2**	**0**	**11**	**19**	**0**	**53**	**0**
Peak Hour **HV%**	**-**	**-**	**-**	**-**	**-**	**6%**	**-**	**2%**	**-**	**-**	**2%**	**7%**	**0%**	**30%**	**4%**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	**0**	**3**	**7**	**9**	***19***	**0**	**1**	**0**	**0**	***1***	**0**	**1**	**0**	**0**	*1*
4:45 PM	**0**	**1**	**4**	**6**	***11***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**1**	*2*
5:00 PM	**0**	**0**	**2**	**7**	***9***	**0**	**0**	**2**	**0**	***2***	**0**	**3**	**0**	**0**	*3*
5:15 PM	**0**	**0**	**6**	**8**	***14***	**0**	**0**	**0**	**1**	***1***	**0**	**1**	**0**	**0**	***1***
5:30 PM	0	3	5	5	*13*	0	0	1	0	*1*	0	1	0	0	*1*
5:45 PM	0	2	5	5	*12*	0	0	0	1	*1*	0	1	0	0	*1*
6:00 PM	0	0	3	3	*6*	0	0	0	3	*3*	0	1	0	0	*1*
6:15 PM	0	0	2	5	*7*	0	0	3	0	*3*	0	1	0	0	*1*
Count Total	0	9	34	48	*91*	0	1	6	5	*12*	0	10	0	1	*11*
Peak Hr	**0**	**4**	**19**	**30**	***53***	**0**	**1**	**2**	**1**	***4***	**0**	**6**	**0**	**1**	***7***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	N/A				Industrial Way				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**5**	**4**	**0**	**19**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**1**	**0**	**1**	**5**	**0**	**11**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**6**	**0**	**9**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**4**	**4**	**0**	**14**	**53**
5:30 PM	0	0	0	0	0	2	0	1	0	0	4	1	0	1	4	0	13	47
5:45 PM	0	0	0	0	0	0	0	2	0	0	5	0	0	0	5	0	12	48
6:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	0	1	2	0	6	45
6:15 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	5	0	7	38
Count Total	0	0	0	0	0	5	0	4	0	0	31	3	0	13	35	0	91	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**17**	**2**	**0**	**11**	**19**	**0**	**53**	**0**

Two-Hour Count Summaries - Bikes

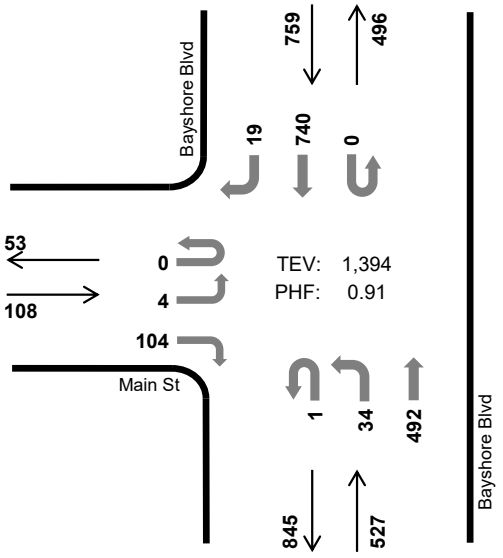
Interval Start	N/A			Industrial Way			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**4**
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	5
6:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	3	6
6:15 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	8
Count Total	0	0	0	1	0	0	0	6	0	0	5	0	12	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**4**	**0**

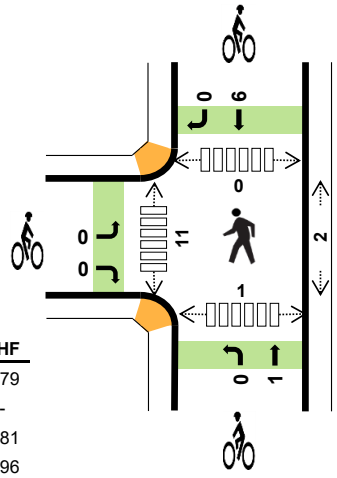
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Main St

Peak Hour

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:15 AM to 8:15 AM





	HV %:	PHF
EB	14.8%	0.79
WB	-	-
NB	13.3%	0.81
SB	7.5%	0.96
TOTAL	10.3%	0.91

Two-Hour Count Summaries

Interval Start		Main St Eastbound				N/A Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM		0	0	0	17	0	0	0	0	0	13	100	0	0	0	164	5	299	0
7:15 AM		**0**	**1**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**7**	**121**	**0**	**0**	**0**	**161**	**10**	**328**	0
7:30 AM		**0**	**2**	**0**	**32**	**0**	**0**	**0**	**0**	**1**	**9**	**95**	**0**	**0**	**0**	**193**	**1**	**333**	0
7:45 AM		**0**	**0**	**0**	**23**	**0**	**0**	**0**	**0**	**0**	**8**	**154**	**0**	**0**	**0**	**193**	**3**	**381**	1,341
8:00 AM		**0**	**1**	**0**	**21**	**0**	**0**	**0**	**0**	**0**	**10**	**122**	**0**	**0**	**0**	**193**	**5**	**352**	**1,394**
8:15 AM		0	2	0	13	0	0	0	0	0	8	98	0	0	0	179	3	303	1,369
8:30 AM		0	0	0	9	0	0	0	0	0	7	107	0	0	0	187	8	318	1,354
8:45 AM		0	1	0	14	0	0	0	0	1	5	88	0	0	0	165	4	278	1,251
Count Total		0	7	0	157	0	0	0	0	2	67	885	0	0	0	1,435	39	2,592	0
Peak Hour	**All**	**0**	**4**	**0**	**104**	**0**	**0**	**0**	**0**	**1**	**34**	**492**	**0**	**0**	**0**	**740**	**19**	**1,394**	**0**
	HV	**0**	**3**	**0**	**13**	**0**	**0**	**0**	**0**	**1**	**8**	**61**	**0**	**0**	**0**	**46**	**11**	**143**	**0**
	HV%	**-**	**75%**	**-**	**13%**	**-**	**-**	**-**	**-**	**100%**	**24%**	**12%**	**-**	**-**	**-**	**6%**	**58%**	**10%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	5	0	19	14	*38*	0	0	0	5	*5*	1	4	0	0	*5*
7:15 AM	**6**	**0**	**18**	**22**	***46***	**0**	**0**	**0**	**1**	***1***	**1**	**4**	**0**	**1**	*6*
7:30 AM	**7**	**0**	**16**	**9**	*32*	**0**	**0**	**1**	**1**	*2*	**1**	**2**	**0**	**0**	*3*
7:45 AM	**2**	**0**	**20**	**10**	*32*	**0**	**0**	**0**	**2**	*2*	**0**	**4**	**0**	**0**	*4*
8:00 AM	**1**	**0**	**16**	**16**	*33*	**0**	**0**	**0**	**2**	*2*	**0**	**1**	**0**	**0**	***1***
8:15 AM	1	0	8	10	*19*	0	0	0	5	*5*	0	2	0	0	*2*
8:30 AM	0	0	10	14	*24*	0	0	0	4	*4*	1	3	0	1	*5*
8:45 AM	1	0	8	8	*17*	0	0	0	3	*3*	0	0	0	1	*1*
Count Total	23	0	115	103	*241*	0	0	1	23	*24*	4	20	0	3	*27*
Peak Hr	**16**	**0**	**70**	**57**	***143***	**0**	**0**	**1**	**6**	***7***	**2**	**11**	**0**	**1**	***14***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Main St Eastbound				N/A Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	5	0	0	0	0	0	2	17	0	0	0	12	2	38	0
7:15 AM	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**2**	**16**	**0**	**0**	**0**	**16**	**6**	**46**	0
7:30 AM	**0**	**2**	**0**	**5**	**0**	**0**	**0**	**0**	**1**	**5**	**10**	**0**	**0**	**0**	**8**	**1**	**32**	0
7:45 AM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**	**0**	**0**	**9**	**1**	**32**	148
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**15**	**0**	**0**	**0**	**13**	**3**	**33**	**143**
8:15 AM	0	1	0	0	0	0	0	0	0	0	8	0	0	0	10	0	19	116
8:30 AM	0	0	0	0	0	0	0	0	0	2	8	0	0	0	10	4	24	108
8:45 AM	0	0	0	1	0	0	0	0	0	0	8	0	0	0	7	1	17	93
Count Total	0	4	0	19	0	0	0	0	1	12	102	0	0	0	85	18	241	0
Peak Hour	**0**	**3**	**0**	**13**	**0**	**0**	**0**	**0**	**1**	**8**	**61**	**0**	**0**	**0**	**46**	**11**	**143**	**0**

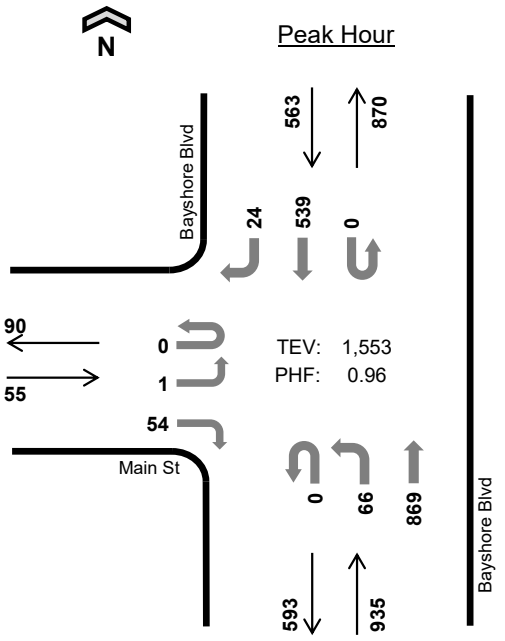
Two-Hour Count Summaries - Bikes

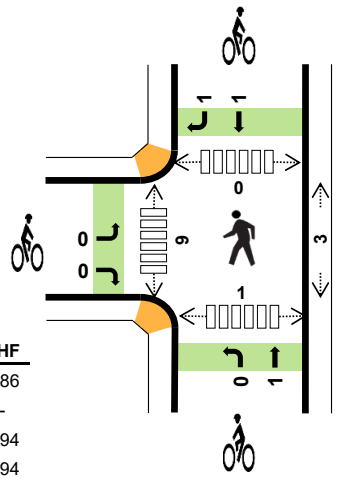
Interval Start	Main St Eastbound			N/A Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	5	0	5	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	10
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**7**
8:15 AM	0	0	0	0	0	0	0	0	0	0	5	0	5	11
8:30 AM	0	0	0	0	0	0	0	0	0	0	4	0	4	13
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	14
Count Total	0	0	0	0	0	0	0	1	0	0	23	0	24	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	**0**	**7**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Main St

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	10.9%	0.86
WB	-	-
NB	2.0%	0.94
SB	3.9%	0.94
TOTAL	3.0%	0.96

Two-Hour Count Summaries

Interval Start		Main St Eastbound				N/A Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		**0**	**1**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**13**	**204**	**0**	**0**	**0**	**130**	**2**	**365**	0
4:45 PM		**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**17**	**208**	**0**	**0**	**0**	**143**	**7**	**387**	0
5:00 PM		**0**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**21**	**228**	**0**	**0**	**0**	**131**	**8**	**403**	0
5:15 PM		**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**15**	**229**	**0**	**0**	**0**	**135**	**7**	**398**	**1,553**
5:30 PM		0	2	0	10	0	0	0	0	0	15	204	0	0	0	105	11	347	1,535
5:45 PM		0	0	0	7	0	0	0	0	0	16	200	0	0	0	112	7	342	1,490
6:00 PM		0	0	0	6	0	0	0	0	0	16	172	0	0	0	112	7	313	1,400
6:15 PM		0	0	0	5	0	0	0	0	0	15	142	0	0	0	83	2	247	1,249
Count Total		0	3	0	82	0	0	0	0	0	128	1,587	0	0	0	951	51	2,802	0
Peak Hour	**All**	**0**	**1**	**0**	**54**	**0**	**0**	**0**	**0**	**0**	**66**	**869**	**0**	**0**	**0**	**539**	**24**	**1,553**	**0**
	HV	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**1**	**18**	**0**	**0**	**0**	**19**	**3**	**47**	**0**
	HV%	**-**	**0%**	**-**	**11%**	**-**	**-**	**-**	**-**	**-**	**2%**	**2%**	**-**	**-**	**-**	**4%**	**13%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:30 PM	**3**	**0**	**8**	**7**	***18***	**0**	**0**	**0**	**1**	***1***	**0**	**3**	**0**	**1**	*4*
4:45 PM	**1**	**0**	**4**	**5**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**3**	**0**	**0**	*3*
5:00 PM	**2**	**0**	**2**	**6**	***10***	**0**	**0**	**0**	**0**	***0***	**3**	**2**	**0**	**0**	*5*
5:15 PM	**0**	**0**	**5**	**4**	***9***	**0**	**0**	**1**	**1**	***2***	**0**	**1**	**0**	**0**	***1***
5:30 PM	2	0	3	6	*11*	0	0	1	0	*1*	1	2	0	0	*3*
5:45 PM	0	0	6	5	*11*	0	0	0	1	*1*	2	2	0	0	*4*
6:00 PM	0	0	2	2	*4*	0	0	0	3	*3*	1	1	0	1	*3*
6:15 PM	1	0	2	4	*7*	0	0	2	0	*2*	2	1	0	1	*4*
Count Total	9	0	32	39	*80*	0	0	4	6	*10*	9	15	0	3	*27*
Peak Hr	**6**	**0**	**19**	**22**	***47***	**0**	**0**	**1**	**2**	***3***	**3**	**9**	**0**	**1**	***13***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Main St Eastbound				N/A Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**7**	**0**	**0**	**0**	**7**	**0**	**18**	0
4:45 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**2**	**10**	0
5:00 PM	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**6**	**0**	**10**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**3**	**1**	**9**	**47**
5:30 PM	0	1	0	1	0	0	0	0	0	0	3	0	0	0	5	1	11	40
5:45 PM	0	0	0	0	0	0	0	0	0	1	5	0	0	0	5	0	11	41
6:00 PM	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4	35
6:15 PM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	4	0	7	33
Count Total	0	1	0	8	0	0	0	0	0	2	30	0	0	0	35	4	80	0
Peak Hour	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**1**	**18**	**0**	**0**	**0**	**19**	**3**	**47**	**0**

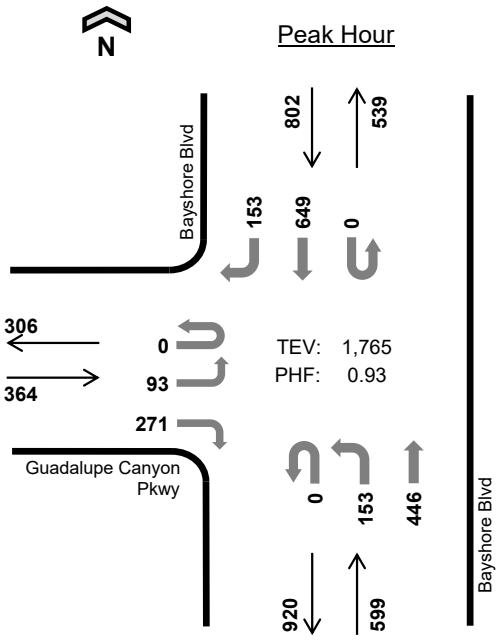
Two-Hour Count Summaries - Bikes

Interval Start	Main St Eastbound			N/A Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	**3**
5:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	3
5:45 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	4
6:00 PM	0	0	0	0	0	0	0	0	0	0	3	0	3	7
6:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	7
Count Total	0	0	0	0	0	0	0	4	0	0	5	1	10	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**3**	**0**

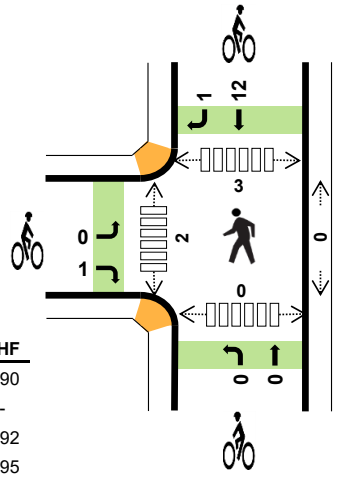
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Guadalupe Canyon Pkwy

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	3.6%	0.90
WB	-	-
NB	7.5%	0.92
SB	6.2%	0.95
TOTAL	6.1%	0.93



Two-Hour Count Summaries

Interval Start	Guadalupe Canyon Pkwy Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	24	0	35	0	0	0	0	0	26	92	0	0	0	116	49	342	0
7:15 AM	0	34	0	54	0	0	0	0	0	14	96	0	0	0	131	52	381	0
7:30 AM	0	22	0	60	0	0	0	0	0	19	94	0	0	0	170	52	417	0
7:45 AM	**0**	**25**	**0**	**69**	**0**	**0**	**0**	**0**	**0**	**31**	**128**	**0**	**0**	**0**	**161**	**49**	**463**	1,603
8:00 AM	**0**	**16**	**0**	**85**	**0**	**0**	**0**	**0**	**0**	**37**	**125**	**0**	**0**	**0**	**170**	**42**	**475**	1,736
8:15 AM	**0**	**23**	**0**	**64**	**0**	**0**	**0**	**0**	**0**	**40**	**91**	**0**	**0**	**0**	**158**	**26**	**402**	1,757
8:30 AM	**0**	**29**	**0**	**53**	**0**	**0**	**0**	**0**	**0**	**45**	**102**	**0**	**0**	**0**	**160**	**36**	**425**	**1,765**
8:45 AM	0	24	0	60	0	0	0	0	0	31	75	0	0	0	163	23	376	1,678
Count Total	0	197	0	480	0	0	0	0	0	243	803	0	0	0	1,229	329	3,281	0
Peak Hour All	**0**	**93**	**0**	**271**	**0**	**0**	**0**	**0**	**0**	**153**	**446**	**0**	**0**	**0**	**649**	**153**	**1,765**	**0**
Peak Hour HV	**0**	**9**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**7**	**38**	**0**	**0**	**0**	**34**	**16**	**108**	**0**
Peak Hour HV%	**-**	**10%**	**-**	**1%**	**-**	**-**	**-**	**-**	**-**	**5%**	**9%**	**-**	**-**	**-**	**5%**	**10%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	19	17	*37*	0	0	0	4	*4*	0	1	0	0	*1*
7:15 AM	5	0	17	24	*46*	0	0	1	0	*1*	0	0	1	0	*1*
7:30 AM	3	0	16	14	*33*	0	0	0	1	*1*	0	1	0	0	*1*
7:45 AM	**3**	**0**	**14**	**12**	***29***	**0**	**0**	**0**	**2**	***2***	**0**	**1**	**0**	**0**	*1*
8:00 AM	**4**	**0**	**12**	**17**	***33***	**1**	**0**	**0**	**2**	***3***	**0**	**1**	**2**	**0**	*3*
8:15 AM	**2**	**0**	**9**	**8**	***19***	**0**	**0**	**0**	**4**	***4***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**4**	**0**	**10**	**13**	***27***	**0**	**0**	**0**	**5**	***5***	**0**	**0**	**1**	**0**	***1***
8:45 AM	4	0	6	9	*19*	1	0	0	3	*4*	0	2	0	0	*2*
Count Total	26	0	103	114	*243*	2	0	1	21	*24*	0	6	4	0	*10*
Peak Hr	**13**	**0**	**45**	**50**	***108***	**1**	**0**	**0**	**13**	***14***	**0**	**2**	**3**	**0**	***5***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Guadalupe Canyon Pkwy				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	0	0	0	0	0	19	0	0	0	13	4	37	0
7:15 AM	0	5	0	0	0	0	0	0	0	1	16	0	0	0	18	6	46	0
7:30 AM	0	2	0	1	0	0	0	0	0	0	16	0	0	0	7	7	33	0
7:45 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**13**	**0**	**0**	**0**	**7**	**5**	**29**	145
8:00 AM	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**10**	**0**	**0**	**0**	**10**	**7**	**33**	141
8:15 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**6**	**0**	**0**	**0**	**7**	**1**	**19**	114
8:30 AM	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**9**	**0**	**0**	**0**	**10**	**3**	**27**	**108**
8:45 AM	0	4	0	0	0	0	0	0	0	1	5	0	0	0	9	0	19	98
Count Total	0	20	0	6	0	0	0	0	0	9	94	0	0	0	81	33	243	0
Peak Hour	**0**	**9**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**7**	**38**	**0**	**0**	**0**	**34**	**16**	**108**	**0**

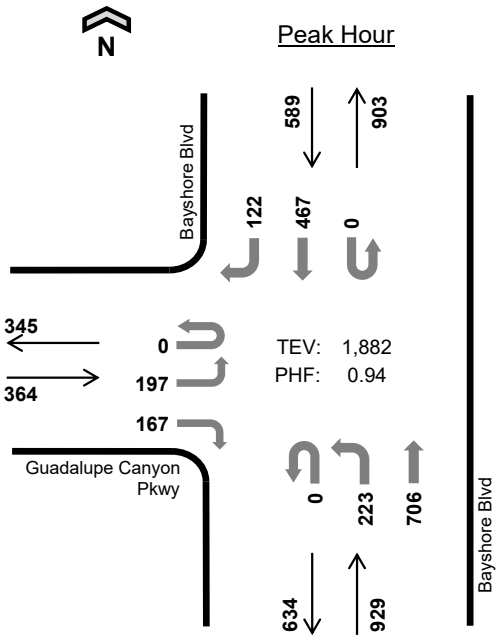
Two-Hour Count Summaries - Bikes

Interval Start	Guadalupe Canyon Pkwy			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	2	2	4	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	1	0	1	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	8
8:00 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**3**	7
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	10
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**1**	**5**	**14**
8:45 AM	1	0	0	0	0	0	0	0	0	0	3	0	4	16
Count Total	1	0	1	0	0	0	0	1	0	0	18	3	24	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**1**	**14**	**0**

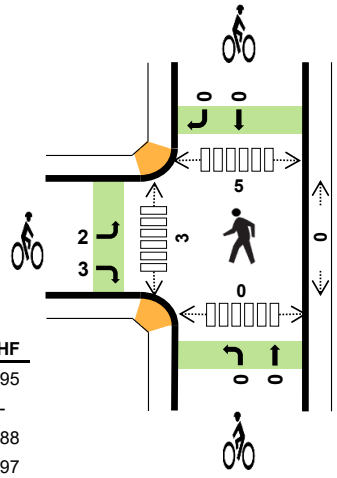
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Guadalupe Canyon Pkwy

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	3.3%	0.95
WB	-	-
NB	1.6%	0.88
SB	4.9%	0.97
TOTAL	3.0%	0.94



Two-Hour Count Summaries

Interval Start	Guadalupe Canyon Pkwy Eastbound				n/a Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**52**	**0**	**40**	**0**	**0**	**0**	**0**	**0**	**52**	**164**	**0**	**0**	**0**	**117**	**35**	**460**	0
4:45 PM	**0**	**49**	**0**	**42**	**0**	**0**	**0**	**0**	**0**	**40**	**165**	**0**	**0**	**0**	**122**	**26**	**444**	0
5:00 PM	**0**	**55**	**0**	**41**	**0**	**0**	**0**	**0**	**0**	**71**	**192**	**0**	**0**	**0**	**104**	**38**	**501**	0
5:15 PM	**0**	**41**	**0**	**44**	**0**	**0**	**0**	**0**	**0**	**60**	**185**	**0**	**0**	**0**	**124**	**23**	**477**	**1,882**
5:30 PM	0	41	0	46	0	0	0	0	0	66	175	0	0	0	106	24	458	1,880
5:45 PM	1	28	0	37	0	0	0	0	0	60	179	0	0	0	102	24	431	1,867
6:00 PM	0	20	0	32	0	0	0	0	0	39	149	0	0	0	89	31	360	1,726
6:15 PM	0	26	0	28	0	0	0	0	0	45	139	0	0	0	95	14	347	1,596
Count Total	1	312	0	310	0	0	0	0	0	433	1,348	0	0	0	859	215	3,478	0
Peak Hour All	**0**	**197**	**0**	**167**	**0**	**0**	**0**	**0**	**0**	**223**	**706**	**0**	**0**	**0**	**467**	**122**	**1,882**	**0**
Peak Hour HV	**0**	**9**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**14**	**0**	**0**	**0**	**19**	**10**	**56**	**0**
Peak Hour HV%	**-**	**5%**	**-**	**2%**	**-**	**-**	**-**	**-**	**-**	**0%**	**2%**	**-**	**-**	**-**	**4%**	**8%**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	**3**	**0**	**5**	**13**	***21***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
4:45 PM	**4**	**0**	**3**	**5**	***12***	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**1**	**0**	*1*
5:00 PM	**1**	**0**	**3**	**8**	***12***	**2**	**0**	**0**	**0**	***2***	**0**	**1**	**2**	**0**	*3*
5:15 PM	**4**	**0**	**4**	**3**	***11***	**1**	**0**	**0**	**0**	***1***	**0**	**2**	**2**	**0**	***4***
5:30 PM	3	0	3	7	*13*	1	0	0	1	*2*	0	0	0	0	*0*
5:45 PM	1	0	9	7	*17*	0	0	0	0	*0*	0	1	0	0	*1*
6:00 PM	1	0	5	1	*7*	2	0	0	4	*6*	0	0	0	0	*0*
6:15 PM	1	0	2	7	*10*	0	0	1	0	*1*	0	0	0	0	*0*
Count Total	18	0	34	51	*103*	8	0	1	5	*14*	0	4	5	0	*9*
Peak Hr	**12**	**0**	**15**	**29**	***56***	**5**	**0**	**0**	**0**	***5***	**0**	**3**	**5**	**0**	***8***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Guadalupe Canyon Pkwy				n/a				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**9**	**4**	**21**	0
4:45 PM	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**3**	**2**	**12**	0
5:00 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**4**	**4**	**12**	0
5:15 PM	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**3**	**0**	**11**	**56**
5:30 PM	0	3	0	0	0	0	0	0	0	1	2	0	0	0	7	0	13	48
5:45 PM	0	0	0	1	0	0	0	0	0	1	8	0	0	0	7	0	17	53
6:00 PM	0	1	0	0	0	0	0	0	0	3	2	0	0	0	1	0	7	48
6:15 PM	0	0	0	1	0	0	0	0	0	0	2	0	0	0	5	2	10	47
Count Total	0	13	0	5	0	0	0	0	0	6	28	0	0	0	39	12	103	0
Peak Hour	**0**	**9**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**14**	**0**	**0**	**0**	**19**	**10**	**56**	**0**

Two-Hour Count Summaries - Bikes

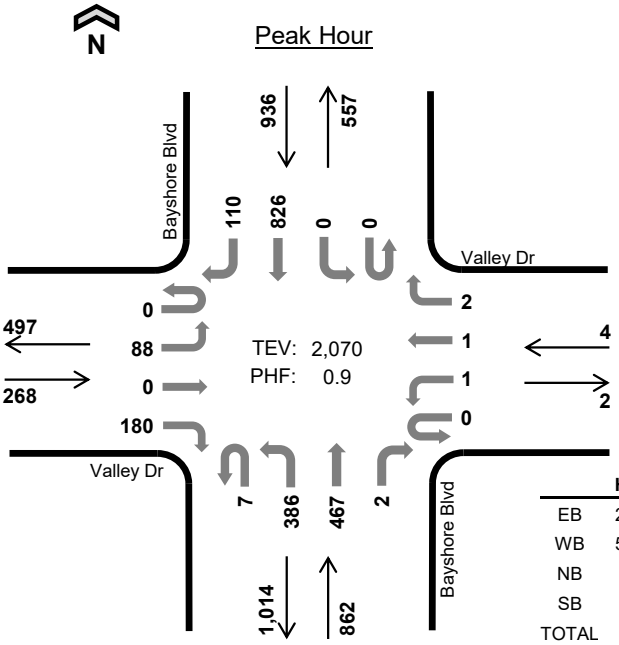
Interval Start	Guadalupe Canyon Pkwy			n/a			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
4:45 PM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
5:00 PM	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**5**
5:30 PM	1	0	0	0	0	0	0	0	0	0	0	1	2	7
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6:00 PM	1	0	1	0	0	0	0	0	0	0	1	3	6	9
6:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	9
Count Total	4	0	4	0	0	0	0	1	0	0	1	4	14	0
Peak Hour	**2**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**

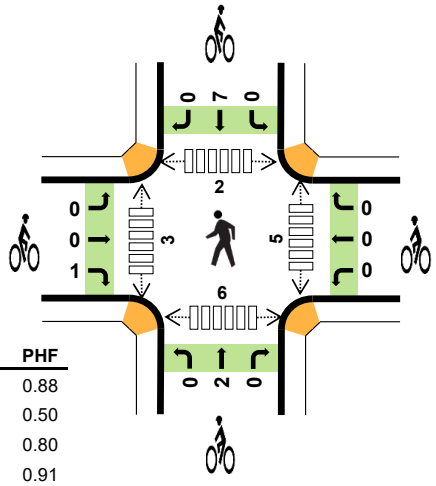
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Valley Dr

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM

Peak Hour





	HV %:	PHF
EB	26.1%	0.88
WB	50.0%	0.50
NB	6.8%	0.80
SB	3.7%	0.91
TOTAL	8.0%	0.90

Two-Hour Count Summaries

Interval Start	Valley Dr Eastbound				Valley Dr Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	22	0	30	0	0	0	0	0	101	99	0	0	0	136	17	405	0
7:15 AM	0	15	0	38	0	0	0	0	0	93	94	0	0	0	167	19	426	0
7:30 AM	**0**	**20**	**0**	**56**	**0**	**0**	**0**	**0**	**1**	**83**	**99**	**0**	**0**	**0**	**212**	**23**	**494**	0
7:45 AM	**0**	**28**	**0**	**45**	**0**	**0**	**0**	**1**	**2**	**132**	**134**	**1**	**0**	**0**	**197**	**35**	**575**	1,900
8:00 AM	**0**	**22**	**0**	**33**	**0**	**1**	**1**	**0**	**0**	**87**	**127**	**1**	**0**	**0**	**235**	**23**	**530**	2,025
8:15 AM	**0**	**18**	**0**	**46**	**0**	**0**	**0**	**1**	**4**	**84**	**107**	**0**	**0**	**0**	**182**	**29**	**471**	**2,070**
8:30 AM	0	19	0	41	0	2	1	1	1	78	129	0	0	0	193	19	484	2,060
8:45 AM	0	10	0	30	0	0	0	0	0	97	97	0	0	0	207	18	459	1,944
Count Total	0	154	0	319	0	3	2	3	8	755	886	2	0	0	1,529	183	3,844	0
Peak Hour All	**0**	**88**	**0**	**180**	**0**	**1**	**1**	**2**	**7**	**386**	**467**	**2**	**0**	**0**	**826**	**110**	**2,070**	**0**
Peak Hour HV	**0**	**16**	**0**	**54**	**0**	**1**	**0**	**1**	**1**	**32**	**25**	**1**	**0**	**0**	**25**	**10**	**166**	**0**
Peak Hour HV%	**-**	**18%**	**-**	**30%**	**-**	**100%**	**0%**	**50%**	**14%**	**8%**	**5%**	**50%**	**-**	**-**	**3%**	**9%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	25	0	18	14	*57*	1	0	0	1	*2*	0	0	0	0	*0*
7:15 AM	21	0	20	18	*59*	0	0	1	0	*1*	0	0	0	0	*0*
7:30 AM	**27**	**0**	**15**	**6**	***48***	**0**	**0**	**1**	**0**	***1***	**2**	**1**	**1**	**2**	*6*
7:45 AM	**16**	**0**	**11**	**10**	***37***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**9**	**1**	**13**	**11**	***34***	**0**	**0**	**0**	**3**	***3***	**3**	**0**	**0**	**4**	*7*
8:15 AM	**18**	**1**	**20**	**8**	***47***	**1**	**0**	**1**	**3**	***5***	**0**	**2**	**1**	**0**	***3***
8:30 AM	9	1	13	10	*33*	0	0	1	4	*5*	2	1	1	2	*6*
8:45 AM	6	0	14	10	*30*	0	0	0	3	*3*	0	0	0	0	*0*
Count Total	131	3	124	87	*345*	2	0	4	15	*21*	7	4	3	8	*22*
Peak Hour	**70**	**2**	**59**	**35**	***166***	**1**	**0**	**2**	**7**	***10***	**5**	**3**	**2**	**6**	***16***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Valley Dr Eastbound				Valley Dr Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	8	0	17	0	0	0	0	0	8	10	0	0	0	12	2	57	0
7:15 AM	0	8	0	13	0	0	0	0	0	9	11	0	0	0	17	1	59	0
7:30 AM	**0**	**5**	**0**	**22**	**0**	**0**	**0**	**0**	**0**	**9**	**6**	**0**	**0**	**0**	**5**	**1**	**48**	0
7:45 AM	**0**	**5**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**4**	**7**	**0**	**0**	**0**	**8**	**2**	**37**	201
8:00 AM	**0**	**3**	**0**	**6**	**0**	**1**	**0**	**0**	**0**	**9**	**3**	**1**	**0**	**0**	**9**	**2**	**34**	178
8:15 AM	**0**	**3**	**0**	**15**	**0**	**0**	**0**	**1**	**1**	**10**	**9**	**0**	**0**	**0**	**3**	**5**	**47**	**166**
8:30 AM	0	2	0	7	0	0	1	0	0	5	8	0	0	0	9	1	33	151
8:45 AM	0	1	0	5	0	0	0	0	0	10	4	0	0	0	8	2	30	144
Count Total	0	35	0	96	0	1	1	1	1	64	58	1	0	0	71	16	345	0
Peak Hour	**0**	**16**	**0**	**54**	**0**	**1**	**0**	**1**	**1**	**32**	**25**	**1**	**0**	**0**	**25**	**10**	**166**	**0**

Two-Hour Count Summaries - Bikes

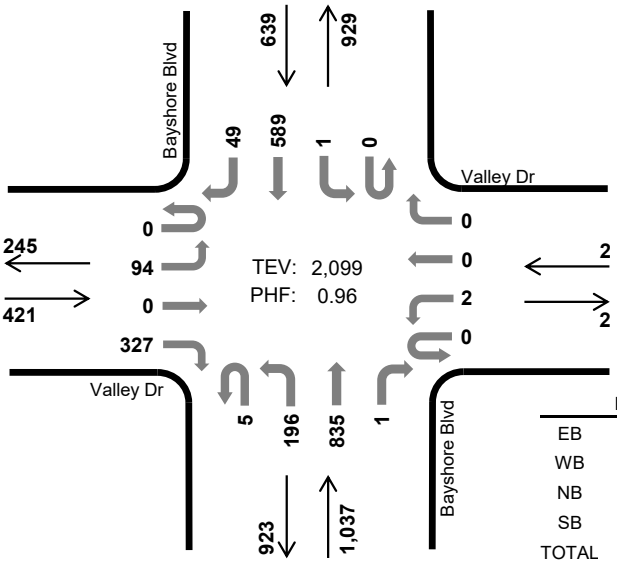
Interval Start	Valley Dr Eastbound			Valley Dr Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	1	0	0	0	0	0	0	0	1	0	2	0
7:15 AM	0	0	0	0	0	0	0	1	0	0	0	0	1	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	5
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	6
8:15 AM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	**0**	**5**	**10**
8:30 AM	0	0	0	0	0	0	0	1	0	0	3	1	5	14
8:45 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	16
Count Total	0	0	2	0	0	0	0	4	0	0	14	1	21	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**7**	**0**	**10**	**0**

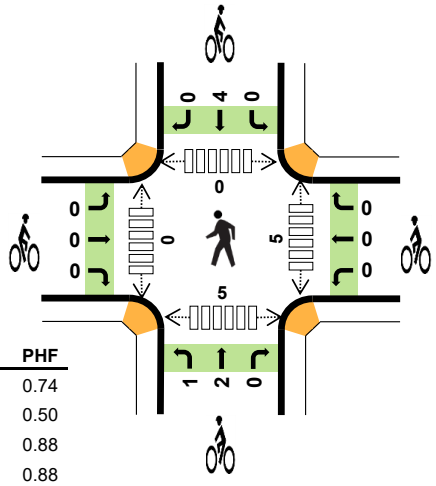
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Valley Dr

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM

Peak Hour





	HV %:	PHF
EB	5.7%	0.74
WB	0.0%	0.50
NB	5.3%	0.88
SB	3.6%	0.88
TOTAL	4.9%	0.96

Two-Hour Count Summaries

Interval Start	Valley Dr Eastbound				Valley Dr Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**36**	**0**	**107**	**0**	**1**	**0**	**0**	**0**	**71**	**185**	**1**	**0**	**0**	**136**	**9**	**546**	0
4:45 PM	**0**	**16**	**0**	**74**	**0**	**0**	**0**	**0**	**4**	**42**	**186**	**0**	**0**	**1**	**166**	**15**	**504**	0
5:00 PM	**0**	**24**	**0**	**75**	**0**	**1**	**0**	**0**	**1**	**44**	**248**	**0**	**0**	**0**	**140**	**10**	**543**	0
5:15 PM	**0**	**18**	**0**	**71**	**0**	**0**	**0**	**0**	**0**	**39**	**216**	**0**	**0**	**0**	**147**	**15**	**506**	**2,099**
5:30 PM	0	23	0	71	0	0	0	0	2	37	216	0	0	0	140	14	503	2,056
5:45 PM	0	18	0	53	0	0	0	0	0	69	220	0	0	0	128	11	499	2,051
6:00 PM	0	20	0	43	0	0	0	0	1	37	169	0	0	0	107	8	385	1,893
6:15 PM	0	10	0	31	0	0	0	0	2	37	175	0	0	0	117	9	381	1,768
Count Total	0	165	0	525	0	2	0	0	10	376	1,615	1	0	1	1,081	91	3,867	0
Peak Hour **All**	**0**	**94**	**0**	**327**	**0**	**2**	**0**	**0**	**5**	**196**	**835**	**1**	**0**	**1**	**589**	**49**	**2,099**	**0**
Peak Hour **HV**	**0**	**3**	**0**	**21**	**0**	**0**	**0**	**0**	**0**	**45**	**10**	**0**	**0**	**0**	**22**	**1**	**102**	**0**
Peak Hour **HV%**	**-**	**3%**	**-**	**6%**	**-**	**0%**	**-**	**-**	**0%**	**23%**	**1%**	**0%**	**-**	**0%**	**4%**	**2%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	**6**	**0**	**23**	**10**	***39***	**0**	**0**	**0**	**1**	***1***	**3**	**0**	**0**	**3**	*6*
4:45 PM	**9**	**0**	**9**	**6**	***24***	**0**	**0**	**1**	**0**	***1***	**2**	**0**	**0**	**2**	*4*
5:00 PM	**4**	**0**	**11**	**4**	***19***	**0**	**0**	**0**	**2**	***2***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**5**	**0**	**12**	**3**	***20***	**0**	**0**	**2**	**1**	***3***	**0**	**0**	**0**	**0**	***0***
5:30 PM	3	0	8	5	*16*	0	0	0	0	*0*	0	0	0	0	*0*
5:45 PM	10	0	13	11	*34*	0	0	0	0	*0*	0	1	0	0	*1*
6:00 PM	5	0	16	1	*22*	0	0	0	0	*0*	0	0	0	0	*0*
6:15 PM	5	0	8	6	*19*	0	0	1	0	*1*	0	0	0	0	*0*
Count Total	47	0	100	46	*193*	0	0	4	4	*8*	5	1	0	5	*11*
Peak Hour	**24**	**0**	**55**	**23**	***102***	**0**	**0**	**3**	**4**	***7***	**5**	**0**	**0**	**5**	***10***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Valley Dr Eastbound				Valley Dr Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**20**	**3**	**0**	**0**	**0**	**9**	**1**	**39**	0
4:45 PM	**0**	**1**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**8**	**1**	**0**	**0**	**0**	**6**	**0**	**24**	0
5:00 PM	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**8**	**3**	**0**	**0**	**0**	**4**	**0**	**19**	0
5:15 PM	**0**	**1**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**9**	**3**	**0**	**0**	**0**	**3**	**0**	**20**	**102**
5:30 PM	0	1	0	2	0	0	0	0	0	5	3	0	0	0	5	0	16	79
5:45 PM	0	3	0	7	0	0	0	0	0	9	4	0	0	0	10	1	34	89
6:00 PM	0	1	0	4	0	0	0	0	0	13	3	0	0	0	1	0	22	92
6:15 PM	0	0	0	5	0	0	0	0	0	6	2	0	0	0	4	2	19	91
Count Total	0	8	0	39	0	0	0	0	0	78	22	0	0	0	42	4	193	0
Peak Hour	**0**	**3**	**0**	**21**	**0**	**0**	**0**	**0**	**0**	**45**	**10**	**0**	**0**	**0**	**22**	**1**	**102**	**0**

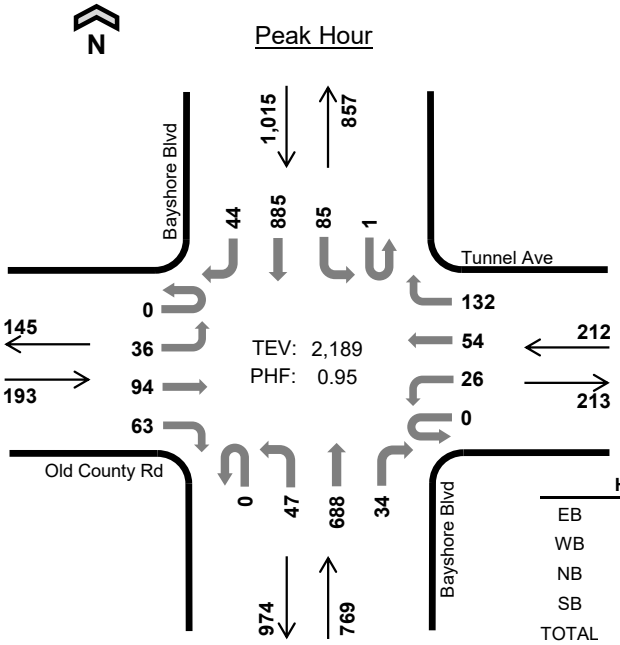
Two-Hour Count Summaries - Bikes

Interval Start	Valley Dr Eastbound			Valley Dr Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**3**	**7**
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	5
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	3
6:15 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Count Total	0	0	0	0	0	0	1	3	0	0	4	0	8	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**4**	**0**	**7**	**0**

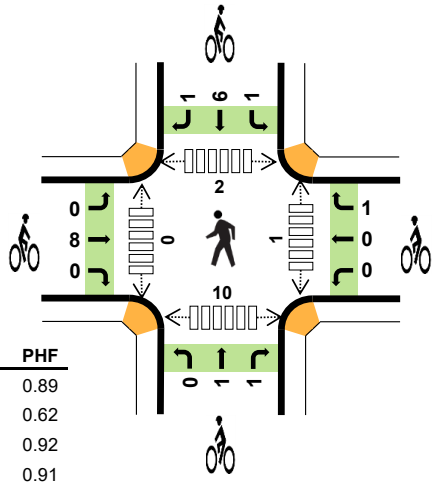
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Tunnel Ave

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	1.6%	0.89
WB	5.7%	0.62
NB	7.2%	0.92
SB	8.0%	0.91
TOTAL	6.9%	0.95



Two-Hour Count Summaries

Interval Start	Old County Rd Eastbound				Tunnel Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	7	20	8	0	3	8	26	0	4	161	13	0	7	153	4	414	0
7:15 AM	0	8	25	16	0	4	5	35	0	7	156	11	0	8	186	5	466	0
7:30 AM	**0**	**5**	**22**	**14**	**0**	**5**	**16**	**20**	**0**	**9**	**163**	**14**	**0**	**15**	**254**	**9**	**546**	0
7:45 AM	**0**	**10**	**26**	**18**	**0**	**14**	**15**	**56**	**0**	**7**	**188**	**6**	**1**	**24**	**202**	**9**	**576**	2,002
8:00 AM	**0**	**14**	**24**	**14**	**0**	**5**	**15**	**27**	**0**	**22**	**180**	**6**	**0**	**32**	**228**	**4**	**571**	2,159
8:15 AM	**0**	**7**	**22**	**17**	**0**	**2**	**8**	**29**	**0**	**9**	**157**	**8**	**0**	**14**	**201**	**22**	**496**	**2,189**
8:30 AM	0	20	22	22	0	5	21	38	0	13	149	11	0	27	204	14	546	2,189
8:45 AM	0	11	23	13	0	2	19	40	0	9	142	12	0	13	214	8	506	2,119
Count Total	0	82	184	122	0	40	107	271	0	80	1,296	81	1	140	1,642	75	4,121	0
Peak Hour All	**0**	**36**	**94**	**63**	**0**	**26**	**54**	**132**	**0**	**47**	**688**	**34**	**1**	**85**	**885**	**44**	**2,189**	**0**
Peak Hour HV	**0**	**2**	**1**	**0**	**0**	**2**	**1**	**9**	**0**	**1**	**52**	**2**	**0**	**9**	**68**	**4**	**151**	**0**
Peak Hour HV%	**-**	**6%**	**1%**	**0%**	**-**	**8%**	**2%**	**7%**	**-**	**2%**	**8%**	**6%**	**0%**	**11%**	**8%**	**9%**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	2	2	16	32	*52*	1	0	0	3	*4*	0	0	1	1	*2*
7:15 AM	2	6	19	28	*55*	1	1	0	0	*2*	0	0	1	4	*5*
7:30 AM	**1**	**2**	**18**	**30**	***51***	**2**	**0**	**1**	**0**	***3***	**1**	**0**	**1**	**2**	*4*
7:45 AM	**0**	**2**	**6**	**18**	***26***	**2**	**0**	**0**	**3**	***5***	**0**	**0**	**0**	**3**	*3*
8:00 AM	**0**	**4**	**16**	**16**	***36***	**1**	**0**	**1**	**2**	***4***	**0**	**0**	**1**	**2**	*3*
8:15 AM	**2**	**4**	**15**	**17**	***38***	**3**	**1**	**0**	**3**	***7***	**0**	**0**	**0**	**3**	***3***
8:30 AM	2	3	14	21	*40*	1	0	0	3	*4*	0	0	0	3	*3*
8:45 AM	5	4	15	13	*37*	1	0	1	2	*4*	1	0	0	1	*2*
Count Total	14	27	119	175	*335*	12	2	3	16	*33*	2	0	4	19	*25*
Peak Hour	**3**	**12**	**55**	**81**	***151***	**8**	**1**	**2**	**8**	***19***	**1**	**0**	**2**	**10**	***13***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Old County Rd				Tunnel Ave				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	2	0	0	0	0	2	0	0	14	2	0	2	29	1	52	0
7:15 AM	0	1	0	1	0	1	0	5	0	2	15	2	0	2	26	0	55	0
7:30 AM	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**18**	**0**	**0**	**2**	**28**	**0**	**51**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**6**	**0**	**0**	**3**	**13**	**2**	**26**	184
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**15**	**0**	**0**	**2**	**13**	**1**	**36**	168
8:15 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**13**	**2**	**0**	**2**	**14**	**1**	**38**	**151**
8:30 AM	0	0	0	2	0	1	1	1	0	2	11	1	0	2	19	0	40	140
8:45 AM	0	0	4	1	0	0	0	4	0	1	11	3	0	1	12	0	37	151
Count Total	0	3	7	4	0	4	2	21	0	6	103	10	0	16	154	5	335	0
Peak Hour	**0**	**2**	**1**	**0**	**0**	**2**	**1**	**9**	**0**	**1**	**52**	**2**	**0**	**9**	**68**	**4**	**151**	**0**

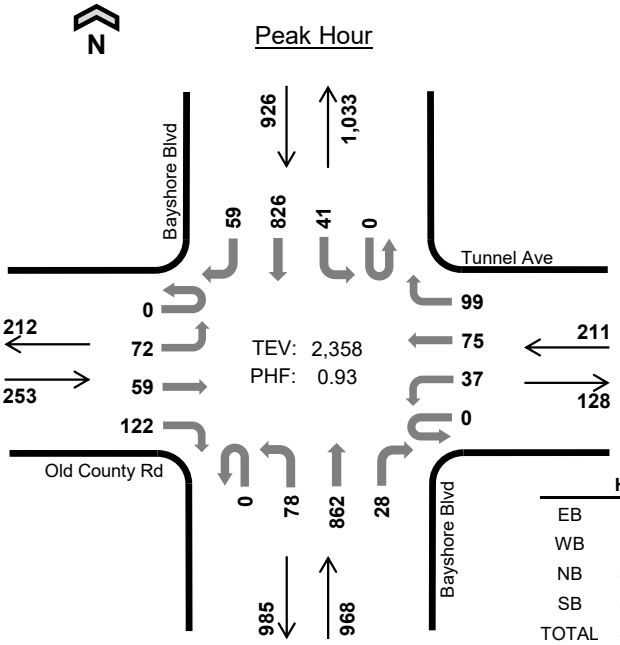
Two-Hour Count Summaries - Bikes

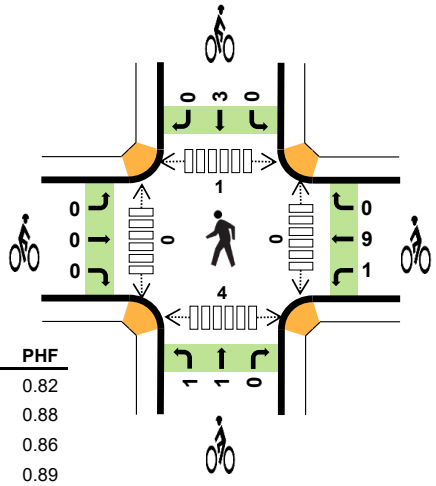
Interval Start	Old County Rd			Tunnel Ave			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	0	3	0	4	0
7:15 AM	0	1	0	0	0	1	0	0	0	0	0	0	2	0
7:30 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	0
7:45 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**5**	14
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**4**	14
8:15 AM	**0**	**3**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**1**	**7**	**19**
8:30 AM	0	1	0	0	0	0	0	0	0	0	3	0	4	20
8:45 AM	0	1	0	0	0	0	0	0	1	0	2	0	4	19
Count Total	0	12	0	0	0	2	0	1	2	1	14	1	33	0
Peak Hour	**0**	**8**	**0**	**0**	**0**	**1**	**0**	**1**	**1**	**1**	**6**	**1**	**19**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Tunnel Ave

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM





	HV %:	PHF
EB	2.4%	0.82
WB	8.1%	0.88
NB	4.8%	0.86
SB	4.9%	0.89
TOTAL	4.8%	0.93

Two-Hour Count Summaries

Interval Start	Old County Rd Eastbound				Tunnel Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**21**	**24**	**32**	**0**	**12**	**20**	**23**	**0**	**25**	**212**	**7**	**0**	**5**	**241**	**13**	**635**	0
4:45 PM	**0**	**15**	**13**	**31**	**0**	**9**	**19**	**19**	**0**	**18**	**194**	**7**	**0**	**8**	**204**	**16**	**553**	0
5:00 PM	**0**	**16**	**12**	**33**	**0**	**8**	**13**	**28**	**0**	**19**	**252**	**10**	**0**	**9**	**191**	**18**	**609**	0
5:15 PM	**0**	**20**	**10**	**26**	**0**	**8**	**23**	**29**	**0**	**16**	**204**	**4**	**0**	**19**	**190**	**12**	**561**	**2,358**
5:30 PM	0	9	7	14	0	7	24	28	0	17	230	10	0	7	187	21	561	2,284
5:45 PM	0	22	25	23	0	3	28	28	0	20	236	5	0	10	164	7	571	2,302
6:00 PM	0	9	8	26	0	12	21	10	0	19	184	2	0	4	135	9	439	2,132
6:15 PM	0	17	9	16	0	14	11	13	0	18	180	4	0	7	132	13	434	2,005
Count Total	0	129	108	201	0	73	159	178	0	152	1,692	49	0	69	1,444	109	4,363	0
Peak Hour All	**0**	**72**	**59**	**122**	**0**	**37**	**75**	**99**	**0**	**78**	**862**	**28**	**0**	**41**	**826**	**59**	**2,358**	**0**
Peak Hour HV	**0**	**1**	**2**	**3**	**0**	**3**	**0**	**14**	**0**	**1**	**39**	**6**	**0**	**2**	**37**	**6**	**114**	**0**
Peak Hour HV%	**-**	**1%**	**3%**	**2%**	**-**	**8%**	**0%**	**14%**	**-**	**1%**	**5%**	**21%**	**-**	**5%**	**4%**	**10%**	**5%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	**3**	**7**	**17**	**16**	***43***	**0**	**2**	**1**	**0**	***3***	**0**	**0**	**1**	**0**	*1*
4:45 PM	**2**	**4**	**8**	**14**	***28***	**0**	**2**	**0**	**0**	***2***	**0**	**0**	**0**	**2**	*2*
5:00 PM	**0**	**3**	**12**	**8**	***23***	**0**	**4**	**0**	**2**	***6***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**1**	**3**	**9**	**7**	***20***	**0**	**2**	**1**	**1**	***4***	**0**	**0**	**0**	**2**	***2***
5:30 PM	0	3	5	7	*15*	0	1	0	1	*2*	0	0	0	0	*0*
5:45 PM	1	2	11	16	*30*	0	0	0	0	*0*	1	0	1	0	*2*
6:00 PM	0	2	17	5	*24*	0	1	0	0	*1*	0	0	0	1	*1*
6:15 PM	0	2	6	10	*18*	0	0	1	1	*2*	0	0	0	0	*0*
Count Total	7	26	85	83	*201*	0	12	3	5	*20*	1	0	2	5	*8*
Peak Hour	**6**	**17**	**46**	**45**	***114***	**0**	**10**	**2**	**3**	***15***	**0**	**0**	**1**	**4**	***5***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Old County Rd				Tunnel Ave				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**0**	**2**	**1**	**0**	**1**	**0**	**6**	**0**	**1**	**16**	**0**	**0**	**0**	**13**	**3**	**43**	0
4:45 PM	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**3**	**0**	**0**	**6**	**2**	**0**	**1**	**12**	**1**	**28**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**9**	**3**	**0**	**0**	**7**	**1**	**23**	0
5:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**8**	**1**	**0**	**1**	**5**	**1**	**20**	**114**
5:30 PM	0	0	0	0	0	0	0	3	0	0	5	0	0	0	6	1	15	86
5:45 PM	0	0	0	1	0	0	0	2	0	0	11	0	0	2	13	1	30	88
6:00 PM	0	0	0	0	0	0	1	1	0	0	17	0	0	0	5	0	24	89
6:15 PM	0	0	0	0	0	1	0	1	0	0	6	0	0	1	9	0	18	87
Count Total	0	1	2	4	0	4	1	21	0	1	78	6	0	5	70	8	201	0
Peak Hour	**0**	**1**	**2**	**3**	**0**	**3**	**0**	**14**	**0**	**1**	**39**	**6**	**0**	**2**	**37**	**6**	**114**	**0**

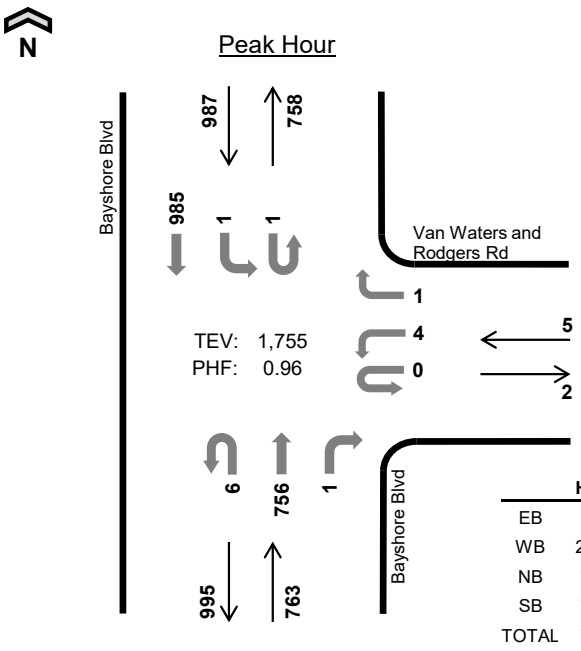
Two-Hour Count Summaries - Bikes

Interval Start	Old County Rd			Tunnel Ave			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	0
4:45 PM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	0
5:00 PM	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**6**	0
5:15 PM	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**4**	**15**
5:30 PM	0	0	0	1	0	0	0	0	0	0	1	0	2	14
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	12
6:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	1	7
6:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	5
Count Total	0	0	0	2	9	1	1	2	0	0	5	0	20	0
Peak Hour	**0**	**0**	**0**	**1**	**9**	**0**	**1**	**1**	**0**	**0**	**3**	**0**	**15**	**0**

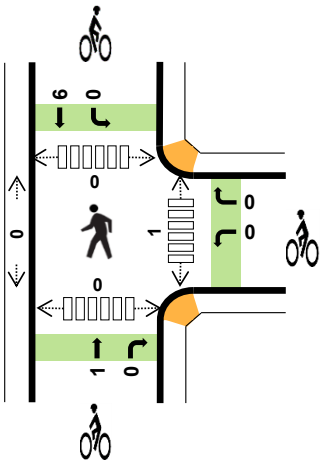
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Van Waters and Rodgers Rd

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM



	HV %:	PHF
EB	-	-
WB	20.0%	0.63
NB	7.1%	0.93
SB	7.2%	0.92
TOTAL	7.2%	0.96



Two-Hour Count Summaries

Interval Start	N/A Eastbound				Van Waters and Rodgers Rd Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	1	1	0	182	1	0	0	158	0	343	0
7:15 AM	0	0	0	0	0	0	0	0	1	0	174	0	0	0	205	0	380	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**187**	**0**	**0**	**0**	**268**	**0**	**458**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**2**	**0**	**200**	**1**	**0**	**0**	**247**	**0**	**452**	1,633
8:00 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**206**	**0**	**0**	**0**	**246**	**0**	**453**	1,743
8:15 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**163**	**0**	**1**	**1**	**224**	**0**	**392**	**1,755**
8:30 AM	0	0	0	0	0	0	0	0	2	0	181	2	0	0	228	0	413	1,710
8:45 AM	0	0	0	0	0	0	0	0	5	0	166	1	0	0	229	0	401	1,659
Count Total	0	0	0	0	0	4	0	2	15	0	1,459	5	1	1	1,805	0	3,292	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**6**	**0**	**756**	**1**	**1**	**1**	**985**	**0**	**1,755**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**53**	**0**	**0**	**1**	**70**	**0**	**126**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**25%**	**-**	**0%**	**17%**	**-**	**7%**	**0%**	**0%**	**100%**	**7%**	**-**	**7%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	0	0	16	26	*42*	0	0	0	3	*3*	0	0	0	0	*0*
7:15 AM	0	0	19	27	*46*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**0**	**0**	**17**	**28**	***45***	**0**	**0**	**1**	**0**	***1***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**0**	**6**	**17**	***23***	**0**	**0**	**0**	**3**	***3***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**0**	**15**	**11**	***26***	**0**	**0**	**0**	**2**	***2***	**1**	**0**	**0**	**0**	*1*
8:15 AM	**0**	**1**	**16**	**15**	***32***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***
8:30 AM	0	0	12	21	*33*	0	0	0	3	*3*	1	0	0	2	*3*
8:45 AM	0	0	17	15	*32*	0	0	1	2	*3*	0	0	0	1	*1*
Count Total	0	1	118	160	*279*	0	0	2	14	*16*	2	0	0	3	*5*
Peak Hr	**0**	**1**	**54**	**71**	***126***	**0**	**0**	**1**	**6**	***7***	**1**	**0**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	N/A				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	26	0	42	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	19	0	0	0	27	0	46	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**28**	**0**	**45**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**17**	**0**	**23**	156
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**11**	**0**	**26**	140
8:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**15**	**0**	**0**	**1**	**14**	**0**	**32**	**126**
8:30 AM	0	0	0	0	0	0	0	0	0	0	12	0	0	0	21	0	33	114
8:45 AM	0	0	0	0	0	0	0	0	1	0	16	0	0	0	15	0	32	123
Count Total	0	0	0	0	0	1	0	0	2	0	116	0	0	1	159	0	279	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**53**	**0**	**0**	**1**	**70**	**0**	**126**	**0**

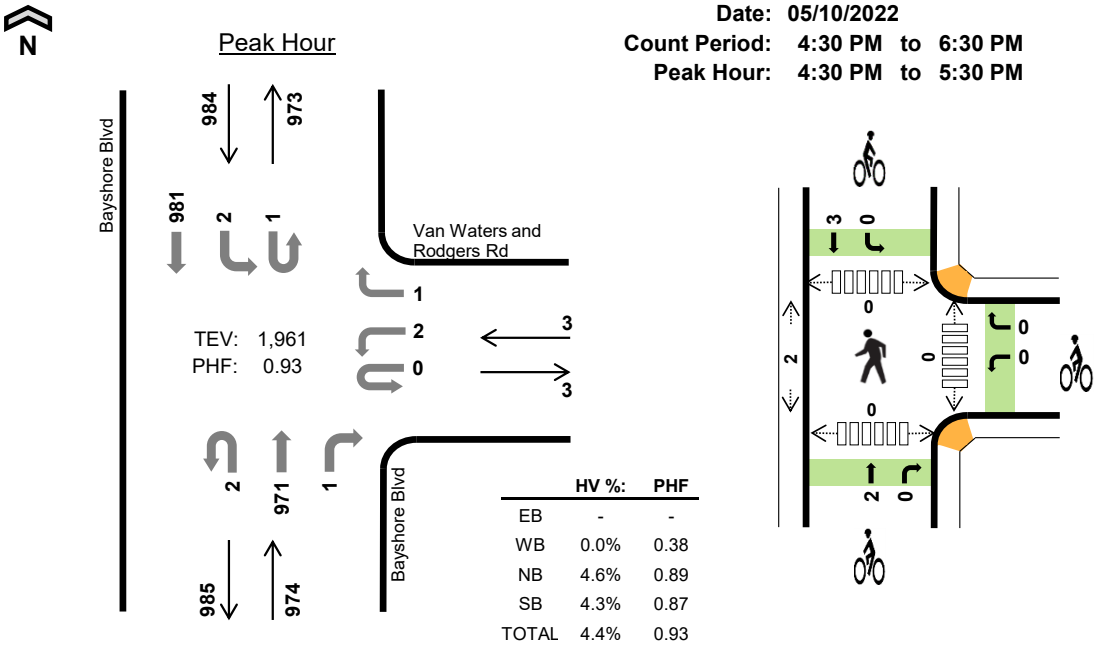
Two-Hour Count Summaries - Bikes

Interval Start	N/A			Van Waters and Rodgers Rd			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	7
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	6
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**7**
8:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	9
8:45 AM	0	0	0	0	0	0	0	1	0	0	2	0	3	9
Count Total	0	0	0	0	0	0	0	2	0	0	14	0	16	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**6**	**0**	**7**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
Van Waters and Rodgers Rd

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM



Two-Hour Count Summaries

Interval Start	N/A Eastbound UT	LT	TH	RT	Van Waters and Rodgers Rd Westbound UT	LT	TH	RT	Bayshore Blvd Northbound UT	LT	TH	RT	Bayshore Blvd Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**247**	**0**	**0**	**1**	**281**	**0**	**530**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**223**	**0**	**0**	**1**	**245**	**0**	**470**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**274**	**1**	**1**	**0**	**231**	**0**	**507**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**227**	**0**	**0**	**0**	**224**	**0**	**454**	**1,961**
5:30 PM	0	0	0	0	0	0	0	0	0	0	253	0	0	0	201	0	454	1,885
5:45 PM	0	0	0	0	0	1	0	0	0	0	261	0	0	1	196	0	459	1,874
6:00 PM	0	0	0	0	0	0	0	0	2	0	205	0	0	0	170	0	377	1,744
6:15 PM	0	0	0	0	0	0	0	0	0	0	202	0	0	0	163	0	365	1,655
Count Total	0	0	0	0	0	3	0	1	4	0	1,892	1	1	3	1,711	0	3,616	0
Peak Hour **All**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**2**	**0**	**971**	**1**	**1**	**2**	**981**	**0**	**1,961**	**0**
Peak Hour **HV**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**0**	**0**	**42**	**0**	**87**	**0**
Peak Hour **HV%**	**-**	**-**	**-**	**-**	**-**	**0%**	**-**	**0%**	**0%**	**-**	**5%**	**0%**	**0%**	**0%**	**4%**	**-**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
4:30 PM	**0**	**0**	**17**	**14**	***31***	**0**	**0**	**1**	**1**	***2***	**0**	**1**	**0**	**0**	***1***
4:45 PM	**0**	**0**	**8**	**15**	***23***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:00 PM	**0**	**0**	**12**	**8**	***20***	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***
5:15 PM	**0**	**0**	**8**	**5**	***13***	**0**	**0**	**0**	**1**	***1***	**0**	**1**	**0**	**0**	***1***
5:30 PM	0	0	5	6	*11*	0	0	0	1	*1*	0	0	0	0	*0*
5:45 PM	0	0	11	12	*23*	0	0	0	0	*0*	0	1	0	0	*1*
6:00 PM	0	0	16	6	*22*	0	0	0	1	*1*	0	0	0	0	*0*
6:15 PM	0	0	6	8	*14*	0	0	1	1	*2*	0	0	0	0	*0*
Count Total	0	0	83	74	*157*	0	0	3	6	*9*	0	3	0	0	*3*
Peak Hr	**0**	**0**	**45**	**42**	***87***	**0**	**0**	**2**	**3**	***5***	**0**	**2**	**0**	**0**	***2***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	N/A				Van Waters and Rodgers Rd				Bayshore Blvd				Bayshore Blvd				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**17**	**0**	**0**	**0**	**14**	**0**	**31**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**15**	**0**	**23**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**8**	**0**	**20**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**5**	**0**	**13**	**87**
5:30 PM	0	0	0	0	0	0	0	0	0	0	5	0	0	0	6	0	11	67
5:45 PM	0	0	0	0	0	0	0	0	0	0	11	0	0	0	12	0	23	67
6:00 PM	0	0	0	0	0	0	0	0	0	0	16	0	0	0	6	0	22	69
6:15 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	8	0	14	70
Count Total	0	0	0	0	0	0	0	0	0	0	83	0	0	0	74	0	157	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**45**	**0**	**0**	**0**	**42**	**0**	**87**	**0**

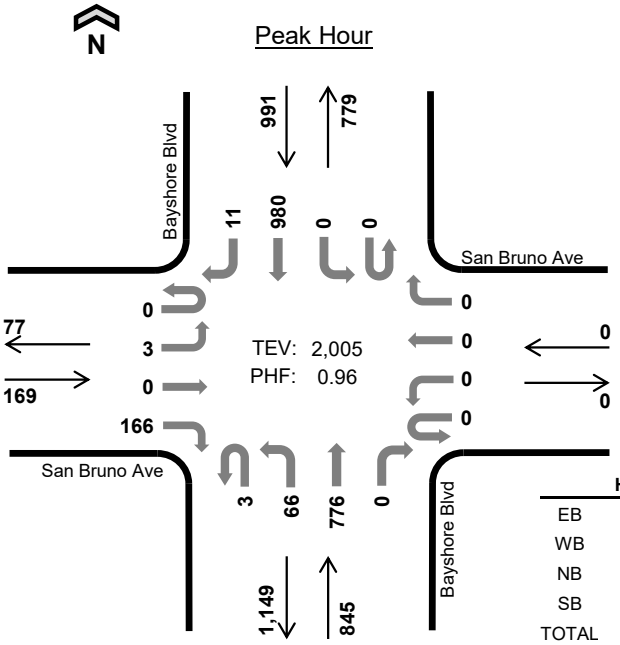
Two-Hour Count Summaries - Bikes

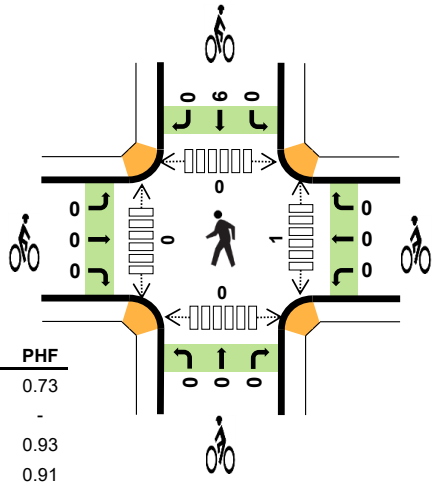
Interval Start	N/A			Van Waters and Rodgers Rd			Bayshore Blvd			Bayshore Blvd			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**2**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**5**
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	4
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
6:15 PM	0	0	0	0	0	0	0	1	0	0	1	0	2	4
Count Total	0	0	0	0	0	0	0	3	0	0	6	0	9	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**5**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
San Bruno Ave

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	2.4%	0.73
WB	-	-
NB	6.7%	0.93
SB	6.8%	0.91
TOTAL	6.4%	0.96

Two-Hour Count Summaries

Interval Start	San Bruno Ave Eastbound				San Bruno Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	31	0	0	0	0	0	8	184	0	0	0	154	1	379	0
7:15 AM	0	1	0	21	0	0	0	0	0	8	172	0	0	0	201	1	404	0
7:30 AM	**0**	**1**	**0**	**28**	**0**	**0**	**0**	**0**	**0**	**13**	**204**	**0**	**0**	**0**	**271**	**1**	**518**	0
7:45 AM	**0**	**0**	**0**	**37**	**0**	**0**	**0**	**0**	**1**	**19**	**208**	**0**	**0**	**0**	**245**	**3**	**513**	1,814
8:00 AM	**0**	**1**	**0**	**57**	**0**	**0**	**0**	**0**	**2**	**14**	**197**	**0**	**0**	**0**	**247**	**4**	**522**	1,957
8:15 AM	**0**	**1**	**0**	**44**	**0**	**0**	**0**	**0**	**0**	**20**	**167**	**0**	**0**	**0**	**217**	**3**	**452**	**2,005**
8:30 AM	0	1	0	30	0	0	0	0	0	14	187	0	0	0	215	5	452	1,939
8:45 AM	0	1	0	45	0	0	0	0	2	22	174	0	0	0	237	3	484	1,910
Count Total	0	7	0	293	0	0	0	0	5	118	1,493	0	0	0	1,787	21	3,724	0
Peak Hour All	**0**	**3**	**0**	**166**	**0**	**0**	**0**	**0**	**3**	**66**	**776**	**0**	**0**	**0**	**980**	**11**	**2,005**	**0**
Peak Hour HV	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**54**	**0**	**0**	**0**	**67**	**0**	**128**	**0**
Peak Hour HV%	**-**	**100%**	**-**	**1%**	**-**	**-**	**-**	**-**	**0%**	**5%**	**7%**	**-**	**-**	**-**	**7%**	**0%**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	1	0	18	23	*42*	1	0	0	3	*4*	0	0	0	0	*0*
7:15 AM	2	0	15	27	*44*	1	0	0	0	*1*	0	0	0	0	*0*
7:30 AM	**1**	**0**	**16**	**27**	***44***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**0**	**0**	**9**	**15**	***24***	**0**	**0**	**0**	**3**	***3***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**1**	**0**	**13**	**11**	***25***	**0**	**0**	**0**	**2**	***2***	**1**	**0**	**0**	**0**	*1*
8:15 AM	**2**	**0**	**19**	**14**	***35***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***
8:30 AM	1	0	13	19	*33*	0	0	0	3	*3*	1	0	0	0	*1*
8:45 AM	1	0	17	14	*32*	0	0	0	2	*2*	0	0	0	0	*0*
Count Total	9	0	120	150	*279*	2	0	0	14	*16*	2	0	0	0	*2*
Peak Hour	**4**	**0**	**57**	**67**	***128***	**0**	**0**	**0**	**6**	***6***	**1**	**0**	**0**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	San Bruno Ave Eastbound				San Bruno Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	1	0	0	0	0	0	0	0	2	16	0	0	0	23	0	42	0
7:15 AM	0	1	0	1	0	0	0	0	0	0	15	0	0	0	26	1	44	0
7:30 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**0**	**0**	**27**	**0**	**44**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**15**	**0**	**24**	154
8:00 AM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**0**	**0**	**11**	**0**	**25**	137
8:15 AM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**16**	**0**	**0**	**0**	**14**	**0**	**35**	**128**
8:30 AM	0	1	0	0	0	0	0	0	0	0	13	0	0	0	18	1	33	117
8:45 AM	0	1	0	0	0	0	0	0	0	1	16	0	0	0	14	0	32	125
Count Total	0	7	0	2	0	0	0	0	0	6	114	0	0	0	148	2	279	0
Peak Hour	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**3**	**54**	**0**	**0**	**0**	**67**	**0**	**128**	**0**

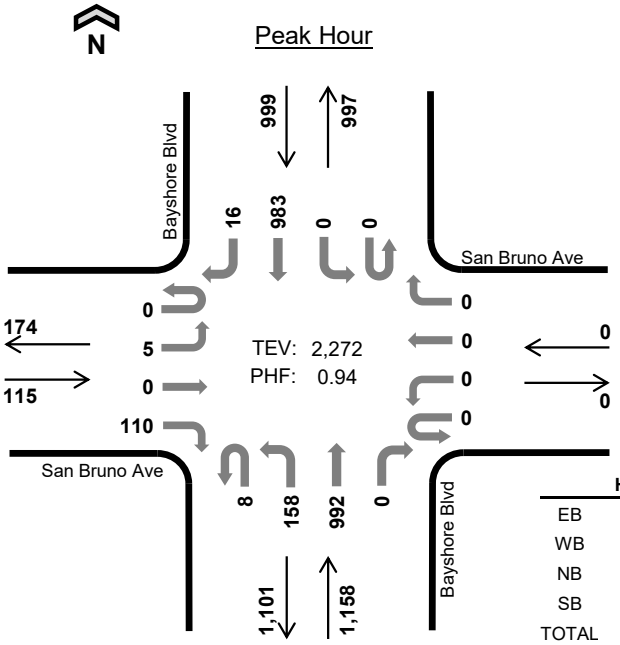
Two-Hour Count Summaries - Bikes

Interval Start	San Bruno Ave Eastbound			San Bruno Ave Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	1	0	0	0	0	0	0	0	3	0	4	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**3**	8
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	6
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**6**
8:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	9
8:45 AM	0	0	0	0	0	0	0	0	0	0	2	0	2	8
Count Total	0	0	2	0	0	0	0	0	0	0	14	0	16	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**6**	**0**

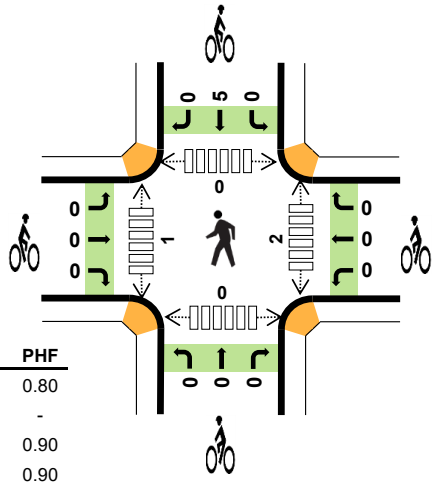
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Bayshore Blvd
San Bruno Ave

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM



	HV %:	PHF
EB	3.5%	0.80
WB	-	-
NB	3.6%	0.90
SB	3.7%	0.90
TOTAL	3.7%	0.94



Two-Hour Count Summaries

Interval Start	San Bruno Ave Eastbound				San Bruno Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**2**	**0**	**34**	**0**	**0**	**0**	**0**	**4**	**41**	**246**	**0**	**0**	**0**	**271**	**6**	**604**	0
4:45 PM	**0**	**0**	**0**	**27**	**0**	**0**	**0**	**0**	**2**	**33**	**238**	**0**	**0**	**0**	**251**	**5**	**556**	0
5:00 PM	**0**	**3**	**0**	**23**	**0**	**0**	**0**	**0**	**1**	**43**	**276**	**0**	**0**	**0**	**238**	**3**	**587**	0
5:15 PM	**0**	**0**	**0**	**26**	**0**	**0**	**0**	**0**	**1**	**41**	**232**	**0**	**0**	**0**	**223**	**2**	**525**	**2,272**
5:30 PM	0	1	0	18	0	0	0	0	1	49	248	0	0	0	195	4	516	2,184
5:45 PM	0	1	0	26	0	0	0	0	0	56	256	0	0	0	203	3	545	2,173
6:00 PM	0	1	0	29	0	0	0	0	2	36	212	0	0	0	161	8	449	2,035
6:15 PM	0	0	0	18	0	0	0	0	2	33	201	0	0	0	166	2	422	1,932
Count Total	0	8	0	201	0	0	0	0	13	332	1,909	0	0	0	1,708	33	4,204	0
Peak Hour All	**0**	**5**	**0**	**110**	**0**	**0**	**0**	**0**	**8**	**158**	**992**	**0**	**0**	**0**	**983**	**16**	**2,272**	**0**
Peak Hour HV	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**42**	**0**	**0**	**0**	**37**	**0**	**83**	**0**
Peak Hour HV%	**-**	**80%**	**-**	**0%**	**-**	**-**	**-**	**-**	**0%**	**0%**	**4%**	**-**	**-**	**-**	**4%**	**0%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	**2**	**0**	**15**	**11**	***28***	**0**	**0**	**0**	**1**	***1***	**1**	**0**	**0**	**0**	*1*
4:45 PM	**0**	**0**	**8**	**13**	***21***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**2**	**0**	**11**	**8**	***21***	**0**	**0**	**0**	**2**	***2***	**1**	**0**	**0**	**0**	*1*
5:15 PM	**0**	**0**	**8**	**5**	***13***	**0**	**0**	**0**	**1**	***1***	**0**	**1**	**0**	**0**	***1***
5:30 PM	1	0	5	6	*12*	0	0	0	1	*1*	0	0	0	0	*0*
5:45 PM	1	0	11	13	*25*	0	0	0	0	*0*	0	0	0	0	*0*
6:00 PM	1	0	14	5	*20*	0	0	0	1	*1*	0	0	0	0	*0*
6:15 PM	0	0	6	8	*14*	0	0	0	1	*1*	2	0	0	0	*2*
Count Total	7	0	78	69	*154*	0	0	0	8	*8*	4	1	0	0	*5*
Peak Hour	**4**	**0**	**42**	**37**	***83***	**0**	**0**	**0**	**5**	***5***	**2**	**1**	**0**	**0**	***3***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	San Bruno Ave Eastbound				San Bruno Ave Westbound				Bayshore Blvd Northbound				Bayshore Blvd Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**11**	**0**	**28**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**13**	**0**	**21**	0
5:00 PM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**11**	**0**	**0**	**0**	**8**	**0**	**21**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	**0**	**0**	**0**	**5**	**0**	**13**	**83**
5:30 PM	0	1	0	0	0	0	0	0	0	1	4	0	0	0	6	0	12	67
5:45 PM	0	1	0	0	0	0	0	0	0	0	11	0	0	0	13	0	25	71
6:00 PM	0	1	0	0	0	0	0	0	0	0	14	0	0	0	5	0	20	70
6:15 PM	0	0	0	0	0	0	0	0	0	0	6	0	0	0	8	0	14	71
Count Total	0	7	0	0	0	0	0	0	0	1	77	0	0	0	69	0	154	0
Peak Hour	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**42**	**0**	**0**	**0**	**37**	**0**	**83**	**0**

Two-Hour Count Summaries - Bikes

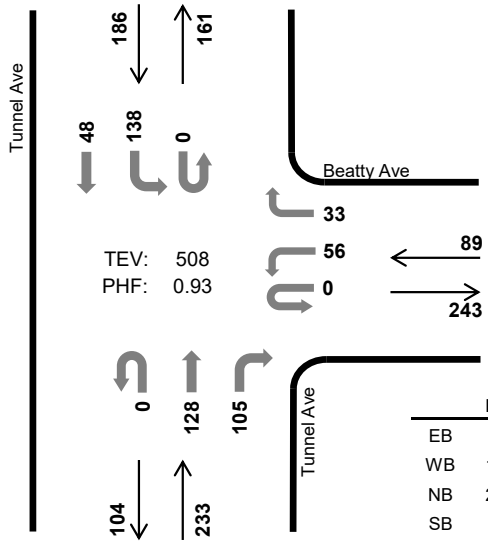
Interval Start	San Bruno Ave Eastbound			San Bruno Ave Westbound			Bayshore Blvd Northbound			Bayshore Blvd Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**5**
5:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	5
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	4
6:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	1	3
Count Total	0	0	0	0	0	0	0	0	0	0	8	0	8	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

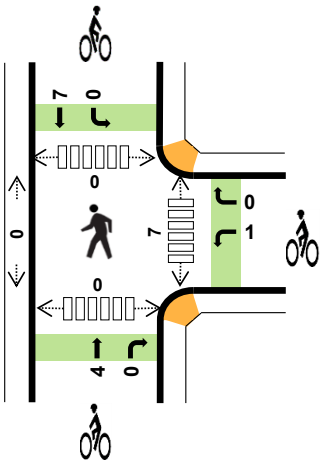
Tunnel Ave
Beatty Ave

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:00 AM to 8:00 AM

Peak Hour



	HV %:	PHF
EB	-	-
WB	11.2%	0.93
NB	22.3%	0.90
SB	2.7%	0.85
TOTAL	13.2%	0.93



Two-Hour Count Summaries

Interval Start		N/A Eastbound UT	LT	TH	RT	Beatty Ave Westbound UT	LT	TH	RT	Tunnel Ave Northbound UT	LT	TH	RT	Tunnel Ave Southbound UT	LT	TH	RT	15-min Total	Rolling One Hour
7:00 AM		**0**	**0**	**0**	**0**	**0**	**14**	**0**	**8**	**0**	**0**	**27**	**33**	**0**	**43**	**12**	**0**	**137**	0
7:15 AM		**0**	**0**	**0**	**0**	**0**	**17**	**0**	**3**	**0**	**0**	**37**	**9**	**0**	**22**	**14**	**0**	**102**	0
7:30 AM		**0**	**0**	**0**	**0**	**0**	**9**	**0**	**14**	**0**	**0**	**36**	**26**	**0**	**41**	**6**	**0**	**132**	0
7:45 AM		**0**	**0**	**0**	**0**	**0**	**16**	**0**	**8**	**0**	**0**	**28**	**37**	**0**	**32**	**16**	**0**	**137**	**508**
8:00 AM		0	0	0	0	1	9	0	8	0	0	46	19	0	37	5	0	125	496
8:15 AM		0	0	0	0	0	10	0	7	0	0	22	21	0	37	8	0	105	499
8:30 AM		0	0	0	0	1	14	0	11	0	0	26	28	0	40	20	0	140	507
8:45 AM		0	0	0	0	0	8	0	9	0	0	35	23	0	22	14	0	111	481
Count Total		0	0	0	0	2	97	0	68	0	0	257	196	0	274	95	0	989	0
Peak Hour	**All**	**0**	**0**	**0**	**0**	**0**	**56**	**0**	**33**	**0**	**0**	**128**	**105**	**0**	**138**	**48**	**0**	**508**	**0**
	HV	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**0**	**17**	**35**	**0**	**3**	**2**	**0**	**67**	**0**
	HV%	**-**	**-**	**-**	**-**	**-**	**9%**	**-**	**15%**	**-**	**-**	**13%**	**33%**	**-**	**2%**	**4%**	**-**	**13%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals EB	WB	NB	SB	Total	Bicycles EB	WB	NB	SB	Total	Pedestrians (Crossing Leg) East	West	North	South	Total
7:00 AM	**0**	**0**	**26**	**3**	***29***	**0**	**0**	**1**	**4**	***5***	**2**	**0**	**0**	**0**	*2*
7:15 AM	**0**	**3**	**9**	**1**	***13***	**0**	**0**	**0**	**1**	***1***	**1**	**0**	**0**	**0**	*1*
7:30 AM	**0**	**3**	**9**	**1**	***13***	**0**	**0**	**2**	**2**	***4***	**2**	**0**	**0**	**0**	*2*
7:45 AM	**0**	**4**	**8**	**0**	***12***	**0**	**1**	**1**	**0**	***2***	**2**	**0**	**0**	**0**	***2***
8:00 AM	0	4	15	3	*22*	0	0	2	3	*5*	3	0	0	0	*3*
8:15 AM	0	3	3	4	*10*	0	0	1	4	*5*	0	0	0	0	*0*
8:30 AM	0	3	5	0	*8*	0	0	0	3	*3*	0	0	0	0	*0*
8:45 AM	0	0	12	2	*14*	0	0	1	2	*3*	4	0	0	0	*4*
Count Total	0	20	87	14	*121*	0	1	8	19	*28*	14	0	0	0	*14*
Peak Hr	**0**	**10**	**52**	**5**	***67***	**0**	**1**	**4**	**7**	***12***	**7**	**0**	**0**	**0**	***7***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	N/A				Beatty Ave				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**24**	**0**	**2**	**1**	**0**	**29**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**6**	**3**	**0**	**1**	**0**	**0**	**13**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**4**	**5**	**0**	**0**	**1**	**0**	**13**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**5**	**3**	**0**	**0**	**0**	**0**	**12**	**67**
8:00 AM	0	0	0	0	1	3	0	0	0	0	12	3	0	3	0	0	22	60
8:15 AM	0	0	0	0	0	0	0	3	0	0	1	2	0	3	1	0	10	57
8:30 AM	0	0	0	0	0	0	0	3	0	0	3	2	0	0	0	0	8	52
8:45 AM	0	0	0	0	0	0	0	0	0	0	5	7	0	1	1	0	14	54
Count Total	0	0	0	0	1	8	0	11	0	0	38	49	0	10	4	0	121	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**5**	**0**	**0**	**17**	**35**	**0**	**3**	**2**	**0**	**67**	**0**

Two-Hour Count Summaries - Bikes

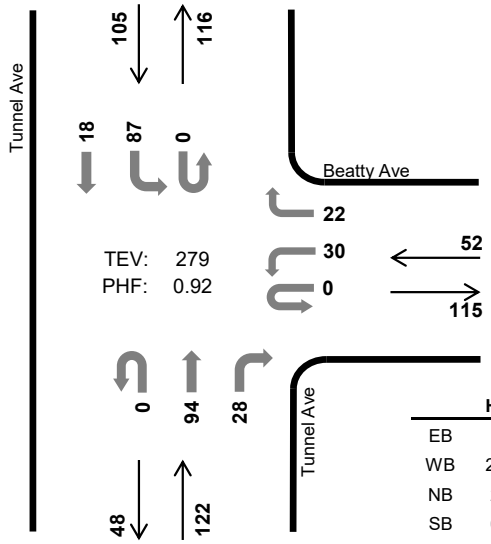
Interval Start	N/A			Beatty Ave			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**4**	**0**	**5**	0
7:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**2**	**0**	**4**	0
7:45 AM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**2**	**12**
8:00 AM	0	0	0	0	0	0	0	2	0	0	3	0	5	12
8:15 AM	0	0	0	0	0	0	0	1	0	0	4	0	5	16
8:30 AM	0	0	0	0	0	0	0	0	0	0	3	0	3	15
8:45 AM	0	0	0	0	0	0	0	1	0	0	2	0	3	16
Count Total	0	0	0	1	0	0	0	8	0	0	19	0	28	0
Peak Hour	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**4**	**0**	**0**	**7**	**0**	**12**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

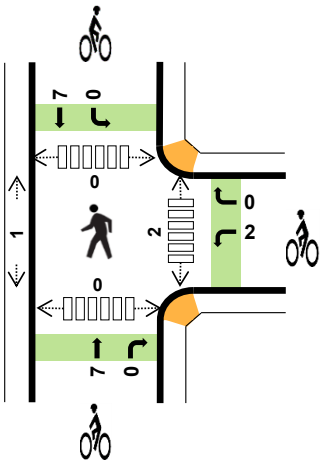
Tunnel Ave
Beatty Ave

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:30 PM to 5:30 PM

Peak Hour



	HV %:	PHF
EB	-	-
WB	26.9%	0.81
NB	2.5%	0.95
SB	6.7%	0.80
TOTAL	8.6%	0.92



Two-Hour Count Summaries

Interval Start	N/A Eastbound				Beatty Ave Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**8**	**0**	**0**	**26**	**5**	**0**	**18**	**7**	**0**	**71**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**6**	**0**	**0**	**26**	**6**	**0**	**13**	**4**	**0**	**59**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**5**	**0**	**0**	**25**	**7**	**0**	**29**	**4**	**0**	**76**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**13**	**0**	**3**	**0**	**0**	**17**	**10**	**0**	**27**	**3**	**0**	**73**	**279**
5:30 PM	0	0	0	0	1	6	0	5	0	0	25	4	0	17	5	0	63	271
5:45 PM	0	0	0	0	0	3	0	5	0	0	28	2	0	11	13	0	62	274
6:00 PM	0	0	0	0	0	13	0	3	0	0	28	2	0	16	7	0	69	267
6:15 PM	0	0	0	0	0	5	0	8	0	0	11	1	0	18	5	0	48	242
Count Total	0	0	0	0	1	57	0	43	0	0	186	37	0	149	48	0	521	0
Peak Hour All	**0**	**0**	**0**	**0**	**0**	**30**	**0**	**22**	**0**	**0**	**94**	**28**	**0**	**87**	**18**	**0**	**279**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**5**	**2**	**0**	**24**	**0**
Peak Hour HV%	**-**	**-**	**-**	**-**	**-**	**47%**	**-**	**0%**	**-**	**-**	**2%**	**4%**	**-**	**6%**	**11%**	**-**	**9%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	**0**	**3**	**1**	**3**	***7***	**0**	**1**	**1**	**1**	***3***	**1**	**0**	**0**	**0**	*1*
4:45 PM	**0**	**2**	**1**	**2**	***5***	**0**	**0**	**0**	**4**	***4***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**2**	**0**	**1**	***3***	**0**	**0**	**3**	**1**	***4***	**1**	**0**	**0**	**0**	*1*
5:15 PM	**0**	**7**	**1**	**1**	***9***	**0**	**1**	**3**	**1**	***5***	**0**	**1**	**0**	**0**	***1***
5:30 PM	0	4	2	0	*6*	0	0	3	0	*3*	0	0	0	0	*0*
5:45 PM	0	2	2	3	*7*	0	0	1	0	*1*	0	0	0	0	*0*
6:00 PM	0	8	0	2	*10*	0	0	2	0	*2*	1	0	0	0	*1*
6:15 PM	0	3	2	1	*6*	0	0	2	0	*2*	0	0	1	0	*1*
Count Total	0	31	9	13	*53*	0	2	15	7	*24*	3	1	1	0	*5*
Peak Hr	**0**	**14**	**3**	**7**	***24***	**0**	**2**	**7**	**7**	***16***	**2**	**1**	**0**	**0**	***3***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	N/A				Beatty Ave				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**1**	**0**	**7**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**1**	**0**	**5**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**3**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**0**	**9**	**24**
5:30 PM	0	0	0	0	1	3	0	0	0	0	1	1	0	0	0	0	6	23
5:45 PM	0	0	0	0	0	2	0	0	0	0	1	1	0	0	3	0	7	25
6:00 PM	0	0	0	0	0	8	0	0	0	0	0	0	0	2	0	0	10	32
6:15 PM	0	0	0	0	0	3	0	0	0	0	2	0	0	0	1	0	6	29
Count Total	0	0	0	0	1	30	0	0	0	0	6	3	0	7	6	0	53	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**14**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**5**	**2**	**0**	**24**	**0**

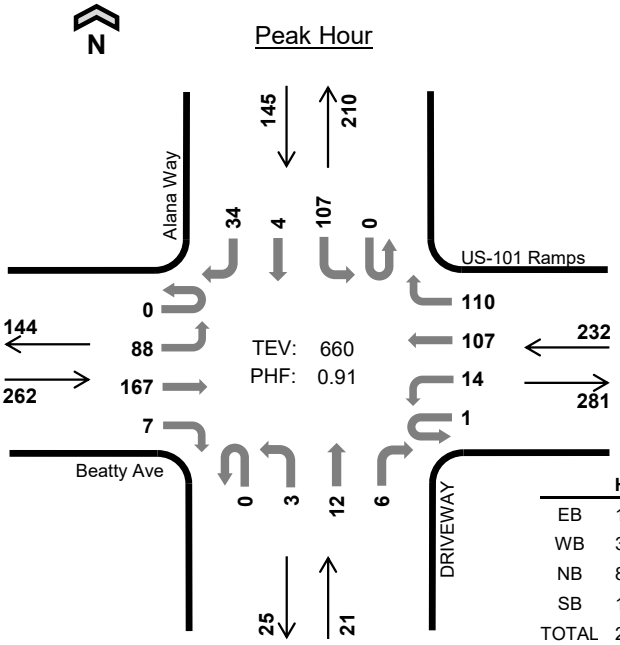
Two-Hour Count Summaries - Bikes

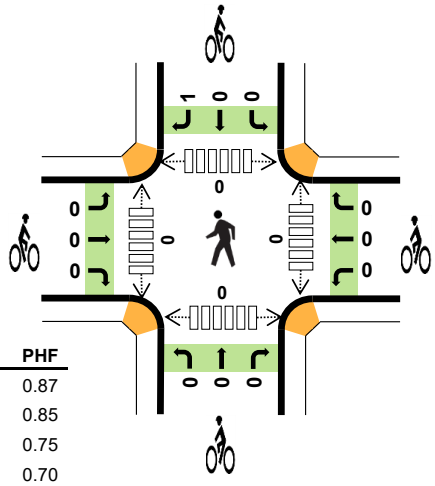
Interval Start	N/A			Beatty Ave			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**1**	**0**	**3**	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**4**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	0
5:15 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**5**	**16**
5:30 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	16
5:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	1	13
6:00 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	11
6:15 PM	0	0	0	0	0	0	0	2	0	0	0	0	2	8
Count Total	0	0	0	2	0	0	0	15	0	0	7	0	24	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**7**	**0**	**0**	**7**	**0**	**16**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Alana Way
Beatty Ave

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:30 AM to 8:30 AM





	HV %:	PHF
EB	10.3%	0.87
WB	35.8%	0.85
NB	85.7%	0.75
SB	14.5%	0.70
TOTAL	22.6%	0.91

Two-Hour Count Summaries

Interval Start	Beatty Ave Eastbound				US-101 Ramps Westbound				DRIVEWAY Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	28	43	1	1	5	22	20	0	0	0	2	0	7	1	12	142	0
7:15 AM	0	7	29	0	0	1	20	25	0	1	6	2	0	14	4	12	121	0
7:30 AM	**0**	**22**	**43**	**3**	**0**	**1**	**33**	**21**	**0**	**2**	**4**	**1**	**0**	**41**	**0**	**11**	**182**	0
7:45 AM	**0**	**24**	**51**	**0**	**0**	**4**	**27**	**22**	**0**	**0**	**1**	**4**	**0**	**26**	**2**	**12**	**173**	618
8:00 AM	**0**	**22**	**35**	**1**	**1**	**4**	**14**	**37**	**0**	**0**	**3**	**1**	**0**	**19**	**1**	**9**	**147**	623
8:15 AM	**0**	**20**	**38**	**3**	**0**	**5**	**33**	**30**	**0**	**1**	**4**	**0**	**0**	**21**	**1**	**2**	**158**	**660**
8:30 AM	0	27	51	1	0	3	28	31	0	3	6	3	0	20	2	7	182	660
8:45 AM	0	19	38	0	0	6	28	33	0	2	3	2	0	19	4	7	161	648
Count Total	0	169	328	9	2	29	205	219	0	9	27	15	0	167	15	72	1,266	0
Peak Hour All	**0**	**88**	**167**	**7**	**1**	**14**	**107**	**110**	**0**	**3**	**12**	**6**	**0**	**107**	**4**	**34**	**660**	**0**
Peak Hour HV	**0**	**15**	**5**	**7**	**0**	**13**	**53**	**17**	**0**	**2**	**11**	**5**	**0**	**8**	**4**	**9**	**149**	**0**
Peak Hour HV%	**-**	**17%**	**3%**	**100%**	**0%**	**93%**	**50%**	**15%**	**-**	**67%**	**92%**	**83%**	**-**	**7%**	**100%**	**26%**	**23%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	24	12	2	4	*42*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	5	12	7	5	*29*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	**9**	**22**	**6**	**6**	***43***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
7:45 AM	**3**	**22**	**4**	**6**	***35***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**8**	**14**	**4**	**6**	***32***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**7**	**25**	**4**	**3**	***39***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
8:30 AM	6	15	12	3	*36*	0	0	0	0	*0*	0	0	0	1	*1*
8:45 AM	11	23	5	4	*43*	0	0	0	0	*0*	0	0	0	1	*1*
Count Total	73	145	44	37	*299*	0	0	0	1	*1*	0	0	0	2	*2*
Peak Hour	**27**	**83**	**18**	**21**	***149***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Beatty Ave				US-101 Ramps				DRIVEWAY				Alana Way				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	19	4	1	0	5	5	2	0	0	0	2	0	0	1	3	42	0
7:15 AM	0	4	1	0	0	1	8	3	0	0	5	2	0	0	1	4	29	0
7:30 AM	**0**	**5**	**1**	**3**	**0**	**1**	**18**	**3**	**0**	**1**	**4**	**1**	**0**	**3**	**0**	**3**	**43**	0
7:45 AM	**0**	**2**	**1**	**0**	**0**	**4**	**11**	**7**	**0**	**0**	**1**	**3**	**0**	**3**	**2**	**1**	**35**	149
8:00 AM	**0**	**4**	**3**	**1**	**0**	**3**	**6**	**5**	**0**	**0**	**3**	**1**	**0**	**0**	**1**	**5**	**32**	139
8:15 AM	**0**	**4**	**0**	**3**	**0**	**5**	**18**	**2**	**0**	**1**	**3**	**0**	**0**	**2**	**1**	**0**	**39**	**149**
8:30 AM	0	5	0	1	0	2	12	1	0	3	6	3	0	1	2	0	36	142
8:45 AM	0	8	3	0	0	6	14	3	0	0	3	2	0	0	2	2	43	150
Count Total	0	51	13	9	0	27	92	26	0	5	25	14	0	9	10	18	299	0
Peak Hour	**0**	**15**	**5**	**7**	**0**	**13**	**53**	**17**	**0**	**2**	**11**	**5**	**0**	**8**	**4**	**9**	**149**	**0**

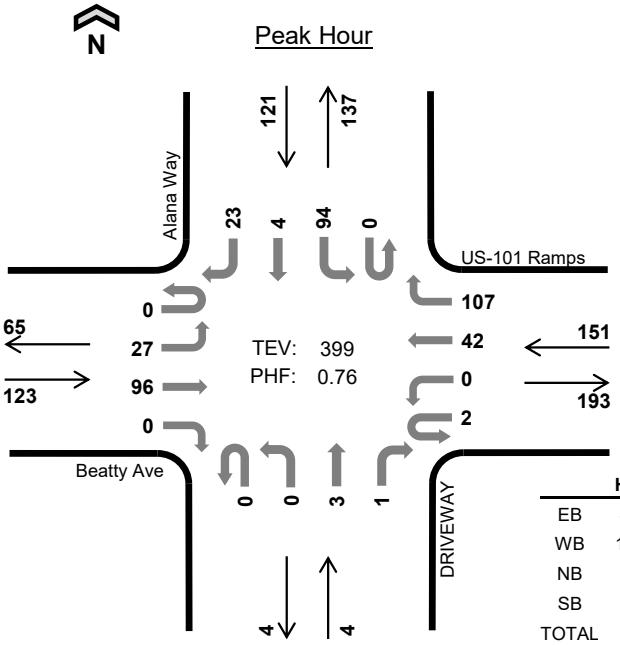
Two-Hour Count Summaries - Bikes

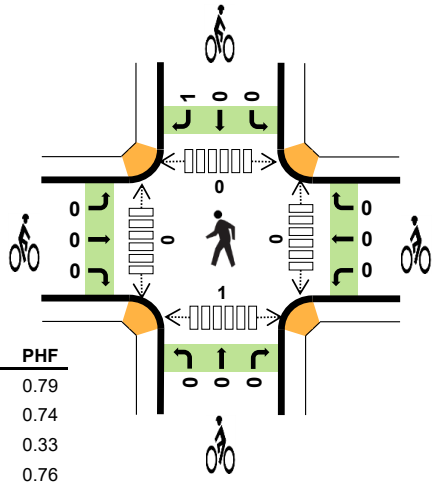
Interval Start	Beatty Ave			US-101 Ramps			DRIVEWAY			Alana Way			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	1
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
8:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
8:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	1	1	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Alana Way
Beatty Ave

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 4:45 PM to 5:45 PM





	HV %:	PHF
EB	4.9%	0.79
WB	11.9%	0.74
NB	0.0%	0.33
SB	8.3%	0.76
TOTAL	8.5%	0.76

Two-Hour Count Summaries

Interval Start	Beatty Ave Eastbound				US-101 Ramps Westbound				DRIVEWAY Northbound				Alana Way Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	1	3	23	0	1	0	11	27	0	0	0	0	0	22	0	1	89	0
4:45 PM	**0**	**6**	**13**	**0**	**1**	**0**	**5**	**28**	**0**	**0**	**0**	**0**	**0**	**19**	**3**	**5**	**80**	0
5:00 PM	**0**	**7**	**29**	**0**	**0**	**0**	**7**	**18**	**0**	**0**	**2**	**1**	**0**	**26**	**1**	**5**	**96**	0
5:15 PM	**0**	**6**	**33**	**0**	**0**	**0**	**15**	**36**	**0**	**0**	**1**	**0**	**0**	**31**	**0**	**9**	**131**	396
5:30 PM	**0**	**8**	**21**	**0**	**1**	**0**	**15**	**25**	**0**	**0**	**0**	**0**	**0**	**18**	**0**	**4**	**92**	**399**
5:45 PM	0	1	14	0	0	0	4	25	0	0	0	0	0	22	0	3	69	388
6:00 PM	0	4	17	1	0	1	15	34	0	0	0	0	2	17	0	6	97	389
6:15 PM	0	4	16	0	0	0	10	26	0	0	0	0	0	18	0	5	79	337
Count Total	1	39	166	1	3	1	82	219	0	0	3	1	2	173	4	38	733	0
Peak Hour All	**0**	**27**	**96**	**0**	**2**	**0**	**42**	**107**	**0**	**0**	**3**	**1**	**0**	**94**	**4**	**23**	**399**	**0**
Peak Hour HV	**0**	**3**	**3**	**0**	**0**	**0**	**17**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**4**	**34**	**0**
Peak Hour HV%	**-**	**11%**	**3%**	**-**	**0%**	**-**	**40%**	**1%**	**-**	**-**	**0%**	**0%**	**-**	**2%**	**100%**	**17%**	**9%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	4	6	0	0	*10*	0	0	0	1	*1*	0	0	0	0	*0*
4:45 PM	**0**	**1**	**0**	**6**	***7***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
5:00 PM	**0**	**4**	**0**	**2**	***6***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**1**	*1*
5:15 PM	**1**	**9**	**0**	**1**	***11***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**5**	**4**	**0**	**1**	***10***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
5:45 PM	0	1	0	3	*4*	0	0	0	0	*0*	0	1	0	1	*2*
6:00 PM	5	14	0	0	*19*	0	0	0	0	*0*	0	0	0	0	*0*
6:15 PM	1	3	0	0	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	16	42	0	13	*71*	0	0	0	2	*2*	0	1	0	2	*3*
Peak Hour	**6**	**18**	**0**	**10**	***34***	**0**	**0**	**0**	**1**	***1***	**0**	**0**	**0**	**1**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Beatty Ave				US-101 Ramps				DRIVEWAY				Alana Way				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	2	2	0	0	0	6	0	0	0	0	0	0	0	0	0	10	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	**2**	**7**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**6**	0
5:15 PM	**0**	**1**	**0**	**0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**11**	34
5:30 PM	**0**	**2**	**3**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**10**	**34**
5:45 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	1	0	2	4	31
6:00 PM	0	3	1	1	0	1	11	2	0	0	0	0	0	0	0	0	19	44
6:15 PM	0	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	4	37
Count Total	0	9	6	1	0	1	38	3	0	0	0	0	0	3	4	6	71	0
Peak Hour	**0**	**3**	**3**	**0**	**0**	**0**	**17**	**1**	**0**	**0**	**0**	**0**	**0**	**2**	**4**	**4**	**34**	**0**

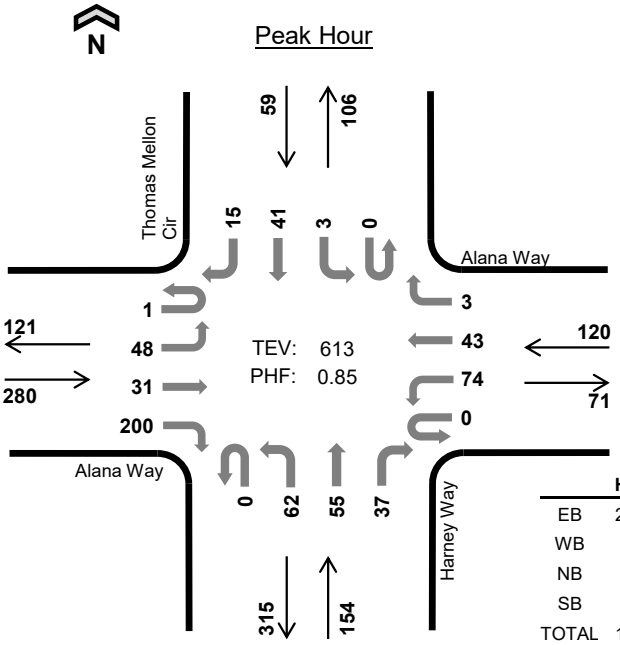
Two-Hour Count Summaries - Bikes

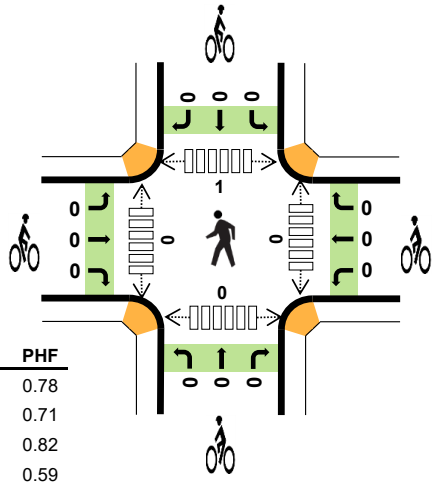
Interval Start	Beatty Ave			US-101 Ramps			DRIVEWAY			Alana Way			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	1	0
4:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	2
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Count Total	0	0	0	0	0	0	0	0	0	0	0	2	2	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Thomas Mellon Cir
Alana Way

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM





	HV %:	PHF
EB	22.5%	0.78
WB	5.0%	0.71
NB	7.1%	0.82
SB	5.1%	0.59
TOTAL	13.5%	0.85

Two-Hour Count Summaries

Interval Start	Alana Way Eastbound				Alana Way Westbound				Harney Way Northbound				Thomas Mellon Cir Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	10	5	36	0	20	7	1	0	22	5	11	0	0	6	3	126	0
7:15 AM	1	3	6	24	0	22	8	0	0	13	4	7	0	0	3	1	92	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	1	0	7	0	2	0	0	0	2	1	0	0	0	4	0	17	235
8:00 AM	**0**	**9**	**13**	**68**	**0**	**33**	**9**	**0**	**0**	**16**	**12**	**13**	**0**	**1**	**5**	**1**	**180**	289
8:15 AM	**0**	**13**	**6**	**49**	**0**	**17**	**13**	**3**	**0**	**12**	**11**	**5**	**0**	**0**	**10**	**4**	**143**	340
8:30 AM	**1**	**14**	**7**	**43**	**0**	**10**	**12**	**0**	**0**	**12**	**19**	**7**	**0**	**2**	**16**	**7**	**150**	490
8:45 AM	**0**	**12**	**5**	**40**	**0**	**14**	**9**	**0**	**0**	**22**	**13**	**12**	**0**	**0**	**10**	**3**	**140**	**613**
Count Total	2	62	42	267	0	118	58	4	0	99	65	55	0	3	54	19	848	0
Peak Hour All	**1**	**48**	**31**	**200**	**0**	**74**	**43**	**3**	**0**	**62**	**55**	**37**	**0**	**3**	**41**	**15**	**613**	**0**
Peak Hour HV	**0**	**0**	**3**	**60**	**0**	**2**	**4**	**0**	**0**	**10**	**0**	**1**	**0**	**1**	**0**	**2**	**83**	**0**
Peak Hour HV%	**0%**	**0%**	**10%**	**30%**	**-**	**3%**	**9%**	**0%**	**-**	**16%**	**0%**	**3%**	**-**	**33%**	**0%**	**13%**	**14%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	24	1	3	2	*30*	0	0	0	0	*0*	0	0	0	0	*0*
7:15 AM	14	1	4	0	*19*	0	0	0	0	*0*	0	0	0	0	*0*
7:30 AM	0	0	0	0	*0*	0	0	0	0	*0*	0	0	0	0	*0*
7:45 AM	1	0	0	1	*2*	0	0	0	0	*0*	0	0	0	0	*0*
8:00 AM	**17**	**2**	**5**	**1**	***25***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	*1*
8:15 AM	**14**	**2**	**1**	**1**	***18***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**15**	**0**	**1**	**0**	***16***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	*0*
8:45 AM	**17**	**2**	**4**	**1**	***24***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
Count Total	102	8	18	6	*134*	0	0	0	0	*0*	0	0	1	0	*1*
Peak Hour	**63**	**6**	**11**	**3**	***83***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**0**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Alana Way Eastbound				Alana Way Westbound				Harney Way Northbound				Thomas Mellon Cir Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	24	0	0	1	0	0	3	0	0	0	0	1	1	30	0
7:15 AM	1	0	0	13	0	1	0	0	0	3	0	1	0	0	0	0	19	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	2	51
8:00 AM	**0**	**0**	**2**	**15**	**0**	**1**	**1**	**0**	**0**	**5**	**0**	**0**	**0**	**1**	**0**	**0**	**25**	46
8:15 AM	**0**	**0**	**1**	**13**	**0**	**1**	**1**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**18**	45
8:30 AM	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**16**	61
8:45 AM	**0**	**0**	**0**	**17**	**0**	**0**	**2**	**0**	**0**	**3**	**0**	**1**	**0**	**0**	**0**	**1**	**24**	**83**
Count Total	1	0	3	98	0	3	5	0	0	16	0	2	0	1	2	3	134	0
Peak Hour	**0**	**0**	**3**	**60**	**0**	**2**	**4**	**0**	**0**	**10**	**0**	**1**	**0**	**1**	**0**	**2**	**83**	**0**

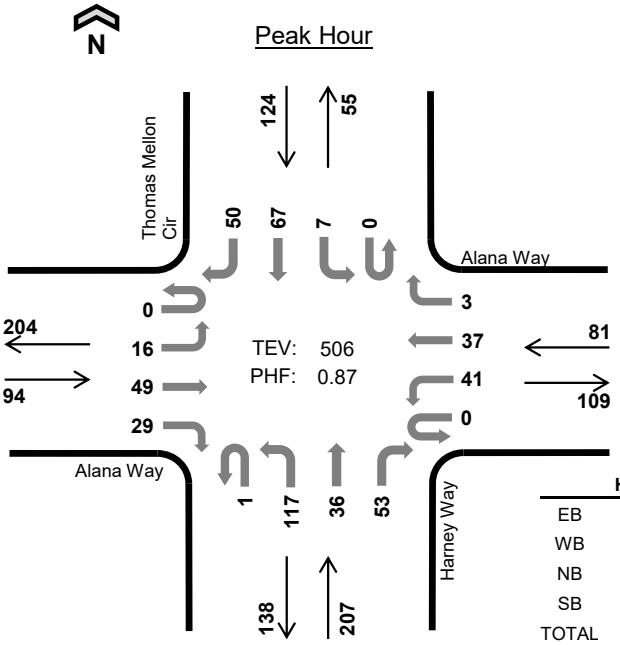
Two-Hour Count Summaries - Bikes

Interval Start	Alana Way Eastbound			Alana Way Westbound			Harney Way Northbound			Thomas Mellon Cir Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:15 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**
Count Total	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**

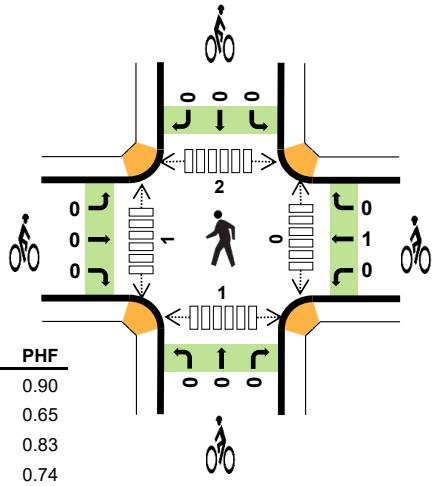
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Thomas Mellon Cir
Alana Way

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	2.1%	0.90
WB	1.2%	0.65
NB	2.9%	0.83
SB	1.6%	0.74
TOTAL	2.2%	0.87



Two-Hour Count Summaries

Interval Start	Alana Way Eastbound				Alana Way Westbound				Harney Way Northbound				Thomas Mellon Cir Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	4	11	12	0	6	7	3	0	21	8	8	0	0	9	13	102	0
4:45 PM	0	4	8	7	0	4	14	1	0	31	4	9	0	1	4	7	94	0
5:00 PM	**0**	**4**	**12**	**10**	**0**	**7**	**6**	**0**	**1**	**32**	**6**	**12**	**0**	**2**	**21**	**15**	**128**	0
5:15 PM	**0**	**5**	**11**	**7**	**0**	**14**	**14**	**3**	**0**	**24**	**14**	**11**	**0**	**1**	**26**	**15**	**145**	469
5:30 PM	**0**	**4**	**14**	**6**	**0**	**13**	**7**	**0**	**0**	**25**	**4**	**16**	**0**	**3**	**13**	**9**	**114**	481
5:45 PM	**0**	**3**	**12**	**6**	**0**	**7**	**10**	**0**	**0**	**36**	**12**	**14**	**0**	**1**	**7**	**11**	**119**	**506**
6:00 PM	0	2	12	7	0	9	13	0	0	27	6	13	0	1	4	6	100	478
6:15 PM	0	1	10	5	0	9	12	0	0	24	7	10	0	0	6	10	94	427
Count Total	0	27	90	60	0	69	83	7	1	220	61	93	0	9	90	86	896	0
Peak Hour All	**0**	**16**	**49**	**29**	**0**	**41**	**37**	**3**	**1**	**117**	**36**	**53**	**0**	**7**	**67**	**50**	**506**	**0**
Peak Hour HV	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**1**	**0**	**0**	**0**	**2**	**11**	**0**
Peak Hour HV%	**-**	**0%**	**2%**	**3%**	**-**	**2%**	**0%**	**0%**	**0%**	**4%**	**0%**	**2%**	**-**	**0%**	**0%**	**4%**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	2	1	0	3	*6*	0	1	0	0	*1*	0	0	0	0	*0*
4:45 PM	0	2	4	2	*8*	0	0	0	0	*0*	0	0	0	0	*0*
5:00 PM	**1**	**0**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**1**	**0**	**0**	*1*
5:15 PM	**0**	**0**	**1**	**1**	***2***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**1**	**1**	*2*
5:30 PM	**1**	**1**	**0**	**1**	***3***	**0**	**1**	**0**	**0**	***1***	**0**	**0**	**1**	**0**	*1*
5:45 PM	**0**	**0**	**3**	**0**	***3***	**0**	**0**	**0**	**0**	***0***	**0**	**0**	**0**	**0**	***0***
6:00 PM	4	1	0	1	*6*	0	0	0	0	*0*	0	0	0	0	*0*
6:15 PM	1	1	0	2	*4*	0	0	0	0	*0*	0	0	0	0	*0*
Count Total	9	6	10	10	*35*	0	2	0	0	*2*	0	1	2	1	*4*
Peak Hour	**2**	**1**	**6**	**2**	***11***	**0**	**1**	**0**	**0**	***1***	**0**	**1**	**2**	**1**	***4***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Alana Way Eastbound				Alana Way Westbound				Harney Way Northbound				Thomas Mellon Cir Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	2	0	0	0	1	0	0	0	0	0	0	0	3	6	0
4:45 PM	0	0	0	0	0	1	1	0	0	4	0	0	0	0	0	2	8	0
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**3**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**2**	19
5:30 PM	**0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**3**	16
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**11**
6:00 PM	0	0	1	3	0	0	1	0	0	0	0	0	0	0	0	1	6	14
6:15 PM	0	0	0	1	0	1	0	0	0	0	0	0	0	0	1	1	4	16
Count Total	0	0	2	7	0	3	2	1	0	9	0	1	0	0	1	9	35	0
Peak Hour	**0**	**0**	**1**	**1**	**0**	**1**	**0**	**0**	**0**	**5**	**0**	**1**	**0**	**0**	**0**	**2**	**11**	**0**

Two-Hour Count Summaries - Bikes

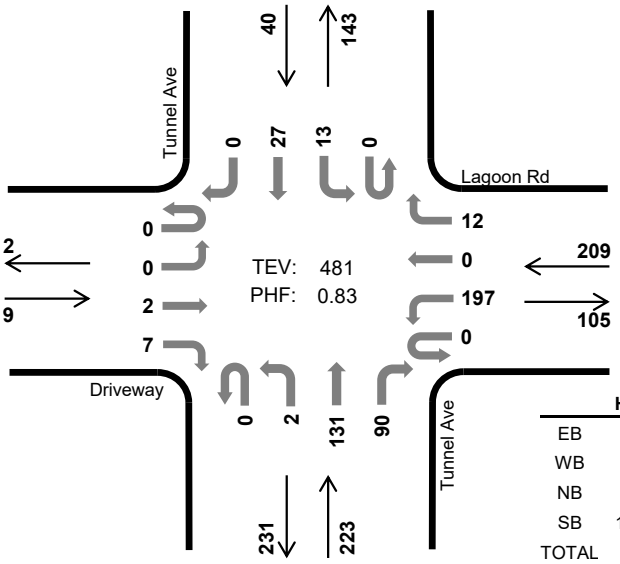
Interval Start	Alana Way Eastbound			Alana Way Westbound			Harney Way Northbound			Thomas Mellon Cir Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	1	0	0	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	1
5:30 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	1
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**
6:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	2	0	0	0	0	0	0	0	2	0
Peak Hour	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**

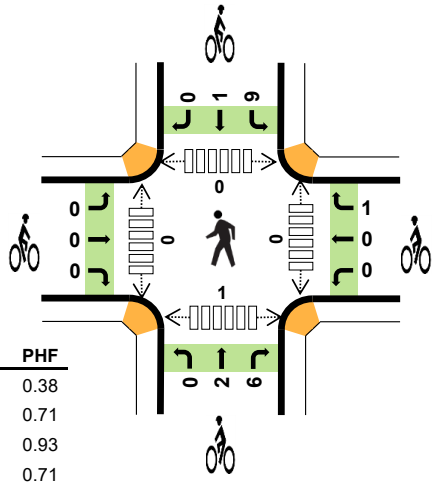
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Tunnel Ave
Lagoon Rd

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM

Peak Hour





	HV %:	PHF
EB	0.0%	0.38
WB	6.2%	0.71
NB	5.8%	0.93
SB	12.5%	0.71
TOTAL	6.4%	0.83

Two-Hour Count Summaries

Interval Start	Driveway Eastbound				Lagoon Rd Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	1	0	30	0	2	0	1	30	14	0	4	5	0	87	0
7:15 AM	0	0	1	0	0	40	0	3	0	0	37	7	0	4	7	0	99	0
7:30 AM	0	0	0	0	0	33	0	1	0	0	37	18	0	2	5	0	96	0
7:45 AM	**0**	**0**	**0**	**2**	**0**	**70**	**0**	**4**	**0**	**1**	**34**	**21**	**0**	**2**	**11**	**0**	**145**	427
8:00 AM	**0**	**0**	**2**	**4**	**0**	**40**	**0**	**1**	**0**	**1**	**31**	**25**	**0**	**3**	**3**	**0**	**110**	450
8:15 AM	**0**	**0**	**0**	**0**	**0**	**35**	**0**	**3**	**0**	**0**	**31**	**19**	**0**	**3**	**4**	**0**	**95**	446
8:30 AM	**0**	**0**	**0**	**1**	**0**	**52**	**0**	**4**	**0**	**0**	**35**	**25**	**0**	**5**	**9**	**0**	**131**	**481**
8:45 AM	0	0	0	1	0	61	0	1	0	1	30	17	0	2	7	0	120	456
Count Total	0	0	3	9	0	361	0	19	0	4	265	146	0	25	51	0	883	0
Peak Hour All	**0**	**0**	**2**	**7**	**0**	**197**	**0**	**12**	**0**	**2**	**131**	**90**	**0**	**13**	**27**	**0**	**481**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**1**	**0**	**0**	**8**	**5**	**0**	**4**	**1**	**0**	**31**	**0**
Peak Hour HV%	**-**	**-**	**0%**	**0%**	**-**	**6%**	**-**	**8%**	**-**	**0%**	**6%**	**6%**	**-**	**31%**	**4%**	**-**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	0	3	8	2	*13*	0	1	1	5	*7*	0	0	0	0	*0*
7:15 AM	0	6	4	2	*12*	0	0	0	0	*0*	0	2	0	0	*2*
7:30 AM	0	1	3	2	*6*	0	0	4	1	*5*	0	0	0	0	*0*
7:45 AM	**0**	**1**	**3**	**0**	***4***	**0**	**0**	**2**	**1**	***3***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**0**	**3**	**2**	**2**	***7***	**0**	**0**	**2**	**3**	***5***	**0**	**0**	**0**	**1**	*1*
8:15 AM	**0**	**4**	**5**	**1**	***10***	**0**	**1**	**2**	**3**	***6***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**0**	**5**	**3**	**2**	***10***	**0**	**0**	**2**	**3**	***5***	**0**	**0**	**0**	**0**	***0***
8:45 AM	0	4	7	1	*12*	0	0	2	3	*5*	0	0	0	0	*0*
Count Total	0	27	35	12	*74*	0	2	15	19	*36*	0	2	0	1	*3*
Peak Hour	**0**	**13**	**13**	**5**	***31***	**0**	**1**	**8**	**10**	***19***	**0**	**0**	**0**	**1**	***1***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Driveway				Lagoon Rd				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	0	0	0	3	0	0	0	0	3	5	0	1	1	0	13	0
7:15 AM	0	0	0	0	0	5	0	1	0	0	4	0	0	2	0	0	12	0
7:30 AM	0	0	0	0	0	1	0	0	0	0	1	2	0	0	2	0	6	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**4**	35
8:00 AM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**1**	**1**	**0**	**7**	29
8:15 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**1**	**0**	**0**	**10**	27
8:30 AM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**1**	**0**	**0**	**3**	**0**	**0**	**2**	**0**	**0**	**10**	**31**
8:45 AM	0	0	0	0	0	4	0	0	0	0	6	1	0	0	1	0	12	39
Count Total	0	0	0	0	0	25	0	2	0	0	22	13	0	7	5	0	74	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**1**	**0**	**0**	**8**	**5**	**0**	**4**	**1**	**0**	**31**	**0**

Two-Hour Count Summaries - Bikes

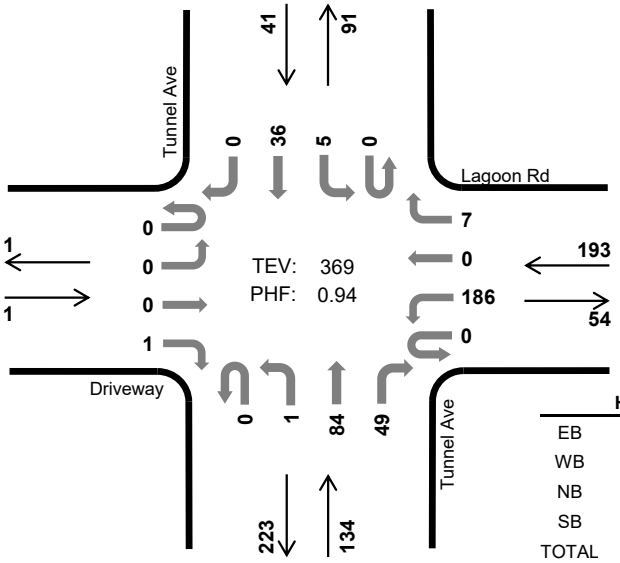
Interval Start	Driveway			Lagoon Rd			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	0	1	0	0	0	0	1	5	0	0	7	0
7:15 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:30 AM	0	0	0	0	0	0	0	3	1	1	0	0	5	0
7:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**1**	**0**	**0**	**3**	15
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**3**	**0**	**0**	**5**	13
8:15 AM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**2**	**2**	**1**	**0**	**6**	19
8:30 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	**3**	**0**	**0**	**5**	**19**
8:45 AM	0	0	0	0	0	0	0	1	1	3	0	0	5	21
Count Total	0	0	0	1	0	1	0	6	9	18	1	0	36	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**2**	**6**	**9**	**1**	**0**	**19**	**0**

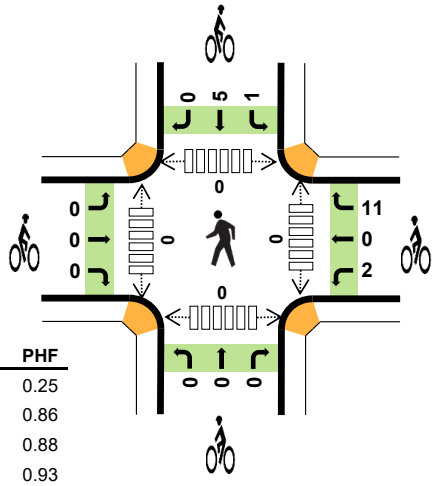
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Tunnel Ave
Lagoon Rd

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM

Peak Hour





	HV %:	PHF
EB	0.0%	0.25
WB	5.2%	0.86
NB	5.2%	0.88
SB	9.8%	0.93
TOTAL	5.7%	0.94

Two-Hour Count Summaries

Interval Start	Driveway Eastbound				Lagoon Rd Westbound				Tunnel Ave Northbound				Tunnel Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	53	0	0	0	0	24	12	0	2	8	0	99	0
4:45 PM	0	0	0	1	0	36	0	2	0	1	18	5	0	3	6	0	72	0
5:00 PM	**0**	**0**	**0**	**1**	**0**	**38**	**0**	**2**	**0**	**1**	**22**	**13**	**0**	**0**	**11**	**0**	**88**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**46**	**0**	**1**	**0**	**0**	**16**	**18**	**0**	**1**	**9**	**0**	**91**	350
5:30 PM	**0**	**0**	**0**	**0**	**0**	**56**	**0**	**0**	**0**	**0**	**20**	**6**	**0**	**3**	**7**	**0**	**92**	343
5:45 PM	**0**	**0**	**0**	**0**	**0**	**46**	**0**	**4**	**0**	**0**	**26**	**12**	**0**	**1**	**9**	**0**	**98**	**369**
6:00 PM	0	0	0	0	0	43	0	2	0	0	12	6	0	3	5	0	71	352
6:15 PM	0	0	0	0	1	32	0	3	1	0	12	10	0	1	8	0	68	329
Count Total	0	0	0	2	1	350	0	14	1	2	150	82	0	14	63	0	679	0
Peak Hour All	**0**	**0**	**0**	**1**	**0**	**186**	**0**	**7**	**0**	**1**	**84**	**49**	**0**	**5**	**36**	**0**	**369**	**0**
Peak Hour HV	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**1**	**0**	**0**	**6**	**1**	**0**	**2**	**2**	**0**	**21**	**0**
Peak Hour HV%	**-**	**-**	**-**	**0%**	**-**	**5%**	**-**	**14%**	**-**	**0%**	**7%**	**2%**	**-**	**40%**	**6%**	**-**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	0	8	2	1	*11*	0	2	0	1	*3*	0	0	0	0	*0*
4:45 PM	0	2	3	2	*7*	0	2	1	2	*5*	0	0	0	0	*0*
5:00 PM	**0**	**2**	**3**	**1**	***6***	**0**	**3**	**0**	**4**	***7***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**4**	**2**	**0**	***6***	**0**	**4**	**0**	**1**	***5***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**0**	**1**	**0**	**2**	***3***	**0**	**3**	**0**	**1**	***4***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**0**	**3**	**2**	**1**	***6***	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***
6:00 PM	0	2	0	0	*2*	0	2	0	0	*2*	0	0	0	0	*0*
6:15 PM	0	1	1	0	*2*	0	2	0	0	*2*	0	0	0	0	*0*
Count Total	0	23	13	7	*43*	0	21	1	9	*31*	0	0	0	0	*0*
Peak Hour	**0**	**10**	**7**	**4**	***21***	**0**	**13**	**0**	**6**	***19***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Driveway				Lagoon Rd				Tunnel Ave				Tunnel Ave				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	0	0	0	8	0	0	0	0	0	2	0	0	1	0	11	0
4:45 PM	0	0	0	0	0	2	0	0	0	0	3	0	0	2	0	0	7	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**1**	**0**	**0**	**1**	**0**	**6**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**6**	30
5:30 PM	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**3**	22
5:45 PM	**0**	**0**	**0**	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**6**	**21**
6:00 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	2	17
6:15 PM	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	2	13
Count Total	0	0	0	0	0	22	0	1	0	0	10	3	0	4	3	0	43	0
Peak Hour	**0**	**0**	**0**	**0**	**0**	**9**	**0**	**1**	**0**	**0**	**6**	**1**	**0**	**2**	**2**	**0**	**21**	**0**

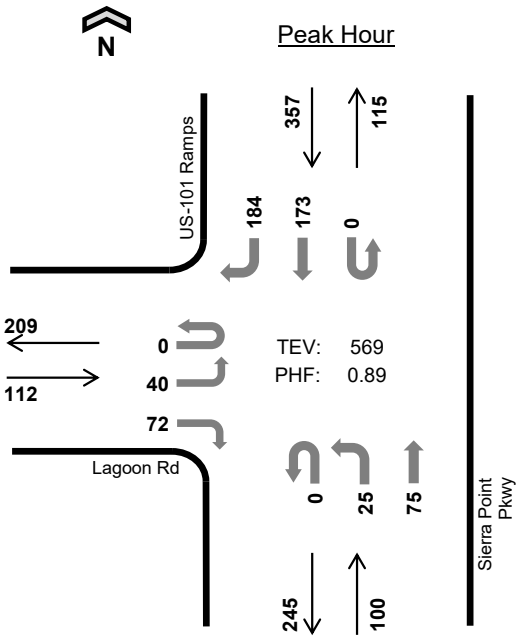
Two-Hour Count Summaries - Bikes

Interval Start	Driveway			Lagoon Rd			Tunnel Ave			Tunnel Ave			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	2	0	0	0	0	0	1	0	0	3	0
4:45 PM	0	0	0	2	0	0	0	0	1	1	1	0	5	0
5:00 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**4**	**0**	**7**	0
5:15 PM	**0**	**0**	**0**	**2**	**0**	**2**	**0**	**0**	**0**	**1**	**0**	**0**	**5**	20
5:30 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**1**	**0**	**4**	21
5:45 PM	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**19**
6:00 PM	0	0	0	1	0	1	0	0	0	0	0	0	2	14
6:15 PM	0	0	0	0	0	2	0	0	0	0	0	0	2	11
Count Total	0	0	0	7	0	14	0	0	1	3	6	0	31	0
Peak Hour	**0**	**0**	**0**	**2**	**0**	**11**	**0**	**0**	**0**	**1**	**5**	**0**	**19**	**0**

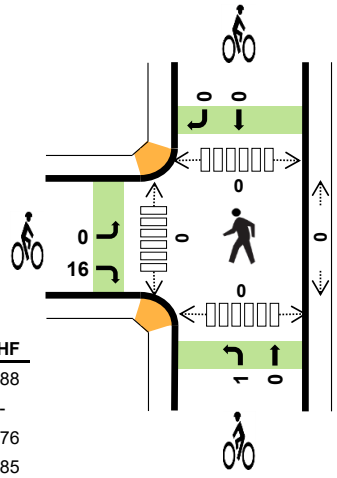
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Sierra Point Pkwy
Lagoon Rd

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM



	HV %:	PHF
EB	8.0%	0.88
WB	-	-
NB	18.0%	0.76
SB	4.5%	0.85
TOTAL	7.6%	0.89



Two-Hour Count Summaries

Interval Start	Lagoon Rd Eastbound				n/a Westbound				Sierra Point Pkwy Northbound				US-101 Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	9	0	9	0	0	0	0	0	4	17	0	0	0	19	31	89	0
7:15 AM	0	7	0	6	0	0	0	0	1	6	12	0	0	0	22	38	92	0
7:30 AM	0	7	0	14	0	0	0	0	0	4	16	0	0	0	37	30	108	0
7:45 AM	**0**	**9**	**0**	**15**	**0**	**0**	**0**	**0**	**0**	**6**	**18**	**0**	**0**	**0**	**37**	**68**	**153**	442
8:00 AM	**0**	**13**	**0**	**19**	**0**	**0**	**0**	**0**	**0**	**3**	**16**	**0**	**0**	**0**	**37**	**35**	**123**	476
8:15 AM	**0**	**5**	**0**	**20**	**0**	**0**	**0**	**0**	**0**	**6**	**18**	**0**	**0**	**0**	**48**	**37**	**134**	518
8:30 AM	**0**	**13**	**0**	**18**	**0**	**0**	**0**	**0**	**0**	**10**	**23**	**0**	**0**	**0**	**51**	**44**	**159**	**569**
8:45 AM	0	6	0	13	0	0	0	0	0	11	15	0	0	0	44	59	148	564
Count Total	0	69	0	114	0	0	0	0	1	50	135	0	0	0	295	342	1,006	0
Peak Hour All	**0**	**40**	**0**	**72**	**0**	**0**	**0**	**0**	**0**	**25**	**75**	**0**	**0**	**0**	**173**	**184**	**569**	**0**
Peak Hour HV	**0**	**7**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**17**	**0**	**0**	**0**	**8**	**8**	**43**	**0**
Peak Hour HV%	**-**	**18%**	**-**	**3%**	**-**	**-**	**-**	**-**	**-**	**4%**	**23%**	**-**	**-**	**-**	**5%**	**4%**	**8%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	6	0	3	6	*15*	6	0	1	0	*7*	0	0	0	0	*0*
7:15 AM	0	0	4	6	*10*	1	0	0	0	*1*	0	0	0	0	*0*
7:30 AM	2	0	6	4	*12*	1	0	0	0	*1*	0	0	0	1	*1*
7:45 AM	**2**	**0**	**5**	**5**	***12***	**2**	**0**	**0**	**0**	***2***	**0**	**0**	**0**	**0**	*0*
8:00 AM	**2**	**0**	**6**	**1**	***9***	**4**	**0**	**1**	**0**	***5***	**0**	**0**	**0**	**0**	*0*
8:15 AM	**3**	**0**	**5**	**5**	***13***	**5**	**0**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**2**	**0**	**2**	**5**	***9***	**5**	**0**	**0**	**0**	***5***	**0**	**0**	**0**	**0**	***0***
8:45 AM	1	0	3	3	*7*	4	0	0	0	*4*	0	0	0	0	*0*
Count Total	18	0	34	35	*87*	28	0	2	0	*30*	0	0	0	1	*1*
Peak Hr	**9**	**0**	**18**	**16**	***43***	**16**	**0**	**1**	**0**	***17***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Lagoon Rd				n/a				Sierra Point Pkwy				US-101 Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	4	0	2	0	0	0	0	0	0	3	0	0	0	1	5	15	0
7:15 AM	0	0	0	0	0	0	0	0	1	0	3	0	0	0	2	4	10	0
7:30 AM	0	1	0	1	0	0	0	0	0	0	6	0	0	0	3	1	12	0
7:45 AM	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**4**	**1**	**12**	49
8:00 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**1**	**9**	43
8:15 AM	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**0**	**0**	**0**	**2**	**3**	**13**	46
8:30 AM	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**3**	**9**	**43**
8:45 AM	0	1	0	0	0	0	0	0	0	1	2	0	0	0	0	3	7	38
Count Total	0	13	0	5	0	0	0	0	1	2	31	0	0	0	14	21	87	0
Peak Hour	**0**	**7**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**1**	**17**	**0**	**0**	**0**	**8**	**8**	**43**	**0**

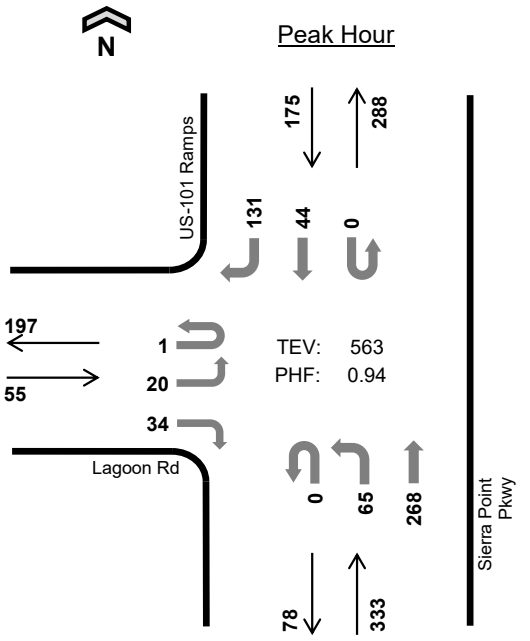
Two-Hour Count Summaries - Bikes

Interval Start	Lagoon Rd			n/a			Sierra Point Pkwy			US-101 Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	0	6	0	0	0	1	0	0	0	0	0	7	0
7:15 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	1	0	0	0	0	0	0	0	0	0	1	0
7:45 AM	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	11
8:00 AM	**0**	**0**	**4**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**5**	9
8:15 AM	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	13
8:30 AM	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	**17**
8:45 AM	0	0	4	0	0	0	0	0	0	0	0	0	4	19
Count Total	0	0	28	0	0	0	2	0	0	0	0	0	30	0
Peak Hour	**0**	**0**	**16**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**17**	**0**

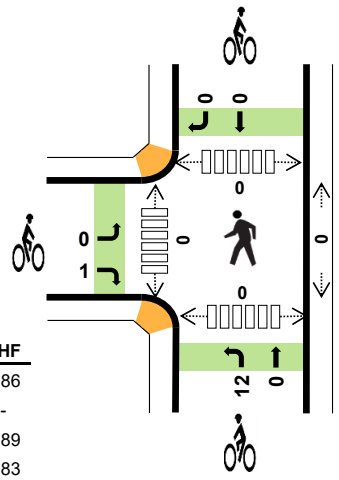
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Sierra Point Pkwy
Lagoon Rd

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	5.5%	0.86
WB	-	-
NB	2.1%	0.89
SB	6.3%	0.83
TOTAL	3.7%	0.94



Two-Hour Count Summaries

Interval Start	Lagoon Rd Eastbound				n/a Westbound				Sierra Point Pkwy Northbound				US-101 Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	8	0	6	0	0	0	0	0	11	63	0	0	0	9	41	138	0
4:45 PM	0	7	0	1	0	0	0	0	0	11	56	0	0	0	11	26	112	0
5:00 PM	**1**	**3**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**19**	**69**	**0**	**0**	**0**	**14**	**25**	**139**	0
5:15 PM	**0**	**5**	**0**	**11**	**0**	**0**	**0**	**0**	**0**	**15**	**76**	**0**	**0**	**0**	**9**	**31**	**147**	536
5:30 PM	**0**	**6**	**0**	**7**	**0**	**0**	**0**	**0**	**0**	**21**	**73**	**0**	**0**	**0**	**9**	**34**	**150**	548
5:45 PM	**0**	**6**	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**10**	**50**	**0**	**0**	**0**	**12**	**41**	**127**	**563**
6:00 PM	0	4	0	7	0	0	0	0	0	2	38	0	0	0	9	40	100	524
6:15 PM	0	7	0	6	0	0	0	0	0	11	40	0	0	0	11	24	99	476
Count Total	1	46	0	54	0	0	0	0	0	100	465	0	0	0	84	262	1,012	0
Peak Hour All	**1**	**20**	**0**	**34**	**0**	**0**	**0**	**0**	**0**	**65**	**268**	**0**	**0**	**0**	**44**	**131**	**563**	**0**
Peak Hour HV	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**3**	**8**	**21**	**0**
Peak Hour HV%	**0%**	**10%**	**-**	**3%**	**-**	**-**	**-**	**-**	**-**	**2%**	**2%**	**-**	**-**	**-**	**7%**	**6%**	**4%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	2	0	1	7	*10*	1	0	3	0	*4*	0	0	0	0	*0*
4:45 PM	2	0	0	3	*5*	1	0	1	0	*2*	0	1	0	0	*1*
5:00 PM	**1**	**0**	**4**	**2**	***7***	**1**	**0**	**2**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**0**	**0**	**1**	**4**	***5***	**0**	**0**	**4**	**0**	***4***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**1**	**0**	**1**	**1**	***3***	**0**	**0**	**3**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**1**	**0**	**1**	**4**	***6***	**0**	**0**	**3**	**0**	***3***	**0**	**0**	**0**	**0**	***0***
6:00 PM	0	0	1	1	*2*	0	0	2	0	*2*	0	0	0	0	*0*
6:15 PM	0	0	1	1	*2*	0	0	2	0	*2*	0	0	0	0	*0*
Count Total	7	0	10	23	*40*	3	0	20	0	*23*	0	1	0	0	*1*
Peak Hr	**3**	**0**	**7**	**11**	***21***	**1**	**0**	**12**	**0**	***13***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Lagoon Rd				n/a				Sierra Point Pkwy				US-101 Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	2	0	0	0	0	0	0	0	1	0	0	0	0	1	6	10	0
4:45 PM	0	2	0	0	0	0	0	0	0	0	0	0	0	0	1	2	5	0
5:00 PM	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**2**	**7**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**3**	**5**	27
5:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**3**	20
5:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**3**	**6**	**21**
6:00 PM	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	2	16
6:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	13
Count Total	0	6	0	1	0	0	0	0	0	3	7	0	0	0	6	17	40	0
Peak Hour	**0**	**2**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**1**	**6**	**0**	**0**	**0**	**3**	**8**	**21**	**0**

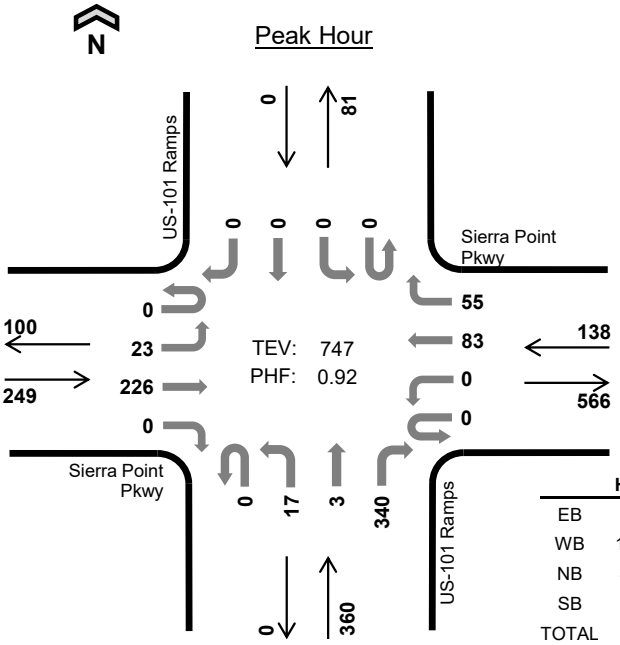
Two-Hour Count Summaries - Bikes

Interval Start	Lagoon Rd			n/a			Sierra Point Pkwy			US-101 Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	1	0	0	0	3	0	0	0	0	0	4	0
4:45 PM	0	0	1	0	0	0	1	0	0	0	0	0	2	0
5:00 PM	**0**	**0**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**3**	0
5:15 PM	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**4**	13
5:30 PM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	12
5:45 PM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**3**	**13**
6:00 PM	0	0	0	0	0	0	2	0	0	0	0	0	2	12
6:15 PM	0	0	0	0	0	0	2	0	0	0	0	0	2	10
Count Total	0	0	3	0	0	0	20	0	0	0	0	0	23	0
Peak Hour	**0**	**0**	**1**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**13**	**0**

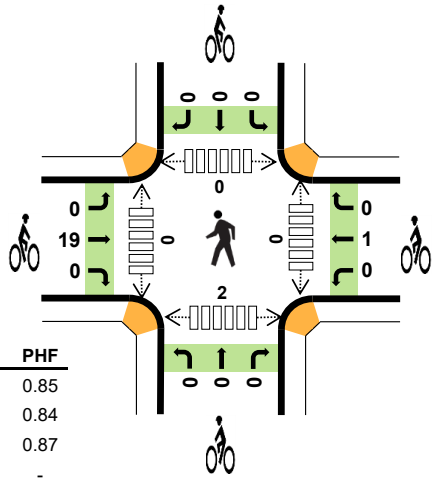
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

US-101 Ramps
Sierra Point Pkwy

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 8:00 AM to 9:00 AM



	HV %:	PHF
EB	2.0%	0.85
WB	15.2%	0.84
NB	4.4%	0.87
SB	-	-
TOTAL	5.6%	0.92



Two-Hour Count Summaries

Interval Start	Sierra Point Pkwy Eastbound				Sierra Point Pkwy Westbound				US-101 Ramps Northbound				US-101 Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	5	22	0	0	0	17	6	0	4	0	29	0	0	0	0	83	0
7:15 AM	0	4	27	0	0	0	21	4	0	2	0	40	0	0	0	0	98	0
7:30 AM	0	4	40	0	0	0	18	11	0	2	3	44	0	0	0	0	122	0
7:45 AM	0	8	52	0	0	0	25	11	0	3	0	70	0	0	0	0	169	472
8:00 AM	**0**	**7**	**45**	**0**	**0**	**0**	**16**	**14**	**0**	**3**	**1**	**71**	**0**	**0**	**0**	**0**	**157**	546
8:15 AM	**0**	**9**	**56**	**0**	**0**	**0**	**18**	**16**	**0**	**6**	**2**	**96**	**0**	**0**	**0**	**0**	**203**	651
8:30 AM	**0**	**6**	**67**	**0**	**0**	**0**	**28**	**13**	**0**	**5**	**0**	**72**	**0**	**0**	**0**	**0**	**191**	720
8:45 AM	**0**	**1**	**58**	**0**	**0**	**0**	**21**	**12**	**0**	**3**	**0**	**101**	**0**	**0**	**0**	**0**	**196**	**747**
Count Total	0	44	367	0	0	0	164	87	0	28	6	523	0	0	0	0	1,219	0
Peak Hour All	**0**	**23**	**226**	**0**	**0**	**0**	**83**	**55**	**0**	**17**	**3**	**340**	**0**	**0**	**0**	**0**	**747**	**0**
Peak Hour HV	**0**	**1**	**4**	**0**	**0**	**0**	**13**	**8**	**0**	**0**	**3**	**13**	**0**	**0**	**0**	**0**	**42**	**0**
Peak Hour HV%	**-**	**4%**	**2%**	**-**	**-**	**-**	**16%**	**15%**	**-**	**0%**	**100%**	**4%**	**-**	**-**	**-**	**-**	**6%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	4	5	4	0	*13*	4	1	0	0	*5*	0	0	0	0	*0*
7:15 AM	3	7	4	0	*14*	3	0	0	0	*3*	0	0	0	0	*0*
7:30 AM	6	9	5	0	*20*	2	0	0	0	*2*	0	0	0	0	*0*
7:45 AM	5	10	6	0	*21*	3	1	0	0	*4*	1	0	1	0	*2*
8:00 AM	**0**	**7**	**5**	**0**	***12***	**2**	**1**	**0**	**0**	***3***	**0**	**0**	**0**	**2**	*2*
8:15 AM	**2**	**5**	**5**	**0**	***12***	**6**	**0**	**0**	**0**	***6***	**0**	**0**	**0**	**0**	*0*
8:30 AM	**3**	**4**	**2**	**0**	***9***	**8**	**0**	**0**	**0**	***8***	**0**	**0**	**0**	**0**	*0*
8:45 AM	**0**	**5**	**4**	**0**	***9***	**3**	**0**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	***0***
Count Total	23	52	35	0	*110*	31	3	0	0	*34*	1	0	1	2	*4*
Peak Hour	**5**	**21**	**16**	**0**	***42***	**19**	**1**	**0**	**0**	***20***	**0**	**0**	**0**	**2**	***2***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Sierra Point Pkwy				Sierra Point Pkwy				US-101 Ramps				US-101 Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	2	2	0	0	0	4	1	0	0	0	4	0	0	0	0	13	0
7:15 AM	0	1	2	0	0	0	6	1	0	0	0	4	0	0	0	0	14	0
7:30 AM	0	1	5	0	0	0	6	3	0	0	0	5	0	0	0	0	20	0
7:45 AM	0	1	4	0	0	0	7	3	0	0	0	6	0	0	0	0	21	68
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**3**	**0**	**0**	**1**	**4**	**0**	**0**	**0**	**0**	**12**	67
8:15 AM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**2**	**3**	**0**	**0**	**0**	**0**	**12**	65
8:30 AM	**0**	**1**	**2**	**0**	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**9**	54
8:45 AM	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**9**	**42**
Count Total	0	6	17	0	0	0	36	16	0	0	3	32	0	0	0	0	110	0
Peak Hour	**0**	**1**	**4**	**0**	**0**	**0**	**13**	**8**	**0**	**0**	**3**	**13**	**0**	**0**	**0**	**0**	**42**	**0**

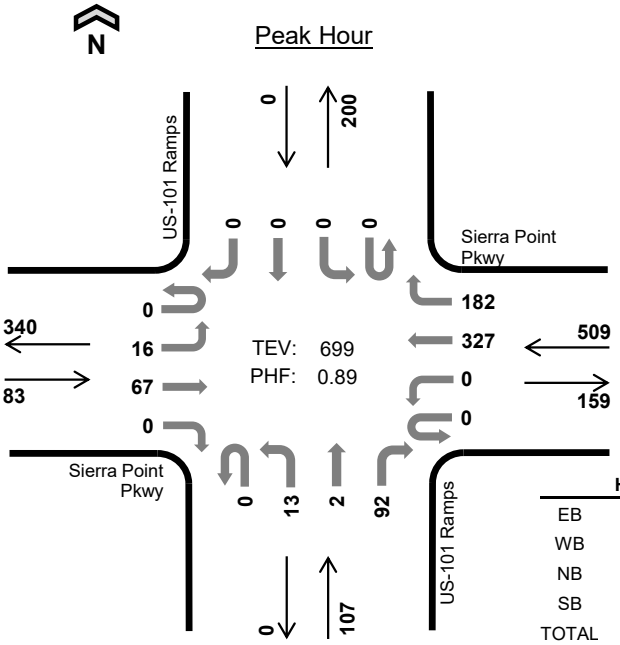
Two-Hour Count Summaries - Bikes

Interval Start	Sierra Point Pkwy			Sierra Point Pkwy			US-101 Ramps			US-101 Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	4	0	0	1	0	0	0	0	0	0	0	5	0
7:15 AM	0	3	0	0	0	0	0	0	0	0	0	0	3	0
7:30 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
7:45 AM	0	3	0	1	0	0	0	0	0	0	0	0	4	14
8:00 AM	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	12
8:15 AM	**0**	**6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	15
8:30 AM	**0**	**8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**8**	21
8:45 AM	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**20**
Count Total	0	31	0	1	2	0	0	0	0	0	0	0	34	0
Peak Hour	**0**	**19**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**20**	**0**

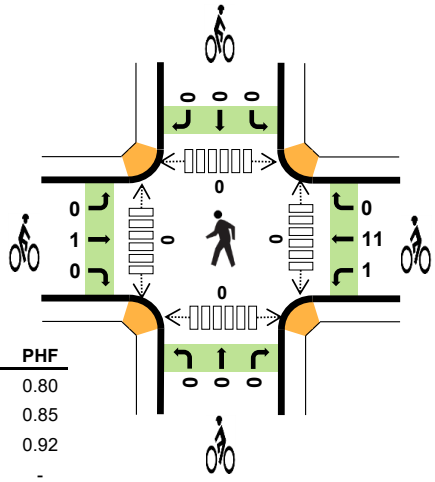
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

US-101 Ramps
Sierra Point Pkwy

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM



	HV %:	PHF
EB	6.0%	0.80
WB	2.0%	0.85
NB	2.8%	0.92
SB	-	-
TOTAL	2.6%	0.89



Two-Hour Count Summaries

Interval Start	Sierra Point Pkwy Eastbound				Sierra Point Pkwy Westbound				US-101 Ramps Northbound				US-101 Ramps Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	3	12	0	0	0	73	39	0	1	1	12	0	0	0	0	141	0
4:45 PM	0	2	11	0	0	0	65	35	0	0	1	21	0	0	0	0	135	0
5:00 PM	**0**	**4**	**17**	**0**	**0**	**0**	**99**	**51**	**0**	**2**	**0**	**23**	**0**	**0**	**0**	**0**	**196**	0
5:15 PM	**0**	**4**	**22**	**0**	**0**	**0**	**88**	**56**	**0**	**1**	**0**	**24**	**0**	**0**	**0**	**0**	**195**	667
5:30 PM	**0**	**6**	**8**	**0**	**0**	**0**	**80**	**36**	**0**	**7**	**1**	**21**	**0**	**0**	**0**	**0**	**159**	685
5:45 PM	**0**	**2**	**20**	**0**	**0**	**0**	**60**	**39**	**0**	**3**	**1**	**24**	**0**	**0**	**0**	**0**	**149**	**699**
6:00 PM	0	2	9	0	0	0	37	27	0	2	0	14	0	0	0	0	91	594
6:15 PM	0	3	13	0	0	0	51	23	0	2	0	13	0	0	0	0	105	504
Count Total	0	26	112	0	0	0	553	306	0	18	4	152	0	0	0	0	1,171	0
Peak Hour All	**0**	**16**	**67**	**0**	**0**	**0**	**327**	**182**	**0**	**13**	**2**	**92**	**0**	**0**	**0**	**0**	**699**	**0**
Peak Hour HV	**0**	**0**	**5**	**0**	**0**	**0**	**7**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**18**	**0**
Peak Hour HV%	**-**	**0%**	**7%**	**-**	**-**	**-**	**2%**	**2%**	**-**	**0%**	**0%**	**3%**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	2	3	0	0	*5*	0	3	0	0	*3*	0	0	0	1	*1*
4:45 PM	0	1	3	0	*4*	2	3	0	0	*5*	0	0	0	0	*0*
5:00 PM	**2**	**5**	**0**	**0**	***7***	**1**	**2**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
5:15 PM	**1**	**1**	**0**	**0**	***2***	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
5:30 PM	**1**	**2**	**2**	**0**	***5***	**0**	**3**	**0**	**0**	***3***	**0**	**0**	**0**	**0**	*0*
5:45 PM	**1**	**2**	**1**	**0**	***4***	**0**	**4**	**0**	**0**	***4***	**0**	**0**	**0**	**0**	***0***
6:00 PM	0	1	2	0	*3*	0	2	0	0	*2*	0	0	0	0	*0*
6:15 PM	0	1	1	0	*2*	0	2	0	0	*2*	0	0	0	0	*0*
Count Total	7	16	9	0	*32*	3	22	0	0	*25*	0	0	0	1	*1*
Peak Hour	**5**	**10**	**3**	**0**	***18***	**1**	**12**	**0**	**0**	***13***	**0**	**0**	**0**	**0**	***0***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Sierra Point Pkwy				Sierra Point Pkwy				US-101 Ramps				US-101 Ramps				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	1	1	0	0	0	1	2	0	0	0	0	0	0	0	0	5	0
4:45 PM	0	0	0	0	0	0	0	1	0	0	1	2	0	0	0	0	4	0
5:00 PM	**0**	**0**	**2**	**0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**7**	0
5:15 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2**	18
5:30 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**5**	18
5:45 PM	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**4**	**18**
6:00 PM	0	0	0	0	0	0	0	1	0	1	0	1	0	0	0	0	3	14
6:15 PM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	2	14
Count Total	0	1	6	0	0	0	9	7	0	1	1	7	0	0	0	0	32	0
Peak Hour	**0**	**0**	**5**	**0**	**0**	**0**	**7**	**3**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**18**	**0**

Two-Hour Count Summaries - Bikes

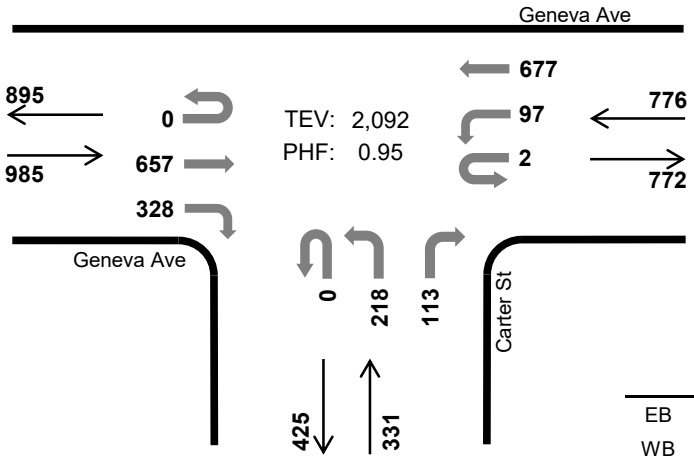
Interval Start	Sierra Point Pkwy			Sierra Point Pkwy			US-101 Ramps			US-101 Ramps			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	0	0	0	3	0	0	0	0	0	0	0	3	0
4:45 PM	0	2	0	1	2	0	0	0	0	0	0	0	5	0
5:00 PM	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	0
5:15 PM	**0**	**0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	14
5:30 PM	**0**	**0**	**0**	**1**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	14
5:45 PM	**0**	**0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	**13**
6:00 PM	0	0	0	0	2	0	0	0	0	0	0	0	2	12
6:15 PM	0	0	0	1	1	0	0	0	0	0	0	0	2	11
Count Total	0	3	0	3	19	0	0	0	0	0	0	0	25	0
Peak Hour	**0**	**1**	**0**	**1**	**11**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**13**	**0**

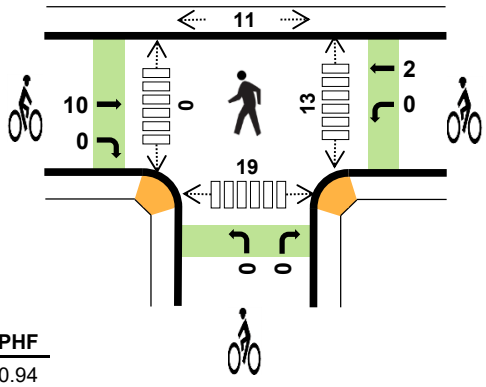
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Carter St
Geneva Ave

Peak Hour

Date: 05/10/2022
Count Period: 7:00 AM to 9:00 AM
Peak Hour: 7:45 AM to 8:45 AM





	HV %:	PHF
EB	2.2%	0.94
WB	5.2%	0.92
NB	1.8%	0.90
SB	-	-
TOTAL	3.3%	0.95

Two-Hour Count Summaries

Interval Start	Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				N/A Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	92	30	2	9	91	0	0	19	0	23	0	0	0	0	266	0
7:15 AM	0	0	110	71	1	9	98	0	0	48	0	17	0	0	0	0	354	0
7:30 AM	0	0	142	66	1	20	160	0	0	68	0	22	0	0	0	0	479	0
7:45 AM	**0**	**0**	**167**	**94**	**0**	**26**	**155**	**0**	**0**	**61**	**0**	**19**	**0**	**0**	**0**	**0**	**522**	1,621
8:00 AM	**0**	**0**	**164**	**93**	**0**	**28**	**179**	**0**	**0**	**57**	**0**	**31**	**0**	**0**	**0**	**0**	**552**	1,907
8:15 AM	**0**	**0**	**156**	**73**	**1**	**21**	**188**	**0**	**0**	**57**	**0**	**35**	**0**	**0**	**0**	**0**	**531**	2,084
8:30 AM	**0**	**0**	**170**	**68**	**1**	**22**	**155**	**0**	**0**	**43**	**0**	**28**	**0**	**0**	**0**	**0**	**487**	**2,092**
8:45 AM	0	0	136	72	1	20	141	0	0	33	0	25	0	0	0	0	428	1,998
Count Total	0	0	1,137	567	7	155	1,167	0	0	386	0	200	0	0	0	0	3,619	0
Peak Hour All	**0**	**0**	**657**	**328**	**2**	**97**	**677**	**0**	**0**	**218**	**0**	**113**	**0**	**0**	**0**	**0**	**2,092**	**0**
Peak Hour HV	**0**	**0**	**22**	**0**	**0**	**5**	**35**	**0**	**0**	**2**	**0**	**4**	**0**	**0**	**0**	**0**	**68**	**0**
Peak Hour HV%	**-**	**-**	**3%**	**0%**	**0%**	**5%**	**5%**	**-**	**-**	**1%**	**-**	**4%**	**-**	**-**	**-**	**-**	**3%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
7:00 AM	7	8	5	0	*20*	2	0	0	0	*2*	1	0	3	5	*9*
7:15 AM	2	8	3	0	*13*	1	0	0	0	*1*	2	0	1	7	*10*
7:30 AM	6	9	8	0	*23*	0	7	0	0	*7*	3	0	2	5	*10*
7:45 AM	**3**	**7**	**2**	**0**	***12***	**4**	**0**	**0**	**0**	***4***	**3**	**0**	**4**	**5**	*12*
8:00 AM	**8**	**10**	**1**	**0**	***19***	**0**	**0**	**0**	**0**	***0***	**1**	**0**	**1**	**5**	*7*
8:15 AM	**4**	**15**	**1**	**0**	***20***	**4**	**1**	**0**	**0**	***5***	**6**	**0**	**2**	**8**	*16*
8:30 AM	**7**	**8**	**2**	**0**	***17***	**2**	**1**	**0**	**0**	***3***	**3**	**0**	**4**	**1**	***8***
8:45 AM	7	11	2	0	*20*	2	2	0	0	*4*	2	0	5	3	*10*
Count Total	44	76	24	0	*144*	15	11	0	0	*26*	21	0	22	39	*82*
Peak Hr	**22**	**40**	**6**	**0**	***68***	**10**	**2**	**0**	**0**	***12***	**13**	**0**	**11**	**19**	***43***

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				N/A Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
7:00 AM	0	0	6	1	0	0	8	0	0	1	0	4	0	0	0	0	20	0
7:15 AM	0	0	2	0	0	1	7	0	0	1	0	2	0	0	0	0	13	0
7:30 AM	0	0	6	0	0	1	8	0	0	5	0	3	0	0	0	0	23	0
7:45 AM	**0**	**0**	**3**	**0**	**0**	**2**	**5**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**12**	68
8:00 AM	**0**	**0**	**8**	**0**	**0**	**2**	**8**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**19**	67
8:15 AM	**0**	**0**	**4**	**0**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**20**	74
8:30 AM	**0**	**0**	**7**	**0**	**0**	**1**	**7**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**0**	**0**	**17**	**68**
8:45 AM	0	0	7	0	0	1	10	0	0	1	0	1	0	0	0	0	20	76
Count Total	0	0	43	1	0	8	68	0	0	10	0	14	0	0	0	0	144	0
Peak Hour	**0**	**0**	**22**	**0**	**0**	**5**	**35**	**0**	**0**	**2**	**0**	**4**	**0**	**0**	**0**	**0**	**68**	**0**

Two-Hour Count Summaries - Bikes

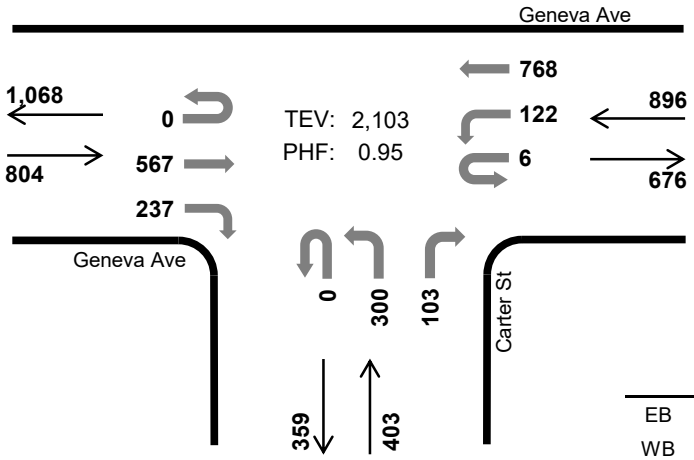
Interval Start	Geneva Ave Eastbound			Geneva Ave Westbound			Carter St Northbound			N/A Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
7:00 AM	0	2	0	0	0	0	0	0	0	0	0	0	2	0
7:15 AM	0	1	0	0	0	0	0	0	0	0	0	0	1	0
7:30 AM	0	0	0	0	7	0	0	0	0	0	0	0	7	0
7:45 AM	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4**	14
8:00 AM	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	12
8:15 AM	**0**	**4**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**5**	16
8:30 AM	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	**12**
8:45 AM	0	2	0	0	2	0	0	0	0	0	0	0	4	12
Count Total	0	15	0	0	11	0	0	0	0	0	0	0	26	0
Peak Hour	**0**	**10**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**12**	**0**

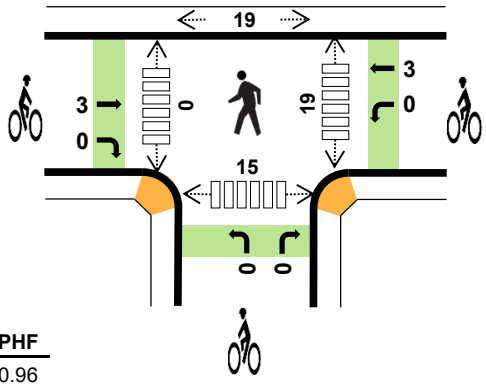
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Carter St
Geneva Ave

Peak Hour

Date: 05/10/2022
Count Period: 4:30 PM to 6:30 PM
Peak Hour: 5:00 PM to 6:00 PM





	HV %:	PHF
EB	2.4%	0.96
WB	1.3%	0.91
NB	0.7%	0.92
SB	-	-
TOTAL	1.6%	0.95

Two-Hour Count Summaries

Interval Start		Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				N/A Southbound				15-min Total	Rolling One Hour
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM		0	0	140	44	0	40	205	0	0	89	0	29	0	0	0	0	547	0
4:45 PM		0	0	123	49	1	38	190	0	0	56	0	21	0	0	0	0	478	0
5:00 PM		**0**	**0**	**144**	**44**	**1**	**27**	**175**	**0**	**0**	**79**	**0**	**19**	**0**	**0**	**0**	**0**	**489**	0
5:15 PM		**0**	**0**	**149**	**59**	**1**	**35**	**209**	**0**	**0**	**83**	**0**	**20**	**0**	**0**	**0**	**0**	**556**	2,070
5:30 PM		**0**	**0**	**131**	**68**	**1**	**30**	**195**	**0**	**0**	**76**	**0**	**34**	**0**	**0**	**0**	**0**	**535**	2,058
5:45 PM		**0**	**0**	**143**	**66**	**3**	**30**	**189**	**0**	**0**	**62**	**0**	**30**	**0**	**0**	**0**	**0**	**523**	**2,103**
6:00 PM		0	0	114	48	1	30	161	0	0	54	0	22	0	0	0	0	430	2,044
6:15 PM		0	0	112	40	0	31	132	0	0	57	0	23	0	0	0	0	395	1,883
Count Total		0	0	1,056	418	8	261	1,456	0	0	556	0	198	0	0	0	0	3,953	0
Peak Hour	**All**	**0**	**0**	**567**	**237**	**6**	**122**	**768**	**0**	**0**	**300**	**0**	**103**	**0**	**0**	**0**	**0**	**2,103**	**0**
	HV	**0**	**0**	**17**	**2**	**0**	**4**	**8**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**34**	**0**
	HV%	**-**	**-**	**3%**	**1%**	**0%**	**3%**	**1%**	**-**	**-**	**0%**	**-**	**2%**	**-**	**-**	**-**	**-**	**2%**	**0**

Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:30 PM	8	7	1	0	*16*	3	0	0	0	*3*	11	0	5	13	*29*
4:45 PM	8	4	2	0	*14*	0	0	0	0	*0*	3	0	3	4	*10*
5:00 PM	**5**	**4**	**0**	**0**	***9***	**0**	**1**	**0**	**0**	***1***	**9**	**0**	**4**	**3**	*16*
5:15 PM	**4**	**0**	**1**	**0**	***5***	**1**	**2**	**0**	**0**	***3***	**4**	**0**	**8**	**4**	*16*
5:30 PM	**7**	**6**	**1**	**0**	***14***	**1**	**0**	**0**	**0**	***1***	**5**	**0**	**4**	**6**	*15*
5:45 PM	**3**	**2**	**1**	**0**	***6***	**1**	**0**	**0**	**0**	***1***	**1**	**0**	**3**	**2**	***6***
6:00 PM	2	1	1	0	*4*	2	3	0	0	*5*	9	0	2	6	*17*
6:15 PM	3	6	0	0	*9*	0	0	0	0	*0*	6	0	4	4	*14*
Count Total	40	30	7	0	*77*	8	6	0	0	*14*	48	0	33	42	*123*
Peak Hr	**19**	**12**	**3**	**0**	***34***	**3**	**3**	**0**	**0**	***6***	**19**	**0**	**19**	**15**	***53***

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	Geneva Ave Eastbound				Geneva Ave Westbound				Carter St Northbound				N/A Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:30 PM	0	0	8	0	0	1	6	0	0	1	0	0	0	0	0	0	16	0
4:45 PM	0	0	8	0	0	0	4	0	0	1	0	1	0	0	0	0	14	0
5:00 PM	**0**	**0**	**4**	**1**	**0**	**1**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**9**	0
5:15 PM	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**5**	44
5:30 PM	**0**	**0**	**6**	**1**	**0**	**3**	**3**	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**14**	42
5:45 PM	**0**	**0**	**3**	**0**	**0**	**0**	**2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**34**
6:00 PM	0	0	2	0	0	0	1	0	0	0	0	1	0	0	0	0	4	29
6:15 PM	0	0	2	1	0	1	5	0	0	0	0	0	0	0	0	0	9	33
Count Total	0	0	37	3	0	6	24	0	0	3	0	4	0	0	0	0	77	0
Peak Hour	**0**	**0**	**17**	**2**	**0**	**4**	**8**	**0**	**0**	**1**	**0**	**2**	**0**	**0**	**0**	**0**	**34**	**0**

Two-Hour Count Summaries - Bikes

Interval Start	Geneva Ave Eastbound			Geneva Ave Westbound			Carter St Northbound			N/A Southbound			15-min Total	Rolling One Hour
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:30 PM	0	2	1	0	0	0	0	0	0	0	0	0	3	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5:00 PM	**0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	0
5:15 PM	**0**	**1**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3**	7
5:30 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	5
5:45 PM	**0**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**1**	**6**
6:00 PM	0	2	0	0	3	0	0	0	0	0	0	0	5	10
6:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	7
Count Total	0	7	1	0	6	0	0	0	0	0	0	0	14	0
Peak Hour	**0**	**3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**6**	**0**

Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Vehicle Speed Report Summary

Location: Bayshore Blvd, between Tunnel Ave and Geneva Ave

Count Direction: Northbound / Southbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 01

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	2	25	75	338	1,257	3,071	3,213	1,367	403	91	24	3	0	0	0	0	0	9,869
Percent	0.0%	0.3%	0.8%	3.4%	12.7%	31.1%	32.6%	13.9%	4.1%	0.9%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	7	20	116	667	2,051	3,610	2,234	642	108	18	3	1	0	0	0	0	0	9,477
Percent	0.1%	0.2%	1.2%	7.0%	21.6%	38.1%	23.6%	6.8%	1.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	9	45	191	1,005	3,308	6,681	5,447	2,009	511	109	27	4	0	0	0	0	0	19,346
Percent	0.0%	0.2%	1.0%	5.2%	17.1%	34.5%	28.2%	10.4%	2.6%	0.6%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Northbound			**Northbound**		
50th Percentile (Median)	35.1	mph	Mean (Average) Speed	35.2	mph
85th Percentile	41.0	mph	10 mph Pace	30.2 - 40.2	mph
95th Percentile	45.2	mph	Percent in Pace	63.5	%
Southbound			**Southbound**		
50th Percentile (Median)	32.7	mph	Mean (Average) Speed	32.6	mph
85th Percentile	38.0	mph	10 mph Pace	28.3 - 38.3	mph
95th Percentile	41.4	mph	Percent in Pace	65.7	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Tunnel Ave and Geneva Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 01

Tuesday, May 10, 2022
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	1	2	10	17	34	15	3	1	0	0	0	0	0	0	0	**83**
1:00 AM	0	0	0	0	6	14	21	12	2	0	1	0	0	0	0	0	0	**56**
2:00 AM	0	0	0	0	3	10	21	13	1	2	0	0	0	0	0	0	0	**50**
3:00 AM	0	0	0	1	11	22	26	13	7	2	0	0	0	0	0	0	0	**82**
4:00 AM	0	4	2	3	6	27	44	27	11	0	1	0	0	0	0	0	0	**125**
5:00 AM	0	0	1	3	11	38	78	47	23	10	3	1	0	0	0	0	0	**215**
6:00 AM	0	0	1	4	32	118	164	111	46	19	3	0	0	0	0	0	0	**498**
7:00 AM	0	1	3	34	117	197	219	64	23	6	1	0	0	0	0	0	0	**665**
8:00 AM	0	2	2	20	95	166	156	54	15	4	0	0	0	0	0	0	0	**514**
9:00 AM	0	1	6	32	100	173	158	59	17	6	0	0	0	0	0	0	0	**552**
10:00 AM	0	3	2	20	59	167	166	81	23	8	2	0	0	0	0	0	0	**531**
11:00 AM	0	2	12	13	78	211	161	51	19	2	1	0	0	0	0	0	0	**550**
12:00 PM	0	0	1	25	77	177	188	71	21	5	0	0	0	0	0	0	0	**565**
1:00 PM	0	0	2	26	64	199	185	78	22	2	1	0	0	0	0	0	0	**579**
2:00 PM	0	1	5	29	78	198	212	81	22	4	1	0	0	0	0	0	0	**631**
3:00 PM	1	9	11	31	82	230	232	82	20	4	1	1	0	0	0	0	0	**704**
4:00 PM	1	0	7	22	99	267	224	98	22	2	1	0	0	0	0	0	0	**743**
5:00 PM	0	0	5	38	111	244	232	87	18	2	1	0	0	0	0	0	0	**738**
6:00 PM	0	1	9	14	58	143	200	100	27	2	0	0	0	0	0	0	0	**554**
7:00 PM	0	0	1	11	39	138	162	75	21	2	0	1	0	0	0	0	0	**450**
8:00 PM	0	0	0	0	45	91	124	47	15	2	4	0	0	0	0	0	0	**328**
9:00 PM	0	1	1	5	41	101	107	42	7	3	0	0	0	0	0	0	0	**308**
10:00 PM	0	0	2	1	15	70	62	41	13	1	2	0	0	0	0	0	0	**207**
11:00 PM	0	0	1	4	20	53	37	18	5	2	1	0	0	0	0	0	0	**141**
Total	**2**	**25**	**75**	**338**	**1,257**	**3,071**	**3,213**	**1,367**	**403**	**91**	**24**	**3**	**0**	**0**	**0**	**0**	**0**	**9,869**
Percent	**0.0%**	**0.3%**	**0.8%**	**3.4%**	**12.7%**	**31.1%**	**32.6%**	**13.9%**	**4.1%**	**0.9%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	35.1	mph	Mean (Average) Speed	35.2	mph
85th Percentile	41.0	mph	10 mph Pace	30.2 - 40.2	mph
95th Percentile	45.2	mph	Percent in Pace	63.5	%

Location: Bayshore Blvd, between Tunnel Ave and Geneva Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 01

Tuesday, May 10, 2022
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	3	14	36	32	7	1	0	0	0	0	0	0	0	0	**93**
1:00 AM	0	0	0	0	14	26	13	3	3	0	0	0	0	0	0	0	0	**59**
2:00 AM	0	0	1	1	5	23	19	7	1	0	0	0	0	0	0	0	0	**57**
3:00 AM	0	0	1	2	8	14	16	7	2	1	0	0	0	0	0	0	0	**51**
4:00 AM	1	1	3	3	21	27	21	9	6	1	0	0	0	0	0	0	0	**93**
5:00 AM	0	0	0	6	27	77	76	40	3	2	0	0	0	0	0	0	0	**231**
6:00 AM	2	0	4	15	67	117	129	43	7	2	0	0	0	0	0	0	0	**386**
7:00 AM	0	5	7	36	106	243	133	38	2	1	0	0	0	0	0	0	0	**571**
8:00 AM	0	2	9	44	127	234	154	28	5	1	0	0	0	0	0	0	0	**604**
9:00 AM	2	1	9	32	114	188	115	31	7	1	0	1	0	0	0	0	0	**501**
10:00 AM	0	0	5	36	139	219	84	22	3	0	0	0	0	0	0	0	0	**508**
11:00 AM	0	0	8	49	112	179	86	23	5	0	0	0	0	0	0	0	0	**462**
12:00 PM	0	1	8	72	132	209	88	26	4	0	0	0	0	0	0	0	0	**540**
1:00 PM	0	4	10	57	153	187	101	26	1	0	0	0	0	0	0	0	0	**539**
2:00 PM	0	3	18	34	111	226	119	51	6	1	0	0	0	0	0	0	0	**569**
3:00 PM	1	1	7	54	183	257	151	29	6	0	0	0	0	0	0	0	0	**689**
4:00 PM	1	0	4	39	155	290	158	38	6	0	0	0	0	0	0	0	0	**691**
5:00 PM	0	1	7	83	210	323	185	35	4	2	0	0	0	0	0	0	0	**850**
6:00 PM	0	1	8	33	127	216	152	30	3	0	0	0	0	0	0	0	0	**570**
7:00 PM	0	0	4	30	83	167	127	38	8	1	2	0	0	0	0	0	0	**460**
8:00 PM	0	0	0	23	49	114	86	32	5	3	0	0	0	0	0	0	0	**312**
9:00 PM	0	0	2	7	54	120	67	30	4	0	1	0	0	0	0	0	0	**285**
10:00 PM	0	0	1	4	28	71	69	28	11	0	0	0	0	0	0	0	0	**212**
11:00 PM	0	0	0	4	12	47	53	21	5	2	0	0	0	0	0	0	0	**144**
Total	**7**	**20**	**116**	**667**	**2,051**	**3,610**	**2,234**	**642**	**108**	**18**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**9,477**
Percent	**0.1%**	**0.2%**	**1.2%**	**7.0%**	**21.6%**	**38.1%**	**23.6%**	**6.8%**	**1.1%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	32.7	mph	Mean (Average) Speed	32.6	mph
85th Percentile	38.0	mph	10 mph Pace	28.3 - 38.3	mph
95th Percentile	41.4	mph	Percent in Pace	65.73	%

Location: Bayshore Blvd, between Tunnel Ave and Geneva Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 01

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Total Study Average
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	1	2	10	17	34	15	3	1	0	0	0	0	0	0	0	**83**
1:00 AM	0	0	0	0	6	14	21	12	2	0	1	0	0	0	0	0	0	**56**
2:00 AM	0	0	0	0	3	10	21	13	1	2	0	0	0	0	0	0	0	**50**
3:00 AM	0	0	0	1	11	22	26	13	7	2	0	0	0	0	0	0	0	**82**
4:00 AM	0	4	2	3	6	27	44	27	11	0	1	0	0	0	0	0	0	**125**
5:00 AM	0	0	1	3	11	38	78	47	23	10	3	1	0	0	0	0	0	**215**
6:00 AM	0	0	1	4	32	118	164	111	46	19	3	0	0	0	0	0	0	**498**
7:00 AM	0	1	3	34	117	197	219	64	23	6	1	0	0	0	0	0	0	**665**
8:00 AM	0	2	2	20	95	166	156	54	15	4	0	0	0	0	0	0	0	**514**
9:00 AM	0	1	6	32	100	173	158	59	17	6	0	0	0	0	0	0	0	**552**
10:00 AM	0	3	2	20	59	167	166	81	23	8	2	0	0	0	0	0	0	**531**
11:00 AM	0	2	12	13	78	211	161	51	19	2	1	0	0	0	0	0	0	**550**
12:00 PM	0	0	1	25	77	177	188	71	21	5	0	0	0	0	0	0	0	**565**
1:00 PM	0	0	2	26	64	199	185	78	22	2	1	0	0	0	0	0	0	**579**
2:00 PM	0	1	5	29	78	198	212	81	22	4	1	0	0	0	0	0	0	**631**
3:00 PM	1	9	11	31	82	230	232	82	20	4	1	1	0	0	0	0	0	**704**
4:00 PM	1	0	7	22	99	267	224	98	22	2	1	0	0	0	0	0	0	**743**
5:00 PM	0	0	5	38	111	244	232	87	18	2	1	0	0	0	0	0	0	**738**
6:00 PM	0	1	9	14	58	143	200	100	27	2	0	0	0	0	0	0	0	**554**
7:00 PM	0	0	1	11	39	138	162	75	21	2	0	1	0	0	0	0	0	**450**
8:00 PM	0	0	0	0	45	91	124	47	15	2	4	0	0	0	0	0	0	**328**
9:00 PM	0	1	1	5	41	101	107	42	7	3	0	0	0	0	0	0	0	**308**
10:00 PM	0	0	2	1	15	70	62	41	13	1	2	0	0	0	0	0	0	**207**
11:00 PM	0	0	1	4	20	53	37	18	5	2	1	0	0	0	0	0	0	**141**
Total	**2**	**25**	**75**	**338**	**1,257**	**3,071**	**3,213**	**1,367**	**403**	**91**	**24**	**3**	**0**	**0**	**0**	**0**	**0**	**9,869**
Percent	**0.0%**	**0.3%**	**0.8%**	**3.4%**	**12.7%**	**31.1%**	**32.6%**	**13.9%**	**4.1%**	**0.9%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	35.1	mph	Mean (Average) Speed	35.2	mph
85th Percentile	41.0	mph	10 mph Pace	30.2 - 40.2	mph
95th Percentile	45.2	mph	Percent in Pace	63.5	%

Location: Bayshore Blvd, between Tunnel Ave and Geneva Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 01

Total Study Average
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	3	14	36	32	7	1	0	0	0	0	0	0	0	0	**93**
1:00 AM	0	0	0	0	14	26	13	3	3	0	0	0	0	0	0	0	0	**59**
2:00 AM	0	0	1	1	5	23	19	7	1	0	0	0	0	0	0	0	0	**57**
3:00 AM	0	0	1	2	8	14	16	7	2	1	0	0	0	0	0	0	0	**51**
4:00 AM	1	1	3	3	21	27	21	9	6	1	0	0	0	0	0	0	0	**93**
5:00 AM	0	0	0	6	27	77	76	40	3	2	0	0	0	0	0	0	0	**231**
6:00 AM	2	0	4	15	67	117	129	43	7	2	0	0	0	0	0	0	0	**386**
7:00 AM	0	5	7	36	106	243	133	38	2	1	0	0	0	0	0	0	0	**571**
8:00 AM	0	2	9	44	127	234	154	28	5	1	0	0	0	0	0	0	0	**604**
9:00 AM	2	1	9	32	114	188	115	31	7	1	0	1	0	0	0	0	0	**501**
10:00 AM	0	0	5	36	139	219	84	22	3	0	0	0	0	0	0	0	0	**508**
11:00 AM	0	0	8	49	112	179	86	23	5	0	0	0	0	0	0	0	0	**462**
12:00 PM	0	1	8	72	132	209	88	26	4	0	0	0	0	0	0	0	0	**540**
1:00 PM	0	4	10	57	153	187	101	26	1	0	0	0	0	0	0	0	0	**539**
2:00 PM	0	3	18	34	111	226	119	51	6	1	0	0	0	0	0	0	0	**569**
3:00 PM	1	1	7	54	183	257	151	29	6	0	0	0	0	0	0	0	0	**689**
4:00 PM	1	0	4	39	155	290	158	38	6	0	0	0	0	0	0	0	0	**691**
5:00 PM	0	1	7	83	210	323	185	35	4	2	0	0	0	0	0	0	0	**850**
6:00 PM	0	1	8	33	127	216	152	30	3	0	0	0	0	0	0	0	0	**570**
7:00 PM	0	0	4	30	83	167	127	38	8	1	2	0	0	0	0	0	0	**460**
8:00 PM	0	0	0	23	49	114	86	32	5	3	0	0	0	0	0	0	0	**312**
9:00 PM	0	0	2	7	54	120	67	30	4	0	1	0	0	0	0	0	0	**285**
10:00 PM	0	0	1	4	28	71	69	28	11	0	0	0	0	0	0	0	0	**212**
11:00 PM	0	0	0	4	12	47	53	21	5	2	0	0	0	0	0	0	0	**144**
Total	**7**	**20**	**116**	**667**	**2,051**	**3,610**	**2,234**	**642**	**108**	**18**	**3**	**1**	**0**	**0**	**0**	**0**	**0**	**9,477**
Percent	**0.1%**	**0.2%**	**1.2%**	**7.0%**	**21.6%**	**38.1%**	**23.6%**	**6.8%**	**1.1%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	32.7	mph	Mean (Average) Speed	32.6	mph
85th Percentile	38.0	mph	10 mph Pace	28.3 - 38.3	mph
95th Percentile	41.4	mph	Percent in Pace	65.7	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Tunnel Ave and Geneva Ave
Date Range: 5/10/2022 - 5/16/2022
Site Code: 01

	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/10/2022			5/11/2022			5/12/2022			5/13/2022			5/14/2022			5/15/2022			5/16/2022					
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	83	93	176	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	93	176
1:00 AM	56	59	115	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	59	115
2:00 AM	50	57	107	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	57	107
3:00 AM	82	51	133	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	82	51	133
4:00 AM	125	93	218	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	125	93	218
5:00 AM	215	231	446	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	215	231	446
6:00 AM	498	386	884	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	498	386	884
7:00 AM	**665**	571	**1,236**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**665**	571	**1,236**
8:00 AM	514	**604**	1,118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	514	**604**	1,118
9:00 AM	552	501	1,053	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	552	501	1,053
10:00 AM	531	508	1,039	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	531	508	1,039
11:00 AM	550	462	1,012	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	550	462	1,012
12:00 PM	565	540	1,105	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	565	540	1,105
1:00 PM	579	539	1,118	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	579	539	1,118
2:00 PM	631	569	1,200	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	631	569	1,200
3:00 PM	704	689	1,393	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	704	689	1,393
4:00 PM	**743**	691	1,434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**743**	691	1,434
5:00 PM	738	**850**	**1,588**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	738	**850**	**1,588**
6:00 PM	554	570	1,124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	554	570	1,124
7:00 PM	450	460	910	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450	460	910
8:00 PM	328	312	640	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	328	312	640
9:00 PM	308	285	593	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	308	285	593
10:00 PM	207	212	419	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	207	212	419
11:00 PM	141	144	285	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	141	144	285
Total	9,869	9,477	19,346	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,869	9,477	19,346
Percent	51%	49%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51%	49%	-
AM Peak	07:00	08:00	07:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	07:00	08:00	07:00
Vol.	665	604	1,236	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	665	604	1,236
PM Peak	16:00	17:00	17:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16:00	17:00	17:00
Vol.	743	850	1,588	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	743	850	1,588

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Vehicle Classification Report Summary

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway

Count Direction: Northbound / Southbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 02

	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
Study Total														
Northbound	45	6,731	1,454	27	790	55	0	31	68	12	2	0	9	9,224
Percent	0.5%	73.0%	15.8%	0.3%	8.6%	0.6%	0.0%	0.3%	0.7%	0.1%	0.0%	0.0%	0.1%	100%
Southbound	39	6,132	1,260	16	541	59	0	23	55	7	0	0	6	8,138
Percent	0.5%	75.4%	15.5%	0.2%	6.6%	0.7%	0.0%	0.3%	0.7%	0.1%	0.0%	0.0%	0.1%	100%
Total	84	12,863	2,714	43	1,331	114	0	54	123	19	2	0	15	17,362
Percent	0.5%	74.1%	15.6%	0.2%	7.7%	0.7%	0.0%	0.3%	0.7%	0.1%	0.0%	0.0%	0.1%	100%

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

DATA SOLUTIONS

Tuesday, May 10, 2022
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	81	12	0	6	0	0	0	0	0	0	0	0	**100**
1:00 AM	0	35	9	2	9	1	0	0	0	0	0	0	0	**56**
2:00 AM	0	43	4	0	6	0	0	2	0	0	0	0	0	**55**
3:00 AM	0	52	9	2	16	0	0	1	1	0	0	0	0	**81**
4:00 AM	0	59	17	1	10	0	0	1	0	0	0	0	0	**88**
5:00 AM	0	108	26	1	22	0	0	1	2	0	0	0	0	**160**
6:00 AM	1	162	60	0	72	2	0	1	6	0	0	0	0	**304**
7:00 AM	1	275	115	1	84	7	0	0	5	1	0	0	0	**489**
8:00 AM	1	278	73	2	56	5	0	0	4	0	1	0	2	**422**
9:00 AM	3	251	81	5	59	5	0	2	8	0	0	0	0	**414**
10:00 AM	2	230	78	2	63	3	0	3	7	1	0	0	0	**389**
11:00 AM	2	296	82	3	62	3	0	1	6	0	0	0	2	**457**
12:00 PM	1	369	82	0	52	4	0	1	2	1	0	0	0	**512**
1:00 PM	1	369	87	3	53	7	0	3	8	1	0	0	1	**533**
2:00 PM	0	448	109	2	33	5	0	2	4	3	0	0	0	**606**
3:00 PM	8	581	110	1	37	4	0	1	2	0	0	0	1	**745**
4:00 PM	4	657	115	0	45	4	0	4	1	0	0	0	0	**830**
5:00 PM	7	687	112	0	33	3	0	4	1	1	1	0	2	**851**
6:00 PM	6	515	99	1	27	0	0	1	1	2	0	0	0	**652**
7:00 PM	2	378	43	1	19	0	0	1	1	1	0	0	0	**446**
8:00 PM	1	283	42	0	12	0	0	1	1	1	0	0	0	**341**
9:00 PM	0	254	47	0	7	0	0	1	4	0	0	0	1	**314**
10:00 PM	1	173	22	0	2	0	0	0	3	0	0	0	0	**201**
11:00 PM	3	147	20	0	5	2	0	0	1	0	0	0	0	**178**
Total	**45**	**6,731**	**1,454**	**27**	**790**	**55**	**0**	**31**	**68**	**12**	**2**	**0**	**9**	**9,224**
Percent	**0.5%**	**73.0%**	**15.8%**	**0.3%**	**8.6%**	**0.6%**	**0.0%**	**0.3%**	**0.7%**	**0.1%**	**0.0%**	**0.0%**	**0.1%**	

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

Tuesday, May 10, 2022
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	35	9	0	3	1	0	0	1	0	0	0	0	**50**
1:00 AM	0	36	2	0	4	0	0	0	0	0	0	0	0	**42**
2:00 AM	0	40	8	1	1	1	0	0	0	0	0	0	0	**51**
3:00 AM	0	59	13	0	1	0	0	1	0	0	0	0	0	**74**
4:00 AM	1	89	21	0	6	0	0	0	1	0	0	0	0	**118**
5:00 AM	1	238	42	0	13	2	0	0	2	0	0	0	0	**298**
6:00 AM	5	373	97	0	33	1	0	0	5	0	0	0	0	**514**
7:00 AM	4	541	119	0	39	12	0	5	2	1	0	0	1	**724**
8:00 AM	7	556	116	2	38	3	0	2	6	1	0	0	1	**732**
9:00 AM	0	399	83	3	38	1	0	0	6	0	0	0	2	**532**
10:00 AM	2	305	74	1	33	7	0	1	3	1	0	0	0	**427**
11:00 AM	2	300	73	4	43	6	0	0	5	1	0	0	0	**434**
12:00 PM	0	343	74	0	48	2	0	3	2	1	0	0	2	**475**
1:00 PM	1	313	83	1	39	5	0	1	6	0	0	0	0	**449**
2:00 PM	2	352	85	1	44	6	0	3	4	1	0	0	0	**498**
3:00 PM	1	351	89	1	43	1	0	2	1	0	0	0	0	**489**
4:00 PM	2	385	80	0	39	7	0	0	0	0	0	0	0	**513**
5:00 PM	4	386	65	1	26	1	0	2	1	0	0	0	0	**486**
6:00 PM	2	314	43	0	17	1	0	1	0	0	0	0	0	**378**
7:00 PM	0	229	27	0	12	1	0	1	1	1	0	0	0	**272**
8:00 PM	2	175	20	0	7	1	0	0	3	0	0	0	0	**208**
9:00 PM	1	133	17	0	9	0	0	1	1	0	0	0	0	**162**
10:00 PM	1	119	8	1	2	0	0	0	3	0	0	0	0	**134**
11:00 PM	0	61	12	0	3	0	0	0	2	0	0	0	0	**78**
Total	**39**	**6,132**	**1,260**	**16**	**541**	**59**	**0**	**23**	**55**	**7**	**0**	**0**	**6**	**8,138**
Percent	**0.5%**	**75.4%**	**15.5%**	**0.2%**	**6.6%**	**0.7%**	**0.0%**	**0.3%**	**0.7%**	**0.1%**	**0.0%**	**0.0%**	**0.1%**	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

Total Study Average
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	81	12	0	6	0	0	0	0	0	0	0	0	**100**
1:00 AM	0	35	9	2	9	1	0	0	0	0	0	0	0	**56**
2:00 AM	0	43	4	0	6	0	0	2	0	0	0	0	0	**55**
3:00 AM	0	52	9	2	16	0	0	1	1	0	0	0	0	**81**
4:00 AM	0	59	17	1	10	0	0	1	0	0	0	0	0	**88**
5:00 AM	0	108	26	1	22	0	0	1	2	0	0	0	0	**160**
6:00 AM	1	162	60	0	72	2	0	1	6	0	0	0	0	**304**
7:00 AM	1	275	115	1	84	7	0	0	5	1	0	0	0	**489**
8:00 AM	1	278	73	2	56	5	0	0	4	0	1	0	2	**422**
9:00 AM	3	251	81	5	59	5	0	2	8	0	0	0	0	**414**
10:00 AM	2	230	78	2	63	3	0	3	7	1	0	0	0	**389**
11:00 AM	2	296	82	3	62	3	0	1	6	0	0	0	2	**457**
12:00 PM	1	369	82	0	52	4	0	1	2	1	0	0	0	**512**
1:00 PM	1	369	87	3	53	7	0	3	8	1	0	0	1	**533**
2:00 PM	0	448	109	2	33	5	0	2	4	3	0	0	0	**606**
3:00 PM	8	581	110	1	37	4	0	1	2	0	0	0	1	**745**
4:00 PM	4	657	115	0	45	4	0	4	1	0	0	0	0	**830**
5:00 PM	7	687	112	0	33	3	0	4	1	1	1	0	2	**851**
6:00 PM	6	515	99	1	27	0	0	1	1	2	0	0	0	**652**
7:00 PM	2	378	43	1	19	0	0	1	1	1	0	0	0	**446**
8:00 PM	1	283	42	0	12	0	0	1	1	1	0	0	0	**341**
9:00 PM	0	254	47	0	7	0	0	1	4	0	0	0	1	**314**
10:00 PM	1	173	22	0	2	0	0	0	3	0	0	0	0	**201**
11:00 PM	3	147	20	0	5	2	0	0	1	0	0	0	0	**178**
Total	**45**	**6,731**	**1,454**	**27**	**790**	**55**	**0**	**31**	**68**	**12**	**2**	**0**	**9**	**9,224**
Percent	**0.5%**	**73.0%**	**15.8%**	**0.3%**	**8.6%**	**0.6%**	**0.0%**	**0.3%**	**0.7%**	**0.1%**	**0.0%**	**0.0%**	**0.1%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

Total Study Average
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	35	9	0	3	1	0	0	1	0	0	0	0	**50**
1:00 AM	0	36	2	0	4	0	0	0	0	0	0	0	0	**42**
2:00 AM	0	40	8	1	1	1	0	0	0	0	0	0	0	**51**
3:00 AM	0	59	13	0	1	0	0	1	0	0	0	0	0	**74**
4:00 AM	1	89	21	0	6	0	0	0	1	0	0	0	0	**118**
5:00 AM	1	238	42	0	13	2	0	0	2	0	0	0	0	**298**
6:00 AM	5	373	97	0	33	1	0	0	5	0	0	0	0	**514**
7:00 AM	4	541	119	0	39	12	0	5	2	1	0	0	1	**724**
8:00 AM	7	556	116	2	38	3	0	2	6	1	0	0	1	**732**
9:00 AM	0	399	83	3	38	1	0	0	6	0	0	0	2	**532**
10:00 AM	2	305	74	1	33	7	0	1	3	1	0	0	0	**427**
11:00 AM	2	300	73	4	43	6	0	0	5	1	0	0	0	**434**
12:00 PM	0	343	74	0	48	2	0	3	2	1	0	0	2	**475**
1:00 PM	1	313	83	1	39	5	0	1	6	0	0	0	0	**449**
2:00 PM	2	352	85	1	44	6	0	3	4	1	0	0	0	**498**
3:00 PM	1	351	89	1	43	1	0	2	1	0	0	0	0	**489**
4:00 PM	2	385	80	0	39	7	0	0	0	0	0	0	0	**513**
5:00 PM	4	386	65	1	26	1	0	2	1	0	0	0	0	**486**
6:00 PM	2	314	43	0	17	1	0	1	0	0	0	0	0	**378**
7:00 PM	0	229	27	0	12	1	0	1	1	1	0	0	0	**272**
8:00 PM	2	175	20	0	7	1	0	0	3	0	0	0	0	**208**
9:00 PM	1	133	17	0	9	0	0	1	1	0	0	0	0	**162**
10:00 PM	1	119	8	1	2	0	0	0	3	0	0	0	0	**134**
11:00 PM	0	61	12	0	3	0	0	0	2	0	0	0	0	**78**
Total	**39**	**6,132**	**1,260**	**16**	**541**	**59**	**0**	**23**	**55**	**7**	**0**	**0**	**6**	**8,138**
Percent	**0.5%**	**75.4%**	**15.5%**	**0.2%**	**6.6%**	**0.7%**	**0.0%**	**0.3%**	**0.7%**	**0.1%**	**0.0%**	**0.0%**	**0.1%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

3-Day (Tuesday - Thursday) Average
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	81	12	0	6	0	0	0	0	0	0	0	0	**100**
1:00 AM	0	35	9	2	9	1	0	0	0	0	0	0	0	**56**
2:00 AM	0	43	4	0	6	0	0	2	0	0	0	0	0	**55**
3:00 AM	0	52	9	2	16	0	0	1	1	0	0	0	0	**81**
4:00 AM	0	59	17	1	10	0	0	1	0	0	0	0	0	**88**
5:00 AM	0	108	26	1	22	0	0	1	2	0	0	0	0	**160**
6:00 AM	1	162	60	0	72	2	0	1	6	0	0	0	0	**304**
7:00 AM	1	275	115	1	84	7	0	0	5	1	0	0	0	**489**
8:00 AM	1	278	73	2	56	5	0	0	4	0	1	0	2	**422**
9:00 AM	3	251	81	5	59	5	0	2	8	0	0	0	0	**414**
10:00 AM	2	230	78	2	63	3	0	3	7	1	0	0	0	**389**
11:00 AM	2	296	82	3	62	3	0	1	6	0	0	0	2	**457**
12:00 PM	1	369	82	0	52	4	0	1	2	1	0	0	0	**512**
1:00 PM	1	369	87	3	53	7	0	3	8	1	0	0	1	**533**
2:00 PM	0	448	109	2	33	5	0	2	4	3	0	0	0	**606**
3:00 PM	8	581	110	1	37	4	0	1	2	0	0	0	1	**745**
4:00 PM	4	657	115	0	45	4	0	4	1	0	0	0	0	**830**
5:00 PM	7	687	112	0	33	3	0	4	1	1	1	0	2	**851**
6:00 PM	6	515	99	1	27	0	0	1	1	2	0	0	0	**652**
7:00 PM	2	378	43	1	19	0	0	1	1	1	0	0	0	**446**
8:00 PM	1	283	42	0	12	0	0	1	1	1	0	0	0	**341**
9:00 PM	0	254	47	0	7	0	0	1	4	0	0	0	1	**314**
10:00 PM	1	173	22	0	2	0	0	0	3	0	0	0	0	**201**
11:00 PM	3	147	20	0	5	2	0	0	1	0	0	0	0	**178**
Total	**45**	**6,731**	**1,454**	**27**	**790**	**55**	**0**	**31**	**68**	**12**	**2**	**0**	**9**	**9,224**
Percent	**0.5%**	**73.0%**	**15.8%**	**0.3%**	**8.6%**	**0.6%**	**0.0%**	**0.3%**	**0.7%**	**0.1%**	**0.0%**	**0.0%**	**0.1%**	

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

3-Day (Tuesday - Thursday) Average
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	35	9	0	3	1	0	0	1	0	0	0	0	**50**
1:00 AM	0	36	2	0	4	0	0	0	0	0	0	0	0	**42**
2:00 AM	0	40	8	1	1	1	0	0	0	0	0	0	0	**51**
3:00 AM	0	59	13	0	1	0	0	1	0	0	0	0	0	**74**
4:00 AM	1	89	21	0	6	0	0	0	1	0	0	0	0	**118**
5:00 AM	1	238	42	0	13	2	0	0	2	0	0	0	0	**298**
6:00 AM	5	373	97	0	33	1	0	0	5	0	0	0	0	**514**
7:00 AM	4	541	119	0	39	12	0	5	2	1	0	0	1	**724**
8:00 AM	7	556	116	2	38	3	0	2	6	1	0	0	1	**732**
9:00 AM	0	399	83	3	38	1	0	0	6	0	0	0	2	**532**
10:00 AM	2	305	74	1	33	7	0	1	3	1	0	0	0	**427**
11:00 AM	2	300	73	4	43	6	0	0	5	1	0	0	0	**434**
12:00 PM	0	343	74	0	48	2	0	3	2	1	0	0	2	**475**
1:00 PM	1	313	83	1	39	5	0	1	6	0	0	0	0	**449**
2:00 PM	2	352	85	1	44	6	0	3	4	1	0	0	0	**498**
3:00 PM	1	351	89	1	43	1	0	2	1	0	0	0	0	**489**
4:00 PM	2	385	80	0	39	7	0	0	0	0	0	0	0	**513**
5:00 PM	4	386	65	1	26	1	0	2	1	0	0	0	0	**486**
6:00 PM	2	314	43	0	17	1	0	1	0	0	0	0	0	**378**
7:00 PM	0	229	27	0	12	1	0	1	1	1	0	0	0	**272**
8:00 PM	2	175	20	0	7	1	0	0	3	0	0	0	0	**208**
9:00 PM	1	133	17	0	9	0	0	1	1	0	0	0	0	**162**
10:00 PM	1	119	8	1	2	0	0	0	3	0	0	0	0	**134**
11:00 PM	0	61	12	0	3	0	0	0	2	0	0	0	0	**78**
Total	**39**	**6,132**	**1,260**	**16**	**541**	**59**	**0**	**23**	**55**	**7**	**0**	**0**	**6**	**8,138**
Percent	**0.5%**	**75.4%**	**15.5%**	**0.2%**	**6.6%**	**0.7%**	**0.0%**	**0.3%**	**0.7%**	**0.1%**	**0.0%**	**0.0%**	**0.1%**	

Vehicle Speed Report Summary

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway

Count Direction: Northbound / Southbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 02

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	3	2	10	35	217	1,033	2,556	3,082	1,659	471	116	33	5	2	0	0	0	9,224
Percent	0.0%	0.0%	0.1%	0.4%	2.4%	11.2%	27.7%	33.4%	18.0%	5.1%	1.3%	0.4%	0.1%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	2	8	7	46	152	595	2,096	3,055	1,654	429	80	12	1	0	1	0	0	8,138
Percent	0.0%	0.1%	0.1%	0.6%	1.9%	7.3%	25.8%	37.5%	20.3%	5.3%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	5	10	17	81	369	1,628	4,652	6,137	3,313	900	196	45	6	2	1	0	0	17,362
Percent	0.0%	0.1%	0.1%	0.5%	2.1%	9.4%	26.8%	35.3%	19.1%	5.2%	1.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary		
Northbound		
50th Percentile (Median)	41.2	mph
85th Percentile	47.1	mph
95th Percentile	51.2	mph
Southbound		
50th Percentile (Median)	41.8	mph
85th Percentile	47.3	mph
95th Percentile	50.9	mph

Total Study Speed Statistics		
Northbound		
Mean (Average) Speed	41.2	mph
10 mph Pace	35.9 - 45.9	mph
Percent in Pace	62.3	%
Southbound		
Mean (Average) Speed	41.8	mph
10 mph Pace	36.7 - 46.7	mph
Percent in Pace	66.2	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

Tuesday, May 10, 2022
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	3	3	22	45	21	5	1	0	0	0	0	0	0	**100**
1:00 AM	0	0	0	2	1	3	15	17	13	4	0	1	0	0	0	0	0	**56**
2:00 AM	0	0	0	0	0	3	15	17	18	1	1	0	0	0	0	0	0	**55**
3:00 AM	0	1	0	0	0	7	19	31	15	7	1	0	0	0	0	0	0	**81**
4:00 AM	0	0	0	0	0	8	9	30	22	9	7	3	0	0	0	0	0	**88**
5:00 AM	0	0	0	1	0	4	36	60	39	15	5	0	0	0	0	0	0	**160**
6:00 AM	0	0	0	3	8	18	65	90	68	35	12	5	0	0	0	0	0	**304**
7:00 AM	1	1	1	2	15	66	150	136	88	22	5	2	0	0	0	0	0	**489**
8:00 AM	0	0	3	6	15	65	119	135	58	19	0	2	0	0	0	0	0	**422**
9:00 AM	1	0	0	2	11	56	95	148	75	15	11	0	0	0	0	0	0	**414**
10:00 AM	0	0	1	1	6	36	111	139	68	19	8	0	0	0	0	0	0	**389**
11:00 AM	0	0	0	0	12	47	131	159	79	21	5	1	1	1	0	0	0	**457**
12:00 PM	0	0	1	0	5	56	156	179	88	22	4	1	0	0	0	0	0	**512**
1:00 PM	0	0	0	0	7	44	148	180	115	31	7	1	0	0	0	0	0	**533**
2:00 PM	0	0	2	4	19	87	183	181	89	32	4	4	0	1	0	0	0	**606**
3:00 PM	0	0	1	7	15	100	241	219	121	33	4	2	2	0	0	0	0	**745**
4:00 PM	0	0	0	2	22	115	253	258	145	26	5	3	1	0	0	0	0	**830**
5:00 PM	0	0	1	0	38	123	242	283	131	25	8	0	0	0	0	0	0	**851**
6:00 PM	0	0	0	1	21	83	155	244	99	39	7	3	0	0	0	0	0	**652**
7:00 PM	1	0	0	2	2	29	105	169	101	30	6	1	0	0	0	0	0	**446**
8:00 PM	0	0	0	0	3	18	101	120	72	19	6	2	0	0	0	0	0	**341**
9:00 PM	0	0	0	1	5	27	89	116	53	19	3	1	0	0	0	0	0	**314**
10:00 PM	0	0	0	0	3	23	39	69	52	11	3	1	0	0	0	0	0	**201**
11:00 PM	0	0	0	1	6	12	57	57	29	12	3	0	1	0	0	0	0	**178**
Total	**3**	**2**	**10**	**35**	**217**	**1,033**	**2,556**	**3,082**	**1,659**	**471**	**116**	**33**	**5**	**2**	**0**	**0**	**0**	**9,224**
Percent	**0.0%**	**0.0%**	**0.1%**	**0.4%**	**2.4%**	**11.2%**	**27.7%**	**33.4%**	**18.0%**	**5.1%**	**1.3%**	**0.4%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	41.2	mph	Mean (Average) Speed	41.2	mph
85th Percentile	47.1	mph	10 mph Pace	35.9 - 45.9	mph
95th Percentile	51.2	mph	Percent in Pace	62.3	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

Tuesday, May 10, 2022
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	1	6	10	15	14	3	1	0	0	0	0	0	0	**50**
1:00 AM	0	0	0	0	0	2	13	12	12	3	0	0	0	0	0	0	0	**42**
2:00 AM	0	0	0	1	2	3	8	22	8	5	2	0	0	0	0	0	0	**51**
3:00 AM	0	0	0	1	0	6	17	17	23	8	2	0	0	0	0	0	0	**74**
4:00 AM	0	0	0	0	1	7	28	38	26	14	3	1	0	0	0	0	0	**118**
5:00 AM	0	0	1	1	2	14	52	119	66	39	2	2	0	0	0	0	0	**298**
6:00 AM	1	1	1	4	14	40	96	181	131	34	10	1	0	0	0	0	0	**514**
7:00 AM	0	1	0	1	8	41	159	272	180	49	11	1	0	0	1	0	0	**724**
8:00 AM	0	0	1	2	9	36	180	276	179	41	6	2	0	0	0	0	0	**732**
9:00 AM	0	0	0	2	11	35	138	202	108	31	5	0	0	0	0	0	0	**532**
10:00 AM	1	1	2	2	9	42	121	149	81	17	1	1	0	0	0	0	0	**427**
11:00 AM	0	1	0	3	9	37	114	168	85	16	1	0	0	0	0	0	0	**434**
12:00 PM	0	0	0	4	12	42	134	180	76	21	5	1	0	0	0	0	0	**475**
1:00 PM	0	1	0	1	14	47	117	183	74	9	3	0	0	0	0	0	0	**449**
2:00 PM	0	0	0	11	16	37	139	179	88	24	3	1	0	0	0	0	0	**498**
3:00 PM	0	0	0	4	12	50	127	178	101	16	1	0	0	0	0	0	0	**489**
4:00 PM	0	0	1	4	14	32	161	179	90	24	8	0	0	0	0	0	0	**513**
5:00 PM	0	0	0	0	1	32	135	202	92	18	5	0	1	0	0	0	0	**486**
6:00 PM	0	2	1	0	3	21	99	172	59	16	5	0	0	0	0	0	0	**378**
7:00 PM	0	1	0	2	3	16	71	111	44	21	1	2	0	0	0	0	0	**272**
8:00 PM	0	0	0	1	6	16	63	77	38	4	3	0	0	0	0	0	0	**208**
9:00 PM	0	0	0	1	3	13	50	48	39	7	1	0	0	0	0	0	0	**162**
10:00 PM	0	0	0	1	1	10	41	46	27	7	1	0	0	0	0	0	0	**134**
11:00 PM	0	0	0	0	1	10	23	29	13	2	0	0	0	0	0	0	0	**78**
Total	**2**	**8**	**7**	**46**	**152**	**595**	**2,096**	**3,055**	**1,654**	**429**	**80**	**12**	**1**	**0**	**1**	**0**	**0**	**8,138**
Percent	**0.0%**	**0.1%**	**0.1%**	**0.6%**	**1.9%**	**7.3%**	**25.8%**	**37.5%**	**20.3%**	**5.3%**	**1.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	41.8	mph	Mean (Average) Speed	41.8	mph
85th Percentile	47.3	mph	10 mph Pace	36.7 - 46.7	mph
95th Percentile	50.9	mph	Percent in Pace	66.18	%

Project Manager: (415) 310-6469
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Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

Total Study Average
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	3	3	22	45	21	5	1	0	0	0	0	0	0	**100**
1:00 AM	0	0	0	2	1	3	15	17	13	4	0	1	0	0	0	0	0	**56**
2:00 AM	0	0	0	0	0	3	15	17	18	1	1	0	0	0	0	0	0	**55**
3:00 AM	0	1	0	0	0	7	19	31	15	7	1	0	0	0	0	0	0	**81**
4:00 AM	0	0	0	0	0	8	9	30	22	9	7	3	0	0	0	0	0	**88**
5:00 AM	0	0	0	1	0	4	36	60	39	15	5	0	0	0	0	0	0	**160**
6:00 AM	0	0	0	3	8	18	65	90	68	35	12	5	0	0	0	0	0	**304**
7:00 AM	1	1	1	2	15	66	150	136	88	22	5	2	0	0	0	0	0	**489**
8:00 AM	0	0	3	6	15	65	119	135	58	19	0	2	0	0	0	0	0	**422**
9:00 AM	1	0	0	2	11	56	95	148	75	15	11	0	0	0	0	0	0	**414**
10:00 AM	0	0	1	1	6	36	111	139	68	19	8	0	0	0	0	0	0	**389**
11:00 AM	0	0	0	0	12	47	131	159	79	21	5	1	1	1	0	0	0	**457**
12:00 PM	0	0	1	0	5	56	156	179	88	22	4	1	0	0	0	0	0	**512**
1:00 PM	0	0	0	0	7	44	148	180	115	31	7	1	0	0	0	0	0	**533**
2:00 PM	0	0	2	4	19	87	183	181	89	32	4	4	0	1	0	0	0	**606**
3:00 PM	0	0	1	7	15	100	241	219	121	33	4	2	2	0	0	0	0	**745**
4:00 PM	0	0	0	2	22	115	253	258	145	26	5	3	1	0	0	0	0	**830**
5:00 PM	0	0	1	0	38	123	242	283	131	25	8	0	0	0	0	0	0	**851**
6:00 PM	0	0	0	1	21	83	155	244	99	39	7	3	0	0	0	0	0	**652**
7:00 PM	1	0	0	2	2	29	105	169	101	30	6	1	0	0	0	0	0	**446**
8:00 PM	0	0	0	0	3	18	101	120	72	19	6	2	0	0	0	0	0	**341**
9:00 PM	0	0	0	1	5	27	89	116	53	19	3	1	0	0	0	0	0	**314**
10:00 PM	0	0	0	0	3	23	39	69	52	11	3	1	0	0	0	0	0	**201**
11:00 PM	0	0	0	1	6	12	57	57	29	12	3	0	1	0	0	0	0	**178**
Total	**3**	**2**	**10**	**35**	**217**	**1,033**	**2,556**	**3,082**	**1,659**	**471**	**116**	**33**	**5**	**2**	**0**	**0**	**0**	**9,224**
Percent	**0.0%**	**0.0%**	**0.1%**	**0.4%**	**2.4%**	**11.2%**	**27.7%**	**33.4%**	**18.0%**	**5.1%**	**1.3%**	**0.4%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	41.2	mph	Mean (Average) Speed	41.2	mph
85th Percentile	47.1	mph	10 mph Pace	35.9 - 45.9	mph
95th Percentile	51.2	mph	Percent in Pace	62.3	%

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 to 5/10/2022
Site Code: 02

Total Study Average
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	1	6	10	15	14	3	1	0	0	0	0	0	0	**50**
1:00 AM	0	0	0	0	0	2	13	12	12	3	0	0	0	0	0	0	0	**42**
2:00 AM	0	0	0	1	2	3	8	22	8	5	2	0	0	0	0	0	0	**51**
3:00 AM	0	0	0	1	0	6	17	17	23	8	2	0	0	0	0	0	0	**74**
4:00 AM	0	0	0	0	1	7	28	38	26	14	3	1	0	0	0	0	0	**118**
5:00 AM	0	0	1	1	2	14	52	119	66	39	2	2	0	0	0	0	0	**298**
6:00 AM	1	1	1	4	14	40	96	181	131	34	10	1	0	0	0	0	0	**514**
7:00 AM	0	1	0	1	8	41	159	272	180	49	11	1	0	0	1	0	0	**724**
8:00 AM	0	0	1	2	9	36	180	276	179	41	6	2	0	0	0	0	0	**732**
9:00 AM	0	0	0	2	11	35	138	202	108	31	5	0	0	0	0	0	0	**532**
10:00 AM	1	1	2	2	9	42	121	149	81	17	1	1	0	0	0	0	0	**427**
11:00 AM	0	1	0	3	9	37	114	168	85	16	1	0	0	0	0	0	0	**434**
12:00 PM	0	0	0	4	12	42	134	180	76	21	5	1	0	0	0	0	0	**475**
1:00 PM	0	1	0	1	14	47	117	183	74	9	3	0	0	0	0	0	0	**449**
2:00 PM	0	0	0	11	16	37	139	179	88	24	3	1	0	0	0	0	0	**498**
3:00 PM	0	0	0	4	12	50	127	178	101	16	1	0	0	0	0	0	0	**489**
4:00 PM	0	0	1	4	14	32	161	179	90	24	8	0	0	0	0	0	0	**513**
5:00 PM	0	0	0	0	1	32	135	202	92	18	5	0	1	0	0	0	0	**486**
6:00 PM	0	2	1	0	3	21	99	172	59	16	5	0	0	0	0	0	0	**378**
7:00 PM	0	1	0	2	3	16	71	111	44	21	1	2	0	0	0	0	0	**272**
8:00 PM	0	0	0	1	6	16	63	77	38	4	3	0	0	0	0	0	0	**208**
9:00 PM	0	0	0	1	3	13	50	48	39	7	1	0	0	0	0	0	0	**162**
10:00 PM	0	0	0	1	1	10	41	46	27	7	1	0	0	0	0	0	0	**134**
11:00 PM	0	0	0	0	1	10	23	29	13	2	0	0	0	0	0	0	0	**78**
Total	**2**	**8**	**7**	**46**	**152**	**595**	**2,096**	**3,055**	**1,654**	**429**	**80**	**12**	**1**	**0**	**1**	**0**	**0**	**8,138**
Percent	**0.0%**	**0.1%**	**0.1%**	**0.6%**	**1.9%**	**7.3%**	**25.8%**	**37.5%**	**20.3%**	**5.3%**	**1.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	41.8	mph	Mean (Average) Speed	41.8	mph
85th Percentile	47.3	mph	10 mph Pace	36.7 - 46.7	mph
95th Percentile	50.9	mph	Percent in Pace	66.2	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Geneva Ave and Guadalupe Canyon Parkway
Date Range: 5/10/2022 - 5/16/2022
Site Code: 02

	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/10/2022			5/11/2022			5/12/2022			5/13/2022			5/14/2022			5/15/2022			5/16/2022					
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	100	50	150	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	100	50	150
1:00 AM	56	42	98	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	56	42	98
2:00 AM	55	51	106	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	55	51	106
3:00 AM	81	74	155	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	81	74	155
4:00 AM	88	118	206	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	88	118	206
5:00 AM	160	298	458	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160	298	458
6:00 AM	304	514	818	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	304	514	818
7:00 AM	**489**	724	**1,213**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**489**	724	**1,213**
8:00 AM	422	**732**	1,154	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	422	**732**	1,154
9:00 AM	414	532	946	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	414	532	946
10:00 AM	389	427	816	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	389	427	816
11:00 AM	457	434	891	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	457	434	891
12:00 PM	512	475	987	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	512	475	987
1:00 PM	533	449	982	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	533	449	982
2:00 PM	606	498	1,104	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	606	498	1,104
3:00 PM	745	489	1,234	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	745	489	1,234
4:00 PM	830	**513**	**1,343**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	830	**513**	**1,343**
5:00 PM	**851**	486	1,337	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**851**	486	1,337
6:00 PM	652	378	1,030	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	652	378	1,030
7:00 PM	446	272	718	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	446	272	718
8:00 PM	341	208	549	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	341	208	549
9:00 PM	314	162	476	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	314	162	476
10:00 PM	201	134	335	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	201	134	335
11:00 PM	178	78	256	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	178	78	256
Total	9,224	8,138	17,362	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9,224	8,138	17,362
Percent	53%	47%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53%	47%	-
AM Peak	07:00	08:00	07:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	07:00	08:00	07:00
Vol.	489	732	1,213	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	489	732	1,213
PM Peak	17:00	16:00	16:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17:00	16:00	16:00
Vol.	851	513	1,343	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	851	513	1,343

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
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Vehicle Classification Report Summary

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave

Count Direction: Northbound / Southbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 03

	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
Study Total														
Northbound	54	8,177	1,906	50	1,051	89	0	63	191	31	6	4	31	11,653
Percent	0.5%	70.2%	16.4%	0.4%	9.0%	0.8%	0.0%	0.5%	1.6%	0.3%	0.1%	0.0%	0.3%	100%
Southbound	51	8,250	1,832	18	750	60	0	70	156	26	6	1	30	11,250
Percent	0.5%	73.3%	16.3%	0.2%	6.7%	0.5%	0.0%	0.6%	1.4%	0.2%	0.1%	0.0%	0.3%	100%
Total	105	16,427	3,738	68	1,801	149	0	133	347	57	12	5	61	22,903
Percent	0.5%	71.7%	16.3%	0.3%	7.9%	0.7%	0.0%	0.6%	1.5%	0.2%	0.1%	0.0%	0.3%	100%

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

idax DATA SOLUTIONS

Tuesday, May 10, 2022
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	2	82	15	2	9	2	0	0	4	0	0	0	0	**116**
1:00 AM	0	43	11	0	6	0	0	0	1	0	0	1	0	**62**
2:00 AM	0	44	8	0	3	0	0	1	5	0	0	0	0	**61**
3:00 AM	0	65	12	0	3	3	0	1	3	0	0	0	0	**87**
4:00 AM	0	118	17	1	12	1	0	1	9	0	0	0	1	**160**
5:00 AM	4	251	70	3	42	3	0	1	7	0	0	0	1	**382**
6:00 AM	3	335	97	2	79	7	0	2	11	3	0	0	3	**542**
7:00 AM	4	490	129	4	78	14	0	3	10	3	0	0	5	**740**
8:00 AM	2	470	130	2	75	4	0	1	8	2	1	1	2	**698**
9:00 AM	2	365	114	2	82	5	0	2	18	3	1	0	2	**596**
10:00 AM	2	320	80	8	86	8	0	6	17	3	0	0	5	**535**
11:00 AM	5	371	102	3	87	6	0	9	10	0	0	1	2	**596**
12:00 PM	1	400	113	4	75	4	0	9	12	1	0	0	1	**620**
1:00 PM	3	413	110	8	69	5	0	3	14	2	0	0	1	**628**
2:00 PM	0	468	122	1	54	6	0	8	13	3	0	0	1	**676**
3:00 PM	7	619	133	2	61	6	0	4	8	3	0	0	0	**843**
4:00 PM	2	618	156	1	63	2	0	1	6	3	1	0	3	**856**
5:00 PM	6	760	144	3	44	8	0	4	0	2	0	1	0	**972**
6:00 PM	2	540	123	2	48	0	0	2	5	2	1	0	0	**725**
7:00 PM	2	442	53	1	28	0	0	1	9	0	1	0	1	**538**
8:00 PM	0	336	63	1	17	1	0	1	3	1	0	0	0	**423**
9:00 PM	1	280	52	0	15	1	0	1	11	0	0	0	1	**362**
10:00 PM	3	192	31	0	7	0	0	2	4	0	0	0	1	**240**
11:00 PM	3	155	21	0	8	3	0	0	3	0	1	0	1	**195**
Total	**54**	**8,177**	**1,906**	**50**	**1,051**	**89**	**0**	**63**	**191**	**31**	**6**	**4**	**31**	**11,653**
Percent	**0.5%**	**70.2%**	**16.4%**	**0.4%**	**9.0%**	**0.8%**	**0.0%**	**0.5%**	**1.6%**	**0.3%**	**0.1%**	**0.0%**	**0.3%**	

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

Tuesday, May 10, 2022
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	63	13	1	3	1	0	2	2	0	0	0	0	**85**
1:00 AM	0	48	7	0	5	0	0	0	0	0	0	0	0	**60**
2:00 AM	0	49	10	0	6	1	0	0	1	0	0	0	0	**67**
3:00 AM	0	71	9	0	13	2	0	0	3	0	0	0	0	**98**
4:00 AM	1	112	22	1	9	1	0	1	6	0	0	0	0	**153**
5:00 AM	1	251	46	1	15	3	0	0	0	0	0	0	0	**317**
6:00 AM	3	358	88	0	48	3	0	4	9	1	0	0	0	**514**
7:00 AM	3	585	141	2	54	3	0	6	11	3	1	0	3	**812**
8:00 AM	3	603	157	0	53	5	0	6	10	0	0	0	6	**843**
9:00 AM	4	501	114	1	52	3	0	4	15	2	0	1	2	**699**
10:00 AM	2	421	87	1	51	7	0	1	10	2	0	0	2	**584**
11:00 AM	3	418	90	0	70	2	0	7	10	3	0	0	3	**606**
12:00 PM	5	420	107	0	62	3	0	10	14	1	1	0	1	**624**
1:00 PM	3	432	130	2	58	5	0	8	14	2	1	0	1	**656**
2:00 PM	6	518	134	1	56	7	0	1	10	3	0	0	2	**738**
3:00 PM	2	542	154	3	39	7	0	4	12	2	1	0	1	**767**
4:00 PM	5	707	152	2	41	3	0	4	3	3	0	0	4	**924**
5:00 PM	4	629	134	0	39	1	0	6	7	0	0	0	2	**822**
6:00 PM	2	469	81	1	34	1	0	3	3	3	1	0	0	**598**
7:00 PM	0	313	61	1	13	0	0	1	3	0	0	0	1	**393**
8:00 PM	1	258	43	0	7	0	0	1	6	1	0	0	1	**318**
9:00 PM	2	230	27	0	14	0	0	0	2	0	1	0	0	**276**
10:00 PM	1	164	11	1	4	0	0	0	2	0	0	0	0	**183**
11:00 PM	0	88	14	0	4	2	0	1	3	0	0	0	1	**113**
Total	**51**	**8,250**	**1,832**	**18**	**750**	**60**	**0**	**70**	**156**	**26**	**6**	**1**	**30**	**11,250**
Percent	**0.5%**	**73.3%**	**16.3%**	**0.2%**	**6.7%**	**0.5%**	**0.0%**	**0.6%**	**1.4%**	**0.2%**	**0.1%**	**0.0%**	**0.3%**	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

Total Study Average
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	2	82	15	2	9	2	0	0	4	0	0	0	0	**116**
1:00 AM	0	43	11	0	6	0	0	0	1	0	0	1	0	**62**
2:00 AM	0	44	8	0	3	0	0	1	5	0	0	0	0	**61**
3:00 AM	0	65	12	0	3	3	0	1	3	0	0	0	0	**87**
4:00 AM	0	118	17	1	12	1	0	1	9	0	0	0	1	**160**
5:00 AM	4	251	70	3	42	3	0	1	7	0	0	0	1	**382**
6:00 AM	3	335	97	2	79	7	0	2	11	3	0	0	3	**542**
7:00 AM	4	490	129	4	78	14	0	3	10	3	0	0	5	**740**
8:00 AM	2	470	130	2	75	4	0	1	8	2	1	1	2	**698**
9:00 AM	2	365	114	2	82	5	0	2	18	3	1	0	2	**596**
10:00 AM	2	320	80	8	86	8	0	6	17	3	0	0	5	**535**
11:00 AM	5	371	102	3	87	6	0	9	10	0	0	1	2	**596**
12:00 PM	1	400	113	4	75	4	0	9	12	1	0	0	1	**620**
1:00 PM	3	413	110	8	69	5	0	3	14	2	0	0	1	**628**
2:00 PM	0	468	122	1	54	6	0	8	13	3	0	0	1	**676**
3:00 PM	7	619	133	2	61	6	0	4	8	3	0	0	0	**843**
4:00 PM	2	618	156	1	63	2	0	1	6	3	1	0	3	**856**
5:00 PM	6	760	144	3	44	8	0	4	0	2	0	1	0	**972**
6:00 PM	2	540	123	2	48	0	0	2	5	2	1	0	0	**725**
7:00 PM	2	442	53	1	28	0	0	1	9	0	1	0	1	**538**
8:00 PM	0	336	63	1	17	1	0	1	3	1	0	0	0	**423**
9:00 PM	1	280	52	0	15	1	0	1	11	0	0	0	1	**362**
10:00 PM	3	192	31	0	7	0	0	2	4	0	0	0	1	**240**
11:00 PM	3	155	21	0	8	3	0	0	3	0	1	0	1	**195**
Total	**54**	**8,177**	**1,906**	**50**	**1,051**	**89**	**0**	**63**	**191**	**31**	**6**	**4**	**31**	**11,653**
Percent	**0.5%**	**70.2%**	**16.4%**	**0.4%**	**9.0%**	**0.8%**	**0.0%**	**0.5%**	**1.6%**	**0.3%**	**0.1%**	**0.0%**	**0.3%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

Total Study Average
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	63	13	1	3	1	0	2	2	0	0	0	0	**85**
1:00 AM	0	48	7	0	5	0	0	0	0	0	0	0	0	**60**
2:00 AM	0	49	10	0	6	1	0	0	1	0	0	0	0	**67**
3:00 AM	0	71	9	0	13	2	0	0	3	0	0	0	0	**98**
4:00 AM	1	112	22	1	9	1	0	1	6	0	0	0	0	**153**
5:00 AM	1	251	46	1	15	3	0	0	0	0	0	0	0	**317**
6:00 AM	3	358	88	0	48	3	0	4	9	1	0	0	0	**514**
7:00 AM	3	585	141	2	54	3	0	6	11	3	1	0	3	**812**
8:00 AM	3	603	157	0	53	5	0	6	10	0	0	0	6	**843**
9:00 AM	4	501	114	1	52	3	0	4	15	2	0	1	2	**699**
10:00 AM	2	421	87	1	51	7	0	1	10	2	0	0	2	**584**
11:00 AM	3	418	90	0	70	2	0	7	10	3	0	0	3	**606**
12:00 PM	5	420	107	0	62	3	0	10	14	1	1	0	1	**624**
1:00 PM	3	432	130	2	58	5	0	8	14	2	1	0	1	**656**
2:00 PM	6	518	134	1	56	7	0	1	10	3	0	0	2	**738**
3:00 PM	2	542	154	3	39	7	0	4	12	2	1	0	1	**767**
4:00 PM	5	707	152	2	41	3	0	4	3	3	0	0	4	**924**
5:00 PM	4	629	134	0	39	1	0	6	7	0	0	0	2	**822**
6:00 PM	2	469	81	1	34	1	0	3	3	3	1	0	0	**598**
7:00 PM	0	313	61	1	13	0	0	1	3	0	0	0	1	**393**
8:00 PM	1	258	43	0	7	0	0	1	6	1	0	0	1	**318**
9:00 PM	2	230	27	0	14	0	0	0	2	0	1	0	0	**276**
10:00 PM	1	164	11	1	4	0	0	0	2	0	0	0	0	**183**
11:00 PM	0	88	14	0	4	2	0	1	3	0	0	0	1	**113**
Total	**51**	**8,250**	**1,832**	**18**	**750**	**60**	**0**	**70**	**156**	**26**	**6**	**1**	**30**	**11,250**
Percent	**0.5%**	**73.3%**	**16.3%**	**0.2%**	**6.7%**	**0.5%**	**0.0%**	**0.6%**	**1.4%**	**0.2%**	**0.1%**	**0.0%**	**0.3%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

3-Day (Tuesday - Thursday) Average
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	2	82	15	2	9	2	0	0	4	0	0	0	0	**116**
1:00 AM	0	43	11	0	6	0	0	0	1	0	0	1	0	**62**
2:00 AM	0	44	8	0	3	0	0	1	5	0	0	0	0	**61**
3:00 AM	0	65	12	0	3	3	0	1	3	0	0	0	0	**87**
4:00 AM	0	118	17	1	12	1	0	1	9	0	0	0	1	**160**
5:00 AM	4	251	70	3	42	3	0	1	7	0	0	0	1	**382**
6:00 AM	3	335	97	2	79	7	0	2	11	3	0	0	3	**542**
7:00 AM	4	490	129	4	78	14	0	3	10	3	0	0	5	**740**
8:00 AM	2	470	130	2	75	4	0	1	8	2	1	1	2	**698**
9:00 AM	2	365	114	2	82	5	0	2	18	3	1	0	2	**596**
10:00 AM	2	320	80	8	86	8	0	6	17	3	0	0	5	**535**
11:00 AM	5	371	102	3	87	6	0	9	10	0	0	1	2	**596**
12:00 PM	1	400	113	4	75	4	0	9	12	1	0	0	1	**620**
1:00 PM	3	413	110	8	69	5	0	3	14	2	0	0	1	**628**
2:00 PM	0	468	122	1	54	6	0	8	13	3	0	0	1	**676**
3:00 PM	7	619	133	2	61	6	0	4	8	3	0	0	0	**843**
4:00 PM	2	618	156	1	63	2	0	1	6	3	1	0	3	**856**
5:00 PM	6	760	144	3	44	8	0	4	0	2	0	1	0	**972**
6:00 PM	2	540	123	2	48	0	0	2	5	2	1	0	0	**725**
7:00 PM	2	442	53	1	28	0	0	1	9	0	1	0	1	**538**
8:00 PM	0	336	63	1	17	1	0	1	3	1	0	0	0	**423**
9:00 PM	1	280	52	0	15	1	0	1	11	0	0	0	1	**362**
10:00 PM	3	192	31	0	7	0	0	2	4	0	0	0	1	**240**
11:00 PM	3	155	21	0	8	3	0	0	3	0	1	0	1	**195**
Total	**54**	**8,177**	**1,906**	**50**	**1,051**	**89**	**0**	**63**	**191**	**31**	**6**	**4**	**31**	**11,653**
Percent	**0.5%**	**70.2%**	**16.4%**	**0.4%**	**9.0%**	**0.8%**	**0.0%**	**0.5%**	**1.6%**	**0.3%**	**0.1%**	**0.0%**	**0.3%**	

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

DATA SOLUTIONS

3-Day (Tuesday - Thursday) Average
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	63	13	1	3	1	0	2	2	0	0	0	0	**85**
1:00 AM	0	48	7	0	5	0	0	0	0	0	0	0	0	**60**
2:00 AM	0	49	10	0	6	1	0	0	1	0	0	0	0	**67**
3:00 AM	0	71	9	0	13	2	0	0	3	0	0	0	0	**98**
4:00 AM	1	112	22	1	9	1	0	1	6	0	0	0	0	**153**
5:00 AM	1	251	46	1	15	3	0	0	0	0	0	0	0	**317**
6:00 AM	3	358	88	0	48	3	0	4	9	1	0	0	0	**514**
7:00 AM	3	585	141	2	54	3	0	6	11	3	1	0	3	**812**
8:00 AM	3	603	157	0	53	5	0	6	10	0	0	0	6	**843**
9:00 AM	4	501	114	1	52	3	0	4	15	2	0	1	2	**699**
10:00 AM	2	421	87	1	51	7	0	1	10	2	0	0	2	**584**
11:00 AM	3	418	90	0	70	2	0	7	10	3	0	0	3	**606**
12:00 PM	5	420	107	0	62	3	0	10	14	1	1	0	1	**624**
1:00 PM	3	432	130	2	58	5	0	8	14	2	1	0	1	**656**
2:00 PM	6	518	134	1	56	7	0	1	10	3	0	0	2	**738**
3:00 PM	2	542	154	3	39	7	0	4	12	2	1	0	1	**767**
4:00 PM	5	707	152	2	41	3	0	4	3	3	0	0	4	**924**
5:00 PM	4	629	134	0	39	1	0	6	7	0	0	0	2	**822**
6:00 PM	2	469	81	1	34	1	0	3	3	3	1	0	0	**598**
7:00 PM	0	313	61	1	13	0	0	1	3	0	0	0	1	**393**
8:00 PM	1	258	43	0	7	0	0	1	6	1	0	0	1	**318**
9:00 PM	2	230	27	0	14	0	0	0	2	0	1	0	0	**276**
10:00 PM	1	164	11	1	4	0	0	0	2	0	0	0	0	**183**
11:00 PM	0	88	14	0	4	2	0	1	3	0	0	0	1	**113**
Total	**51**	**8,250**	**1,832**	**18**	**750**	**60**	**0**	**70**	**156**	**26**	**6**	**1**	**30**	**11,250**
Percent	**0.5%**	**73.3%**	**16.3%**	**0.2%**	**6.7%**	**0.5%**	**0.0%**	**0.6%**	**1.4%**	**0.2%**	**0.1%**	**0.0%**	**0.3%**	

Vehicle Speed Report Summary

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave

Count Direction: Northbound / Southbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 03

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	0	1	0	1	14	111	518	2,328	4,220	3,062	1,072	256	53	12	4	0	1	11,653
Percent	0.0%	0.0%	0.0%	0.0%	0.1%	1.0%	4.4%	20.0%	36.2%	26.3%	9.2%	2.2%	0.5%	0.1%	0.0%	0.0%	0.0%	100%
Southbound	0	0	5	11	30	189	991	3,043	3,884	2,286	650	129	22	5	4	1	0	11,250
Percent	0.0%	0.0%	0.0%	0.1%	0.3%	1.7%	8.8%	27.0%	34.5%	20.3%	5.8%	1.1%	0.2%	0.0%	0.0%	0.0%	0.0%	100%
Total	0	1	5	12	44	300	1,509	5,371	8,104	5,348	1,722	385	75	17	8	1	1	22,903
Percent	0.0%	0.0%	0.0%	0.1%	0.2%	1.3%	6.6%	23.5%	35.4%	23.4%	7.5%	1.7%	0.3%	0.1%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Northbound			**Northbound**		
50th Percentile (Median)	48.4	mph	Mean (Average) Speed	48.6	mph
85th Percentile	54.1	mph	10 mph Pace	43.1 - 53.1	mph
95th Percentile	58.0	mph	Percent in Pace	65.0	%
Southbound			**Southbound**		
50th Percentile (Median)	46.6	mph	Mean (Average) Speed	46.7	mph
85th Percentile	52.5	mph	10 mph Pace	41.8 - 51.8	mph
95th Percentile	56.0	mph	Percent in Pace	63.7	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

Tuesday, May 10, 2022
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	3	5	18	45	28	15	2	0	0	0	0	0	**116**
1:00 AM	0	0	0	0	0	0	9	10	15	14	12	2	0	0	0	0	0	**62**
2:00 AM	0	0	0	0	0	0	5	13	18	16	5	3	1	0	0	0	0	**61**
3:00 AM	0	0	0	0	0	2	8	15	28	24	6	4	0	0	0	0	0	**87**
4:00 AM	0	0	0	0	0	3	12	32	46	42	17	6	2	0	0	0	0	**160**
5:00 AM	0	0	0	0	1	1	11	52	127	111	52	20	5	1	1	0	0	**382**
6:00 AM	0	0	0	0	0	3	15	62	148	176	92	32	11	3	0	0	0	**542**
7:00 AM	0	0	0	0	0	1	31	135	243	235	73	16	6	0	0	0	0	**740**
8:00 AM	0	0	0	0	0	6	28	120	240	196	84	22	1	1	0	0	0	**698**
9:00 AM	0	0	0	0	2	14	23	167	206	122	43	15	3	1	0	0	0	**596**
10:00 AM	0	0	0	1	0	12	30	128	191	120	43	8	2	0	0	0	0	**535**
11:00 AM	0	0	0	0	1	5	40	152	215	126	39	11	4	3	0	0	0	**596**
12:00 PM	0	0	0	0	0	8	25	124	230	177	45	11	0	0	0	0	0	**620**
1:00 PM	0	0	0	0	3	5	30	117	227	174	59	12	0	1	0	0	0	**628**
2:00 PM	0	1	0	0	1	6	25	143	251	177	59	10	3	0	0	0	0	**676**
3:00 PM	0	0	0	0	2	6	29	169	312	228	81	12	3	0	1	0	0	**843**
4:00 PM	0	0	0	0	0	2	25	155	338	230	83	18	4	0	1	0	0	**856**
5:00 PM	0	0	0	0	2	5	54	223	365	248	61	9	2	1	1	0	1	**972**
6:00 PM	0	0	0	0	2	5	19	138	324	172	47	15	3	0	0	0	0	**725**
7:00 PM	0	0	0	0	0	4	21	89	216	133	61	12	1	1	0	0	0	**538**
8:00 PM	0	0	0	0	0	4	13	92	149	120	35	10	0	0	0	0	0	**423**
9:00 PM	0	0	0	0	0	5	26	85	134	84	25	3	0	0	0	0	0	**362**
10:00 PM	0	0	0	0	0	4	21	47	90	62	14	0	2	0	0	0	0	**240**
11:00 PM	0	0	0	0	0	7	13	42	62	47	21	3	0	0	0	0	0	**195**
Total	**0**	**1**	**0**	**1**	**14**	**111**	**518**	**2,328**	**4,220**	**3,062**	**1,072**	**256**	**53**	**12**	**4**	**0**	**1**	**11,653**
Percent	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**1.0%**	**4.4%**	**20.0%**	**36.2%**	**26.3%**	**9.2%**	**2.2%**	**0.5%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	48.4	mph	Mean (Average) Speed	48.6	mph
85th Percentile	54.1	mph	10 mph Pace	43.1 - 53.1	mph
95th Percentile	58.0	mph	Percent in Pace	65.0	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

idax DATA SOLUTIONS

Tuesday, May 10, 2022
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	1	2	5	27	24	10	14	2	0	0	0	0	0	**85**
1:00 AM	0	0	0	0	0	2	7	19	18	11	1	2	0	0	0	0	0	**60**
2:00 AM	0	0	0	0	0	1	9	19	18	11	7	2	0	0	0	0	0	**67**
3:00 AM	0	0	0	0	1	3	10	20	32	21	10	1	0	0	0	0	0	**98**
4:00 AM	0	0	0	0	0	4	17	28	47	36	16	2	2	1	0	0	0	**153**
5:00 AM	0	0	0	0	0	2	10	49	107	98	33	16	2	0	0	0	0	**317**
6:00 AM	0	0	0	0	1	8	23	76	169	167	48	16	5	0	1	0	0	**514**
7:00 AM	0	0	0	1	0	10	60	190	265	199	67	17	2	0	0	1	0	**812**
8:00 AM	0	0	0	0	6	19	60	266	284	168	35	4	1	0	0	0	0	**843**
9:00 AM	0	0	0	0	2	9	63	203	262	124	28	7	0	0	1	0	0	**699**
10:00 AM	0	0	2	1	0	20	54	154	216	121	10	5	0	0	1	0	0	**584**
11:00 AM	0	0	0	0	0	4	43	181	230	119	29	0	0	0	0	0	0	**606**
12:00 PM	0	0	0	0	0	10	72	181	220	107	28	5	0	1	0	0	0	**624**
1:00 PM	0	0	0	4	4	12	63	188	230	125	24	6	0	0	0	0	0	**656**
2:00 PM	0	0	1	0	3	17	54	214	252	144	47	5	1	0	0	0	0	**738**
3:00 PM	0	0	1	3	2	5	75	242	261	129	40	7	2	0	0	0	0	**767**
4:00 PM	0	0	1	1	4	23	110	292	293	157	37	5	1	0	0	0	0	**924**
5:00 PM	0	0	0	0	1	11	82	218	300	146	50	11	1	2	0	0	0	**822**
6:00 PM	0	0	0	0	0	10	42	140	220	143	35	5	3	0	0	0	0	**598**
7:00 PM	0	0	0	0	0	2	24	86	149	91	35	4	1	0	1	0	0	**393**
8:00 PM	0	0	0	0	0	3	39	80	114	63	15	3	1	0	0	0	0	**318**
9:00 PM	0	0	0	1	5	1	38	83	88	42	15	2	0	1	0	0	0	**276**
10:00 PM	0	0	0	0	0	5	13	52	60	34	18	1	0	0	0	0	0	**183**
11:00 PM	0	0	0	0	0	6	18	35	25	20	8	1	0	0	0	0	0	**113**
Total	**0**	**0**	**5**	**11**	**30**	**189**	**991**	**3,043**	**3,884**	**2,286**	**650**	**129**	**22**	**5**	**4**	**1**	**0**	**11,250**
Percent	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.3%**	**1.7%**	**8.8%**	**27.0%**	**34.5%**	**20.3%**	**5.8%**	**1.1%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	46.6	mph	Mean (Average) Speed	46.7	mph
85th Percentile	52.5	mph	10 mph Pace	41.8 - 51.8	mph
95th Percentile	56.0	mph	Percent in Pace	63.7	%

Project Manager: (415) 310-6469
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Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

Total Study Average
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	0	3	5	18	45	28	15	2	0	0	0	0	0	**116**
1:00 AM	0	0	0	0	0	0	9	10	15	14	12	2	0	0	0	0	0	**62**
2:00 AM	0	0	0	0	0	0	5	13	18	16	5	3	1	0	0	0	0	**61**
3:00 AM	0	0	0	0	0	2	8	15	28	24	6	4	0	0	0	0	0	**87**
4:00 AM	0	0	0	0	0	3	12	32	46	42	17	6	2	0	0	0	0	**160**
5:00 AM	0	0	0	0	1	1	11	52	127	111	52	20	5	1	1	0	0	**382**
6:00 AM	0	0	0	0	0	3	15	62	148	176	92	32	11	3	0	0	0	**542**
7:00 AM	0	0	0	0	0	1	31	135	243	235	73	16	6	0	0	0	0	**740**
8:00 AM	0	0	0	0	0	6	28	120	240	196	84	22	1	1	0	0	0	**698**
9:00 AM	0	0	0	0	2	14	23	167	206	122	43	15	3	1	0	0	0	**596**
10:00 AM	0	0	0	1	0	12	30	128	191	120	43	8	2	0	0	0	0	**535**
11:00 AM	0	0	0	0	1	5	40	152	215	126	39	11	4	3	0	0	0	**596**
12:00 PM	0	0	0	0	0	8	25	124	230	177	45	11	0	0	0	0	0	**620**
1:00 PM	0	0	0	0	3	5	30	117	227	174	59	12	0	1	0	0	0	**628**
2:00 PM	0	1	0	0	1	6	25	143	251	177	59	10	3	0	0	0	0	**676**
3:00 PM	0	0	0	0	2	6	29	169	312	228	81	12	3	0	1	0	0	**843**
4:00 PM	0	0	0	0	0	2	25	155	338	230	83	18	4	0	1	0	0	**856**
5:00 PM	0	0	0	0	2	5	54	223	365	248	61	9	2	1	1	0	1	**972**
6:00 PM	0	0	0	0	2	5	19	138	324	172	47	15	3	0	0	0	0	**725**
7:00 PM	0	0	0	0	0	4	21	89	216	133	61	12	1	1	0	0	0	**538**
8:00 PM	0	0	0	0	0	4	13	92	149	120	35	10	0	0	0	0	0	**423**
9:00 PM	0	0	0	0	0	5	26	85	134	84	25	3	0	0	0	0	0	**362**
10:00 PM	0	0	0	0	0	4	21	47	90	62	14	0	2	0	0	0	0	**240**
11:00 PM	0	0	0	0	0	7	13	42	62	47	21	3	0	0	0	0	0	**195**
Total	**0**	**1**	**0**	**1**	**14**	**111**	**518**	**2,328**	**4,220**	**3,062**	**1,072**	**256**	**53**	**12**	**4**	**0**	**1**	**11,653**
Percent	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**1.0%**	**4.4%**	**20.0%**	**36.2%**	**26.3%**	**9.2%**	**2.2%**	**0.5%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	48.4	mph	Mean (Average) Speed	48.6	mph
85th Percentile	54.1	mph	10 mph Pace	43.1 - 53.1	mph
95th Percentile	58.0	mph	Percent in Pace	65.0	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 to 5/10/2022
Site Code: 03

idax DATA SOLUTIONS

Total Study Average
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	0	1	2	5	27	24	10	14	2	0	0	0	0	0	**85**
1:00 AM	0	0	0	0	0	2	7	19	18	11	1	2	0	0	0	0	0	**60**
2:00 AM	0	0	0	0	0	1	9	19	18	11	7	2	0	0	0	0	0	**67**
3:00 AM	0	0	0	0	1	3	10	20	32	21	10	1	0	0	0	0	0	**98**
4:00 AM	0	0	0	0	0	4	17	28	47	36	16	2	2	1	0	0	0	**153**
5:00 AM	0	0	0	0	0	2	10	49	107	98	33	16	2	0	0	0	0	**317**
6:00 AM	0	0	0	0	1	8	23	76	169	167	48	16	5	0	1	0	0	**514**
7:00 AM	0	0	0	1	0	10	60	190	265	199	67	17	2	0	0	1	0	**812**
8:00 AM	0	0	0	0	6	19	60	266	284	168	35	4	1	0	0	0	0	**843**
9:00 AM	0	0	0	0	2	9	63	203	262	124	28	7	0	0	1	0	0	**699**
10:00 AM	0	0	2	1	0	20	54	154	216	121	10	5	0	0	1	0	0	**584**
11:00 AM	0	0	0	0	0	4	43	181	230	119	29	0	0	0	0	0	0	**606**
12:00 PM	0	0	0	0	0	10	72	181	220	107	28	5	0	1	0	0	0	**624**
1:00 PM	0	0	0	4	4	12	63	188	230	125	24	6	0	0	0	0	0	**656**
2:00 PM	0	0	1	0	3	17	54	214	252	144	47	5	1	0	0	0	0	**738**
3:00 PM	0	0	1	3	2	5	75	242	261	129	40	7	2	0	0	0	0	**767**
4:00 PM	0	0	1	1	4	23	110	292	293	157	37	5	1	0	0	0	0	**924**
5:00 PM	0	0	0	0	1	11	82	218	300	146	50	11	1	2	0	0	0	**822**
6:00 PM	0	0	0	0	0	10	42	140	220	143	35	5	3	0	0	0	0	**598**
7:00 PM	0	0	0	0	0	2	24	86	149	91	35	4	1	0	1	0	0	**393**
8:00 PM	0	0	0	0	0	3	39	80	114	63	15	3	1	0	0	0	0	**318**
9:00 PM	0	0	0	1	5	1	38	83	88	42	15	2	0	1	0	0	0	**276**
10:00 PM	0	0	0	0	0	5	13	52	60	34	18	1	0	0	0	0	0	**183**
11:00 PM	0	0	0	0	0	6	18	35	25	20	8	1	0	0	0	0	0	**113**
Total	**0**	**0**	**5**	**11**	**30**	**189**	**991**	**3,043**	**3,884**	**2,286**	**650**	**129**	**22**	**5**	**4**	**1**	**0**	**11,250**
Percent	**0.0%**	**0.0%**	**0.0%**	**0.1%**	**0.3%**	**1.7%**	**8.8%**	**27.0%**	**34.5%**	**20.3%**	**5.8%**	**1.1%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	46.6	mph	Mean (Average) Speed	46.7	mph
85th Percentile	52.5	mph	10 mph Pace	41.8 - 51.8	mph
95th Percentile	56.0	mph	Percent in Pace	63.7	%

Location: Bayshore Blvd, between Tunnel Ave & San Bruno Ave
Date Range: 5/10/2022 - 5/16/2022
Site Code: 03

	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/10/2022			5/11/2022			5/12/2022			5/13/2022			5/14/2022			5/15/2022			5/16/2022					
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	116	85	201	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	116	85	201
1:00 AM	62	60	122	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	62	60	122
2:00 AM	61	67	128	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	61	67	128
3:00 AM	87	98	185	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	87	98	185
4:00 AM	160	153	313	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160	153	313
5:00 AM	382	317	699	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	382	317	699
6:00 AM	542	514	1,056	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	542	514	1,056
7:00 AM	**740**	812	**1,552**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**740**	812	**1,552**
8:00 AM	698	**843**	1,541	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	698	**843**	1,541
9:00 AM	596	699	1,295	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	596	699	1,295
10:00 AM	535	584	1,119	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	535	584	1,119
11:00 AM	596	606	1,202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	596	606	1,202
12:00 PM	620	624	1,244	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	620	624	1,244
1:00 PM	628	656	1,284	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	628	656	1,284
2:00 PM	676	738	1,414	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	676	738	1,414
3:00 PM	843	767	1,610	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	843	767	1,610
4:00 PM	856	**924**	1,780	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	856	**924**	1,780
5:00 PM	**972**	822	**1,794**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**972**	822	**1,794**
6:00 PM	725	598	1,323	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	725	598	1,323
7:00 PM	538	393	931	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	538	393	931
8:00 PM	423	318	741	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	423	318	741
9:00 PM	362	276	638	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	362	276	638
10:00 PM	240	183	423	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	240	183	423
11:00 PM	195	113	308	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	195	113	308
Total	11,653	11,250	22,903	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	11,653	11,250	22,903
Percent	51%	49%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	51%	49%	-
AM Peak	07:00	08:00	07:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	07:00	08:00	07:00
Vol.	740	843	1,552	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	740	843	1,552
PM Peak	17:00	16:00	17:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	17:00	16:00	17:00
Vol.	972	924	1,794	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	972	924	1,794

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Vehicle Classification Report Summary

Location: Valley Dr, between Bayshore Blvd and Park Place

Count Direction: Eastbound / Westbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 04

	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
Study Total														
Eastbound	58	2,676	619	28	531	105	0	19	123	14	1	0	21	4,195
Percent	1.4%	63.8%	14.8%	0.7%	12.7%	2.5%	0.0%	0.5%	2.9%	0.3%	0.0%	0.0%	0.5%	100%
Westbound	38	3,088	636	7	515	62	0	21	121	9	0	0	13	4,510
Percent	0.8%	68.5%	14.1%	0.2%	11.4%	1.4%	0.0%	0.5%	2.7%	0.2%	0.0%	0.0%	0.3%	100%
Total	96	5,764	1,255	35	1,046	167	0	40	244	23	1	0	34	8,705
Percent	1.1%	66.2%	14.4%	0.4%	12.0%	1.9%	0.0%	0.5%	2.8%	0.3%	0.0%	0.0%	0.4%	100%

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

Tuesday, May 10, 2022
Eastbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	26	6	1	3	0	0	2	2	0	0	0	0	**40**
1:00 AM	0	12	3	0	4	1	0	0	1	0	0	0	0	**21**
2:00 AM	0	22	1	2	4	0	0	0	1	0	0	0	0	**30**
3:00 AM	0	22	5	1	21	2	0	0	2	0	0	0	0	**53**
4:00 AM	1	30	8	2	7	1	0	0	3	0	0	0	0	**52**
5:00 AM	0	38	7	1	6	1	0	0	0	0	0	0	0	**53**
6:00 AM	5	66	15	0	38	5	0	0	8	0	0	0	0	**137**
7:00 AM	6	147	45	7	61	9	0	0	8	0	0	0	1	**284**
8:00 AM	1	115	45	0	40	10	0	0	11	3	0	0	1	**226**
9:00 AM	5	115	33	0	42	9	0	2	10	0	0	0	3	**219**
10:00 AM	2	106	32	1	33	6	0	0	6	0	0	0	2	**188**
11:00 AM	4	145	37	3	63	11	0	4	8	1	0	0	4	**280**
12:00 PM	5	176	41	2	36	7	0	2	14	2	0	0	2	**287**
1:00 PM	5	159	47	2	31	12	0	3	4	6	0	0	2	**271**
2:00 PM	2	194	43	0	28	9	0	2	9	0	0	0	1	**288**
3:00 PM	6	247	38	1	30	6	0	1	3	0	0	0	2	**334**
4:00 PM	4	336	70	3	26	5	0	0	5	0	0	0	1	**450**
5:00 PM	5	260	61	1	20	3	0	0	4	0	0	0	1	**355**
6:00 PM	1	142	29	1	11	3	0	1	6	1	1	0	0	**196**
7:00 PM	2	95	20	0	11	1	0	0	4	0	0	0	0	**133**
8:00 PM	2	79	14	0	7	2	0	1	6	1	0	0	0	**112**
9:00 PM	0	71	9	0	4	2	0	0	3	0	0	0	1	**90**
10:00 PM	1	42	4	0	4	0	0	0	2	0	0	0	0	**53**
11:00 PM	1	31	6	0	1	0	0	1	3	0	0	0	0	**43**
Total	**58**	**2,676**	**619**	**28**	**531**	**105**	**0**	**19**	**123**	**14**	**1**	**0**	**21**	**4,195**
Percent	**1.4%**	**63.8%**	**14.8%**	**0.7%**	**12.7%**	**2.5%**	**0.0%**	**0.5%**	**2.9%**	**0.3%**	**0.0%**	**0.0%**	**0.5%**	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

Tuesday, May 10, 2022
Westbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	18	2	0	3	0	0	0	2	0	0	0	0	**26**
1:00 AM	0	9	3	0	1	2	0	0	3	0	0	0	0	**18**
2:00 AM	0	9	0	0	0	0	0	0	1	0	0	0	1	**11**
3:00 AM	0	40	5	0	0	2	0	0	3	0	0	0	0	**50**
4:00 AM	2	77	8	1	9	3	0	1	7	0	0	0	1	**109**
5:00 AM	1	173	37	2	15	2	0	1	6	0	0	0	0	**237**
6:00 AM	3	198	36	0	24	2	0	0	3	1	0	0	2	**269**
7:00 AM	5	366	63	0	16	7	0	0	9	0	0	0	1	**467**
8:00 AM	3	306	63	1	33	5	0	0	3	1	0	0	1	**416**
9:00 AM	3	214	31	0	34	5	0	2	12	0	0	0	0	**301**
10:00 AM	4	151	40	0	40	8	0	2	15	0	0	0	0	**260**
11:00 AM	1	161	58	0	41	5	0	4	10	3	0	0	0	**283**
12:00 PM	3	178	37	0	40	4	0	0	8	1	0	0	0	**271**
1:00 PM	0	155	47	0	50	2	0	2	7	0	0	0	0	**263**
2:00 PM	4	137	35	0	38	0	0	2	4	2	0	0	3	**225**
3:00 PM	0	191	26	0	44	1	0	1	5	0	0	0	1	**269**
4:00 PM	3	177	36	1	41	3	0	1	3	0	0	0	2	**267**
5:00 PM	1	165	37	0	23	4	0	1	2	0	0	0	1	**234**
6:00 PM	1	107	21	1	19	1	0	0	3	0	0	0	0	**153**
7:00 PM	0	88	10	1	15	1	0	1	3	0	0	0	0	**119**
8:00 PM	1	55	14	0	8	2	0	1	4	0	0	0	0	**85**
9:00 PM	0	58	11	0	11	0	0	1	3	0	0	0	0	**84**
10:00 PM	2	34	9	0	5	1	0	1	2	1	0	0	0	**55**
11:00 PM	0	21	7	0	5	2	0	0	3	0	0	0	0	**38**
Total	**38**	**3,088**	**636**	**7**	**515**	**62**	**0**	**21**	**121**	**9**	**0**	**0**	**13**	**4,510**
Percent	**0.8%**	**68.5%**	**14.1%**	**0.2%**	**11.4%**	**1.4%**	**0.0%**	**0.5%**	**2.7%**	**0.2%**	**0.0%**	**0.0%**	**0.3%**	

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

idax DATA SOLUTIONS

Total Study Average
Eastbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	26	6	1	3	0	0	2	2	0	0	0	0	**40**
1:00 AM	0	12	3	0	4	1	0	0	1	0	0	0	0	**21**
2:00 AM	0	22	1	2	4	0	0	0	1	0	0	0	0	**30**
3:00 AM	0	22	5	1	21	2	0	0	2	0	0	0	0	**53**
4:00 AM	1	30	8	2	7	1	0	0	3	0	0	0	0	**52**
5:00 AM	0	38	7	1	6	1	0	0	0	0	0	0	0	**53**
6:00 AM	5	66	15	0	38	5	0	0	8	0	0	0	0	**137**
7:00 AM	6	147	45	7	61	9	0	0	8	0	0	0	1	**284**
8:00 AM	1	115	45	0	40	10	0	0	11	3	0	0	1	**226**
9:00 AM	5	115	33	0	42	9	0	2	10	0	0	0	3	**219**
10:00 AM	2	106	32	1	33	6	0	0	6	0	0	0	2	**188**
11:00 AM	4	145	37	3	63	11	0	4	8	1	0	0	4	**280**
12:00 PM	5	176	41	2	36	7	0	2	14	2	0	0	2	**287**
1:00 PM	5	159	47	2	31	12	0	3	4	6	0	0	2	**271**
2:00 PM	2	194	43	0	28	9	0	2	9	0	0	0	1	**288**
3:00 PM	6	247	38	1	30	6	0	1	3	0	0	0	2	**334**
4:00 PM	4	336	70	3	26	5	0	0	5	0	0	0	1	**450**
5:00 PM	5	260	61	1	20	3	0	0	4	0	0	0	1	**355**
6:00 PM	1	142	29	1	11	3	0	1	6	1	1	0	0	**196**
7:00 PM	2	95	20	0	11	1	0	0	4	0	0	0	0	**133**
8:00 PM	2	79	14	0	7	2	0	1	6	1	0	0	0	**112**
9:00 PM	0	71	9	0	4	2	0	0	3	0	0	0	1	**90**
10:00 PM	1	42	4	0	4	0	0	0	2	0	0	0	0	**53**
11:00 PM	1	31	6	0	1	0	0	1	3	0	0	0	0	**43**
Total	**58**	**2,676**	**619**	**28**	**531**	**105**	**0**	**19**	**123**	**14**	**1**	**0**	**21**	**4,195**
Percent	**1.4%**	**63.8%**	**14.8%**	**0.7%**	**12.7%**	**2.5%**	**0.0%**	**0.5%**	**2.9%**	**0.3%**	**0.0%**	**0.0%**	**0.5%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

Total Study Average
Westbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	18	2	0	3	0	0	0	2	0	0	0	0	**26**
1:00 AM	0	9	3	0	1	2	0	0	3	0	0	0	0	**18**
2:00 AM	0	9	0	0	0	0	0	0	1	0	0	0	1	**11**
3:00 AM	0	40	5	0	0	2	0	0	3	0	0	0	0	**50**
4:00 AM	2	77	8	1	9	3	0	1	7	0	0	0	1	**109**
5:00 AM	1	173	37	2	15	2	0	1	6	0	0	0	0	**237**
6:00 AM	3	198	36	0	24	2	0	0	3	1	0	0	2	**269**
7:00 AM	5	366	63	0	16	7	0	0	9	0	0	0	1	**467**
8:00 AM	3	306	63	1	33	5	0	0	3	1	0	0	1	**416**
9:00 AM	3	214	31	0	34	5	0	2	12	0	0	0	0	**301**
10:00 AM	4	151	40	0	40	8	0	2	15	0	0	0	0	**260**
11:00 AM	1	161	58	0	41	5	0	4	10	3	0	0	0	**283**
12:00 PM	3	178	37	0	40	4	0	0	8	1	0	0	0	**271**
1:00 PM	0	155	47	0	50	2	0	2	7	0	0	0	0	**263**
2:00 PM	4	137	35	0	38	0	0	2	4	2	0	0	3	**225**
3:00 PM	0	191	26	0	44	1	0	1	5	0	0	0	1	**269**
4:00 PM	3	177	36	1	41	3	0	1	3	0	0	0	2	**267**
5:00 PM	1	165	37	0	23	4	0	1	2	0	0	0	1	**234**
6:00 PM	1	107	21	1	19	1	0	0	3	0	0	0	0	**153**
7:00 PM	0	88	10	1	15	1	0	1	3	0	0	0	0	**119**
8:00 PM	1	55	14	0	8	2	0	1	4	0	0	0	0	**85**
9:00 PM	0	58	11	0	11	0	0	1	3	0	0	0	0	**84**
10:00 PM	2	34	9	0	5	1	0	1	2	1	0	0	0	**55**
11:00 PM	0	21	7	0	5	2	0	0	3	0	0	0	0	**38**
Total	**38**	**3,088**	**636**	**7**	**515**	**62**	**0**	**21**	**121**	**9**	**0**	**0**	**13**	**4,510**
Percent	**0.8%**	**68.5%**	**14.1%**	**0.2%**	**11.4%**	**1.4%**	**0.0%**	**0.5%**	**2.7%**	**0.2%**	**0.0%**	**0.0%**	**0.3%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

idax DATA SOLUTIONS

3-Day (Tuesday - Thursday) Average
Eastbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	26	6	1	3	0	0	2	2	0	0	0	0	**40**
1:00 AM	0	12	3	0	4	1	0	0	1	0	0	0	0	**21**
2:00 AM	0	22	1	2	4	0	0	0	1	0	0	0	0	**30**
3:00 AM	0	22	5	1	21	2	0	0	2	0	0	0	0	**53**
4:00 AM	1	30	8	2	7	1	0	0	3	0	0	0	0	**52**
5:00 AM	0	38	7	1	6	1	0	0	0	0	0	0	0	**53**
6:00 AM	5	66	15	0	38	5	0	0	8	0	0	0	0	**137**
7:00 AM	6	147	45	7	61	9	0	0	8	0	0	0	1	**284**
8:00 AM	1	115	45	0	40	10	0	0	11	3	0	0	1	**226**
9:00 AM	5	115	33	0	42	9	0	2	10	0	0	0	3	**219**
10:00 AM	2	106	32	1	33	6	0	0	6	0	0	0	2	**188**
11:00 AM	4	145	37	3	63	11	0	4	8	1	0	0	4	**280**
12:00 PM	5	176	41	2	36	7	0	2	14	2	0	0	2	**287**
1:00 PM	5	159	47	2	31	12	0	3	4	6	0	0	2	**271**
2:00 PM	2	194	43	0	28	9	0	2	9	0	0	0	1	**288**
3:00 PM	6	247	38	1	30	6	0	1	3	0	0	0	2	**334**
4:00 PM	4	336	70	3	26	5	0	0	5	0	0	0	1	**450**
5:00 PM	5	260	61	1	20	3	0	0	4	0	0	0	1	**355**
6:00 PM	1	142	29	1	11	3	0	1	6	1	1	0	0	**196**
7:00 PM	2	95	20	0	11	1	0	0	4	0	0	0	0	**133**
8:00 PM	2	79	14	0	7	2	0	1	6	1	0	0	0	**112**
9:00 PM	0	71	9	0	4	2	0	0	3	0	0	0	1	**90**
10:00 PM	1	42	4	0	4	0	0	0	2	0	0	0	0	**53**
11:00 PM	1	31	6	0	1	0	0	1	3	0	0	0	0	**43**
Total	**58**	**2,676**	**619**	**28**	**531**	**105**	**0**	**19**	**123**	**14**	**1**	**0**	**21**	**4,195**
Percent	**1.4%**	**63.8%**	**14.8%**	**0.7%**	**12.7%**	**2.5%**	**0.0%**	**0.5%**	**2.9%**	**0.3%**	**0.0%**	**0.0%**	**0.5%**	

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

idax DATA SOLUTIONS

3-Day (Tuesday - Thursday) Average
Westbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	1	18	2	0	3	0	0	0	2	0	0	0	0	**26**
1:00 AM	0	9	3	0	1	2	0	0	3	0	0	0	0	**18**
2:00 AM	0	9	0	0	0	0	0	0	1	0	0	0	1	**11**
3:00 AM	0	40	5	0	0	2	0	0	3	0	0	0	0	**50**
4:00 AM	2	77	8	1	9	3	0	1	7	0	0	0	1	**109**
5:00 AM	1	173	37	2	15	2	0	1	6	0	0	0	0	**237**
6:00 AM	3	198	36	0	24	2	0	0	3	1	0	0	2	**269**
7:00 AM	5	366	63	0	16	7	0	0	9	0	0	0	1	**467**
8:00 AM	3	306	63	1	33	5	0	0	3	1	0	0	1	**416**
9:00 AM	3	214	31	0	34	5	0	2	12	0	0	0	0	**301**
10:00 AM	4	151	40	0	40	8	0	2	15	0	0	0	0	**260**
11:00 AM	1	161	58	0	41	5	0	4	10	3	0	0	0	**283**
12:00 PM	3	178	37	0	40	4	0	0	8	1	0	0	0	**271**
1:00 PM	0	155	47	0	50	2	0	2	7	0	0	0	0	**263**
2:00 PM	4	137	35	0	38	0	0	2	4	2	0	0	3	**225**
3:00 PM	0	191	26	0	44	1	0	1	5	0	0	0	1	**269**
4:00 PM	3	177	36	1	41	3	0	1	3	0	0	0	2	**267**
5:00 PM	1	165	37	0	23	4	0	1	2	0	0	0	1	**234**
6:00 PM	1	107	21	1	19	1	0	0	3	0	0	0	0	**153**
7:00 PM	0	88	10	1	15	1	0	1	3	0	0	0	0	**119**
8:00 PM	1	55	14	0	8	2	0	1	4	0	0	0	0	**85**
9:00 PM	0	58	11	0	11	0	0	1	3	0	0	0	0	**84**
10:00 PM	2	34	9	0	5	1	0	1	2	1	0	0	0	**55**
11:00 PM	0	21	7	0	5	2	0	0	3	0	0	0	0	**38**
Total	**38**	**3,088**	**636**	**7**	**515**	**62**	**0**	**21**	**121**	**9**	**0**	**0**	**13**	**4,510**
Percent	**0.8%**	**68.5%**	**14.1%**	**0.2%**	**11.4%**	**1.4%**	**0.0%**	**0.5%**	**2.7%**	**0.2%**	**0.0%**	**0.0%**	**0.3%**	

Vehicle Speed Report Summary

Location: Valley Dr, between Bayshore Blvd and Park Place

Count Direction: Eastbound / Westbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 04

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Eastbound	5	27	211	673	1,191	1,384	607	90	7	0	0	0	0	0	0	0	0	4,195
Percent	0.1%	0.6%	5.0%	16.0%	28.4%	33.0%	14.5%	2.1%	0.2%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Westbound	2	31	208	935	1,655	1,357	293	27	0	0	0	0	2	0	0	0	0	4,510
Percent	0.0%	0.7%	4.6%	20.7%	36.7%	30.1%	6.5%	0.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	7	58	419	1,608	2,846	2,741	900	117	7	0	0	0	2	0	0	0	0	8,705
Percent	0.1%	0.7%	4.8%	18.5%	32.7%	31.5%	10.3%	1.3%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Eastbound			**Eastbound**		
50th Percentile (Median)	30.0	mph	Mean (Average) Speed	29.5	mph
85th Percentile	35.3	mph	10 mph Pace	25.7 - 35.7	mph
95th Percentile	38.1	mph	Percent in Pace	62.2	%
Westbound			**Westbound**		
50th Percentile (Median)	28.4	mph	Mean (Average) Speed	28.2	mph
85th Percentile	33.2	mph	10 mph Pace	23.6 - 33.6	mph
95th Percentile	35.8	mph	Percent in Pace	68.3	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

idax DATA SOLUTIONS

Tuesday, May 10, 2022
Eastbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	10	18	11	1	0	0	0	0	0	0	0	0	0	0	**40**
1:00 AM	0	0	0	5	5	7	4	0	0	0	0	0	0	0	0	0	0	**21**
2:00 AM	0	0	0	3	13	10	3	1	0	0	0	0	0	0	0	0	0	**30**
3:00 AM	0	0	0	23	15	10	5	0	0	0	0	0	0	0	0	0	0	**53**
4:00 AM	0	0	1	11	21	18	1	0	0	0	0	0	0	0	0	0	0	**52**
5:00 AM	0	0	3	4	17	19	7	3	0	0	0	0	0	0	0	0	0	**53**
6:00 AM	0	3	8	27	52	31	15	1	0	0	0	0	0	0	0	0	0	**137**
7:00 AM	1	2	21	67	101	62	23	7	0	0	0	0	0	0	0	0	0	**284**
8:00 AM	0	0	12	40	68	74	27	4	1	0	0	0	0	0	0	0	0	**226**
9:00 AM	0	0	8	44	76	67	24	0	0	0	0	0	0	0	0	0	0	**219**
10:00 AM	0	1	11	40	64	49	16	7	0	0	0	0	0	0	0	0	0	**188**
11:00 AM	0	3	12	50	116	76	18	5	0	0	0	0	0	0	0	0	0	**280**
12:00 PM	2	8	15	47	90	87	38	0	0	0	0	0	0	0	0	0	0	**287**
1:00 PM	1	4	13	35	83	89	38	8	0	0	0	0	0	0	0	0	0	**271**
2:00 PM	0	0	11	53	72	100	47	5	0	0	0	0	0	0	0	0	0	**288**
3:00 PM	0	0	23	40	81	133	50	7	0	0	0	0	0	0	0	0	0	**334**
4:00 PM	1	3	25	32	87	172	115	14	1	0	0	0	0	0	0	0	0	**450**
5:00 PM	0	1	7	34	82	145	76	9	1	0	0	0	0	0	0	0	0	**355**
6:00 PM	0	1	18	33	36	68	34	5	1	0	0	0	0	0	0	0	0	**196**
7:00 PM	0	0	7	19	23	51	23	8	2	0	0	0	0	0	0	0	0	**133**
8:00 PM	0	0	7	19	23	43	17	3	0	0	0	0	0	0	0	0	0	**112**
9:00 PM	0	0	3	16	23	31	13	3	1	0	0	0	0	0	0	0	0	**90**
10:00 PM	0	1	2	11	12	19	8	0	0	0	0	0	0	0	0	0	0	**53**
11:00 PM	0	0	4	10	13	12	4	0	0	0	0	0	0	0	0	0	0	**43**
Total	**5**	**27**	**211**	**673**	**1,191**	**1,384**	**607**	**90**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,195**
Percent	**0.1%**	**0.6%**	**5.0%**	**16.0%**	**28.4%**	**33.0%**	**14.5%**	**2.1%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	30.0	mph	Mean (Average) Speed	29.5	mph
85th Percentile	35.3	mph	10 mph Pace	25.7 - 35.7	mph
95th Percentile	38.1	mph	Percent in Pace	62.2	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

Tuesday, May 10, 2022
Westbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	1	8	7	8	2	0	0	0	0	0	0	0	0	0	0	**26**
1:00 AM	0	0	4	4	4	6	0	0	0	0	0	0	0	0	0	0	0	**18**
2:00 AM	0	0	1	1	3	3	3	0	0	0	0	0	0	0	0	0	0	**11**
3:00 AM	0	0	4	3	12	23	8	0	0	0	0	0	0	0	0	0	0	**50**
4:00 AM	0	1	5	18	24	51	9	1	0	0	0	0	0	0	0	0	0	**109**
5:00 AM	0	0	6	31	90	94	15	1	0	0	0	0	0	0	0	0	0	**237**
6:00 AM	0	0	7	32	86	101	39	4	0	0	0	0	0	0	0	0	0	**269**
7:00 AM	1	4	20	88	171	153	28	2	0	0	0	0	0	0	0	0	0	**467**
8:00 AM	0	2	11	84	168	136	15	0	0	0	0	0	0	0	0	0	0	**416**
9:00 AM	0	3	15	68	130	66	17	2	0	0	0	0	0	0	0	0	0	**301**
10:00 AM	0	4	14	69	86	72	15	0	0	0	0	0	0	0	0	0	0	**260**
11:00 AM	0	1	11	75	109	74	13	0	0	0	0	0	0	0	0	0	0	**283**
12:00 PM	0	4	20	59	99	73	11	3	0	0	0	0	2	0	0	0	0	**271**
1:00 PM	0	2	10	55	100	78	16	2	0	0	0	0	0	0	0	0	0	**263**
2:00 PM	0	4	13	56	83	56	12	1	0	0	0	0	0	0	0	0	0	**225**
3:00 PM	0	2	17	76	97	68	8	1	0	0	0	0	0	0	0	0	0	**269**
4:00 PM	1	1	17	63	89	79	17	0	0	0	0	0	0	0	0	0	0	**267**
5:00 PM	0	2	6	44	87	74	18	3	0	0	0	0	0	0	0	0	0	**234**
6:00 PM	0	1	10	28	57	45	12	0	0	0	0	0	0	0	0	0	0	**153**
7:00 PM	0	0	1	23	51	28	14	2	0	0	0	0	0	0	0	0	0	**119**
8:00 PM	0	0	3	17	36	22	4	3	0	0	0	0	0	0	0	0	0	**85**
9:00 PM	0	0	7	12	28	25	10	2	0	0	0	0	0	0	0	0	0	**84**
10:00 PM	0	0	2	12	24	13	4	0	0	0	0	0	0	0	0	0	0	**55**
11:00 PM	0	0	3	9	14	9	3	0	0	0	0	0	0	0	0	0	0	**38**
Total	**2**	**31**	**208**	**935**	**1,655**	**1,357**	**293**	**27**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**4,510**
Percent	**0.0%**	**0.7%**	**4.6%**	**20.7%**	**36.7%**	**30.1%**	**6.5%**	**0.6%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	28.4	mph	Mean (Average) Speed	28.2	mph
85th Percentile	33.2	mph	10 mph Pace	23.6 - 33.6	mph
95th Percentile	35.8	mph	Percent in Pace	68.27	%

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

idax DATA SOLUTIONS

Total Study Average
Eastbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	10	18	11	1	0	0	0	0	0	0	0	0	0	0	**40**
1:00 AM	0	0	0	5	5	7	4	0	0	0	0	0	0	0	0	0	0	**21**
2:00 AM	0	0	0	3	13	10	3	1	0	0	0	0	0	0	0	0	0	**30**
3:00 AM	0	0	0	23	15	10	5	0	0	0	0	0	0	0	0	0	0	**53**
4:00 AM	0	0	1	11	21	18	1	0	0	0	0	0	0	0	0	0	0	**52**
5:00 AM	0	0	3	4	17	19	7	3	0	0	0	0	0	0	0	0	0	**53**
6:00 AM	0	3	8	27	52	31	15	1	0	0	0	0	0	0	0	0	0	**137**
7:00 AM	1	2	21	67	101	62	23	7	0	0	0	0	0	0	0	0	0	**284**
8:00 AM	0	0	12	40	68	74	27	4	1	0	0	0	0	0	0	0	0	**226**
9:00 AM	0	0	8	44	76	67	24	0	0	0	0	0	0	0	0	0	0	**219**
10:00 AM	0	1	11	40	64	49	16	7	0	0	0	0	0	0	0	0	0	**188**
11:00 AM	0	3	12	50	116	76	18	5	0	0	0	0	0	0	0	0	0	**280**
12:00 PM	2	8	15	47	90	87	38	0	0	0	0	0	0	0	0	0	0	**287**
1:00 PM	1	4	13	35	83	89	38	8	0	0	0	0	0	0	0	0	0	**271**
2:00 PM	0	0	11	53	72	100	47	5	0	0	0	0	0	0	0	0	0	**288**
3:00 PM	0	0	23	40	81	133	50	7	0	0	0	0	0	0	0	0	0	**334**
4:00 PM	1	3	25	32	87	172	115	14	1	0	0	0	0	0	0	0	0	**450**
5:00 PM	0	1	7	34	82	145	76	9	1	0	0	0	0	0	0	0	0	**355**
6:00 PM	0	1	18	33	36	68	34	5	1	0	0	0	0	0	0	0	0	**196**
7:00 PM	0	0	7	19	23	51	23	8	2	0	0	0	0	0	0	0	0	**133**
8:00 PM	0	0	7	19	23	43	17	3	0	0	0	0	0	0	0	0	0	**112**
9:00 PM	0	0	3	16	23	31	13	3	1	0	0	0	0	0	0	0	0	**90**
10:00 PM	0	1	2	11	12	19	8	0	0	0	0	0	0	0	0	0	0	**53**
11:00 PM	0	0	4	10	13	12	4	0	0	0	0	0	0	0	0	0	0	**43**
Total	**5**	**27**	**211**	**673**	**1,191**	**1,384**	**607**	**90**	**7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**4,195**
Percent	**0.1%**	**0.6%**	**5.0%**	**16.0%**	**28.4%**	**33.0%**	**14.5%**	**2.1%**	**0.2%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	30.0	mph	Mean (Average) Speed	29.5	mph
85th Percentile	35.3	mph	10 mph Pace	25.7 - 35.7	mph
95th Percentile	38.1	mph	Percent in Pace	62.2	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 to 5/10/2022
Site Code: 04

Total Study Average
Westbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	1	8	7	8	2	0	0	0	0	0	0	0	0	0	0	**26**
1:00 AM	0	0	4	4	4	6	0	0	0	0	0	0	0	0	0	0	0	**18**
2:00 AM	0	0	1	1	3	3	3	0	0	0	0	0	0	0	0	0	0	**11**
3:00 AM	0	0	4	3	12	23	8	0	0	0	0	0	0	0	0	0	0	**50**
4:00 AM	0	1	5	18	24	51	9	1	0	0	0	0	0	0	0	0	0	**109**
5:00 AM	0	0	6	31	90	94	15	1	0	0	0	0	0	0	0	0	0	**237**
6:00 AM	0	0	7	32	86	101	39	4	0	0	0	0	0	0	0	0	0	**269**
7:00 AM	1	4	20	88	171	153	28	2	0	0	0	0	0	0	0	0	0	**467**
8:00 AM	0	2	11	84	168	136	15	0	0	0	0	0	0	0	0	0	0	**416**
9:00 AM	0	3	15	68	130	66	17	2	0	0	0	0	0	0	0	0	0	**301**
10:00 AM	0	4	14	69	86	72	15	0	0	0	0	0	0	0	0	0	0	**260**
11:00 AM	0	1	11	75	109	74	13	0	0	0	0	0	0	0	0	0	0	**283**
12:00 PM	0	4	20	59	99	73	11	3	0	0	0	0	2	0	0	0	0	**271**
1:00 PM	0	2	10	55	100	78	16	2	0	0	0	0	0	0	0	0	0	**263**
2:00 PM	0	4	13	56	83	56	12	1	0	0	0	0	0	0	0	0	0	**225**
3:00 PM	0	2	17	76	97	68	8	1	0	0	0	0	0	0	0	0	0	**269**
4:00 PM	1	1	17	63	89	79	17	0	0	0	0	0	0	0	0	0	0	**267**
5:00 PM	0	2	6	44	87	74	18	3	0	0	0	0	0	0	0	0	0	**234**
6:00 PM	0	1	10	28	57	45	12	0	0	0	0	0	0	0	0	0	0	**153**
7:00 PM	0	0	1	23	51	28	14	2	0	0	0	0	0	0	0	0	0	**119**
8:00 PM	0	0	3	17	36	22	4	3	0	0	0	0	0	0	0	0	0	**85**
9:00 PM	0	0	7	12	28	25	10	2	0	0	0	0	0	0	0	0	0	**84**
10:00 PM	0	0	2	12	24	13	4	0	0	0	0	0	0	0	0	0	0	**55**
11:00 PM	0	0	3	9	14	9	3	0	0	0	0	0	0	0	0	0	0	**38**
Total	**2**	**31**	**208**	**935**	**1,655**	**1,357**	**293**	**27**	**0**	**0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**4,510**
Percent	**0.0%**	**0.7%**	**4.6%**	**20.7%**	**36.7%**	**30.1%**	**6.5%**	**0.6%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	28.4	mph	Mean (Average) Speed	28.2	mph
85th Percentile	33.2	mph	10 mph Pace	23.6 - 33.6	mph
95th Percentile	35.8	mph	Percent in Pace	68.3	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Valley Dr, between Bayshore Blvd and Park Place
Date Range: 5/10/2022 - 5/16/2022
Site Code: 04

	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/10/2022			5/11/2022			5/12/2022			5/13/2022			5/14/2022			5/15/2022			5/16/2022					
Time	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	40	26	66	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40	26	66
1:00 AM	21	18	39	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	21	18	39
2:00 AM	30	11	41	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	11	41
3:00 AM	53	50	103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	50	103
4:00 AM	52	109	161	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	109	161
5:00 AM	53	237	290	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	237	290
6:00 AM	137	269	406	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	137	269	406
7:00 AM	**284**	**467**	**751**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**284**	**467**	**751**
8:00 AM	226	416	642	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	226	416	642
9:00 AM	219	301	520	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	219	301	520
10:00 AM	188	260	448	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	188	260	448
11:00 AM	280	283	563	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	280	283	563
12:00 PM	287	**271**	558	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	287	**271**	558
1:00 PM	271	263	534	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	271	263	534
2:00 PM	288	225	513	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	288	225	513
3:00 PM	334	269	603	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	334	269	603
4:00 PM	**450**	267	**717**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**450**	267	**717**
5:00 PM	355	234	589	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	355	234	589
6:00 PM	196	153	349	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	196	153	349
7:00 PM	133	119	252	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	119	252
8:00 PM	112	85	197	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	112	85	197
9:00 PM	90	84	174	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	90	84	174
10:00 PM	53	55	108	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	53	55	108
11:00 PM	43	38	81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	38	81
Total	4,195	4,510	8,705	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4,195	4,510	8,705
Percent	48%	52%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	48%	52%	-
AM Peak	07:00	07:00	07:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	07:00	07:00	07:00
Vol.	284	467	751	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	284	467	751
PM Peak	16:00	12:00	16:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16:00	12:00	16:00
Vol.	450	271	717	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	450	271	717

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Vehicle Classification Report Summary

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd

Count Direction: Northbound / Southbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 05

	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
Study Total														
Northbound	43	1,562	349	6	212	54	0	14	16	0	0	0	0	2,256
Percent	1.9%	69.2%	15.5%	0.3%	9.4%	2.4%	0.0%	0.6%	0.7%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	179	1,027	1,266	14	43	833	0	1	10	12	2	0	15	3,402
Percent	5.3%	30.2%	37.2%	0.4%	1.3%	24.5%	0.0%	0.0%	0.3%	0.4%	0.1%	0.0%	0.4%	100%
Total	222	2,589	1,615	20	255	887	0	15	26	12	2	0	15	5,658
Percent	3.9%	45.8%	28.5%	0.4%	4.5%	15.7%	0.0%	0.3%	0.5%	0.2%	0.0%	0.0%	0.3%	100%

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Project Manager: (415) 310-6469
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Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

idax DATA SOLUTIONS

Tuesday, May 10, 2022
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	7	3	1	3	2	0	0	0	0	0	0	0	**16**
1:00 AM	1	6	1	0	1	0	0	0	0	0	0	0	0	**9**
2:00 AM	0	7	1	0	2	1	0	1	1	0	0	0	0	**13**
3:00 AM	0	9	2	0	0	0	0	1	0	0	0	0	0	**12**
4:00 AM	0	14	6	0	3	0	0	0	1	0	0	0	0	**24**
5:00 AM	0	33	12	1	4	0	0	2	0	0	0	0	0	**52**
6:00 AM	2	79	23	0	21	2	0	2	1	0	0	0	0	**130**
7:00 AM	6	144	45	0	15	6	0	1	1	0	0	0	0	**218**
8:00 AM	2	162	34	0	22	4	0	0	0	0	0	0	0	**224**
9:00 AM	5	98	30	1	14	10	0	1	2	0	0	0	0	**161**
10:00 AM	5	115	29	2	18	1	0	1	1	0	0	0	0	**172**
11:00 AM	3	78	23	0	22	5	0	1	1	0	0	0	0	**133**
12:00 PM	2	104	25	0	12	1	0	0	1	0	0	0	0	**145**
1:00 PM	3	89	21	0	15	3	0	0	3	0	0	0	0	**134**
2:00 PM	2	106	18	1	11	2	0	0	2	0	0	0	0	**142**
3:00 PM	0	87	18	0	15	1	0	0	0	0	0	0	0	**121**
4:00 PM	4	96	20	0	11	1	0	1	0	0	0	0	0	**133**
5:00 PM	1	109	14	0	7	1	0	0	1	0	0	0	0	**133**
6:00 PM	0	73	8	0	2	0	0	0	0	0	0	0	0	**83**
7:00 PM	3	59	4	0	3	3	0	1	1	0	0	0	0	**74**
8:00 PM	1	27	7	0	2	1	0	1	0	0	0	0	0	**39**
9:00 PM	2	24	2	0	6	8	0	1	0	0	0	0	0	**43**
10:00 PM	0	22	1	0	3	1	0	0	0	0	0	0	0	**27**
11:00 PM	1	14	2	0	0	1	0	0	0	0	0	0	0	**18**
Total	**43**	**1,562**	**349**	**6**	**212**	**54**	**0**	**14**	**16**	**0**	**0**	**0**	**0**	**2,256**
Percent	**1.9%**	**69.2%**	**15.5%**	**0.3%**	**9.4%**	**2.4%**	**0.0%**	**0.6%**	**0.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

DATA SOLUTIONS

Tuesday, May 10, 2022
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	7	10	0	0	4	0	0	0	0	0	0	0	**21**
1:00 AM	1	7	11	0	0	2	0	0	0	0	0	0	0	**21**
2:00 AM	0	3	5	0	0	2	0	0	0	0	0	0	0	**10**
3:00 AM	0	6	4	1	2	7	0	0	0	0	0	0	0	**20**
4:00 AM	1	9	14	1	0	5	0	0	0	0	0	0	0	**30**
5:00 AM	5	16	22	0	0	19	0	0	0	0	0	0	0	**62**
6:00 AM	3	42	37	0	3	24	0	0	1	1	0	0	1	**112**
7:00 AM	13	66	88	0	1	59	0	0	0	0	0	0	0	**227**
8:00 AM	13	58	103	2	1	57	0	0	0	1	0	0	1	**236**
9:00 AM	13	71	72	0	4	65	0	0	2	3	1	0	1	**232**
10:00 AM	13	43	69	0	5	43	0	0	0	1	0	0	2	**176**
11:00 AM	18	61	96	3	4	50	0	0	1	1	0	0	0	**234**
12:00 PM	9	83	79	0	1	62	0	0	0	0	0	0	2	**236**
1:00 PM	10	69	94	2	7	50	0	0	2	1	0	0	1	**236**
2:00 PM	16	58	94	0	5	32	0	0	0	2	0	0	0	**207**
3:00 PM	4	75	82	1	1	54	0	0	0	1	1	0	1	**220**
4:00 PM	21	110	93	2	2	59	0	1	2	0	0	0	2	**292**
5:00 PM	14	71	93	0	3	67	0	0	1	0	0	0	0	**249**
6:00 PM	7	61	70	0	3	46	0	0	0	1	0	0	2	**190**
7:00 PM	7	46	33	0	0	42	0	0	0	0	0	0	0	**128**
8:00 PM	3	21	28	1	0	28	0	0	0	0	0	0	0	**81**
9:00 PM	3	27	24	0	1	33	0	0	1	0	0	0	0	**89**
10:00 PM	1	12	26	0	0	14	0	0	0	0	0	0	1	**54**
11:00 PM	4	5	19	1	0	9	0	0	0	0	0	0	1	**39**
Total	**179**	**1,027**	**1,266**	**14**	**43**	**833**	**0**	**1**	**10**	**12**	**2**	**0**	**15**	**3,402**
Percent	**5.3%**	**30.2%**	**37.2%**	**0.4%**	**1.3%**	**24.5%**	**0.0%**	**0.0%**	**0.3%**	**0.4%**	**0.1%**	**0.0%**	**0.4%**	

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

DATA SOLUTIONS

Total Study Average
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	7	3	1	3	2	0	0	0	0	0	0	0	**16**
1:00 AM	1	6	1	0	1	0	0	0	0	0	0	0	0	**9**
2:00 AM	0	7	1	0	2	1	0	1	1	0	0	0	0	**13**
3:00 AM	0	9	2	0	0	0	0	1	0	0	0	0	0	**12**
4:00 AM	0	14	6	0	3	0	0	0	1	0	0	0	0	**24**
5:00 AM	0	33	12	1	4	0	0	2	0	0	0	0	0	**52**
6:00 AM	2	79	23	0	21	2	0	2	1	0	0	0	0	**130**
7:00 AM	6	144	45	0	15	6	0	1	1	0	0	0	0	**218**
8:00 AM	2	162	34	0	22	4	0	0	0	0	0	0	0	**224**
9:00 AM	5	98	30	1	14	10	0	1	2	0	0	0	0	**161**
10:00 AM	5	115	29	2	18	1	0	1	1	0	0	0	0	**172**
11:00 AM	3	78	23	0	22	5	0	1	1	0	0	0	0	**133**
12:00 PM	2	104	25	0	12	1	0	0	1	0	0	0	0	**145**
1:00 PM	3	89	21	0	15	3	0	0	3	0	0	0	0	**134**
2:00 PM	2	106	18	1	11	2	0	0	2	0	0	0	0	**142**
3:00 PM	0	87	18	0	15	1	0	0	0	0	0	0	0	**121**
4:00 PM	4	96	20	0	11	1	0	1	0	0	0	0	0	**133**
5:00 PM	1	109	14	0	7	1	0	0	1	0	0	0	0	**133**
6:00 PM	0	73	8	0	2	0	0	0	0	0	0	0	0	**83**
7:00 PM	3	59	4	0	3	3	0	1	1	0	0	0	0	**74**
8:00 PM	1	27	7	0	2	1	0	1	0	0	0	0	0	**39**
9:00 PM	2	24	2	0	6	8	0	1	0	0	0	0	0	**43**
10:00 PM	0	22	1	0	3	1	0	0	0	0	0	0	0	**27**
11:00 PM	1	14	2	0	0	1	0	0	0	0	0	0	0	**18**
Total	**43**	**1,562**	**349**	**6**	**212**	**54**	**0**	**14**	**16**	**0**	**0**	**0**	**0**	**2,256**
Percent	**1.9%**	**69.2%**	**15.5%**	**0.3%**	**9.4%**	**2.4%**	**0.0%**	**0.6%**	**0.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

DATA SOLUTIONS

Total Study Average
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	7	10	0	0	4	0	0	0	0	0	0	0	**21**
1:00 AM	1	7	11	0	0	2	0	0	0	0	0	0	0	**21**
2:00 AM	0	3	5	0	0	2	0	0	0	0	0	0	0	**10**
3:00 AM	0	6	4	1	2	7	0	0	0	0	0	0	0	**20**
4:00 AM	1	9	14	1	0	5	0	0	0	0	0	0	0	**30**
5:00 AM	5	16	22	0	0	19	0	0	0	0	0	0	0	**62**
6:00 AM	3	42	37	0	3	24	0	0	1	1	0	0	1	**112**
7:00 AM	13	66	88	0	1	59	0	0	0	0	0	0	0	**227**
8:00 AM	13	58	103	2	1	57	0	0	0	1	0	0	1	**236**
9:00 AM	13	71	72	0	4	65	0	0	2	3	1	0	1	**232**
10:00 AM	13	43	69	0	5	43	0	0	0	1	0	0	2	**176**
11:00 AM	18	61	96	3	4	50	0	0	1	1	0	0	0	**234**
12:00 PM	9	83	79	0	1	62	0	0	0	0	0	0	2	**236**
1:00 PM	10	69	94	2	7	50	0	0	2	1	0	0	1	**236**
2:00 PM	16	58	94	0	5	32	0	0	0	2	0	0	0	**207**
3:00 PM	4	75	82	1	1	54	0	0	0	1	1	0	1	**220**
4:00 PM	21	110	93	2	2	59	0	1	2	0	0	0	2	**292**
5:00 PM	14	71	93	0	3	67	0	0	1	0	0	0	0	**249**
6:00 PM	7	61	70	0	3	46	0	0	0	1	0	0	2	**190**
7:00 PM	7	46	33	0	0	42	0	0	0	0	0	0	0	**128**
8:00 PM	3	21	28	1	0	28	0	0	0	0	0	0	0	**81**
9:00 PM	3	27	24	0	1	33	0	0	1	0	0	0	0	**89**
10:00 PM	1	12	26	0	0	14	0	0	0	0	0	0	1	**54**
11:00 PM	4	5	19	1	0	9	0	0	0	0	0	0	1	**39**
Total	**179**	**1,027**	**1,266**	**14**	**43**	**833**	**0**	**1**	**10**	**12**	**2**	**0**	**15**	**3,402**
Percent	**5.3%**	**30.2%**	**37.2%**	**0.4%**	**1.3%**	**24.5%**	**0.0%**	**0.0%**	**0.3%**	**0.4%**	**0.1%**	**0.0%**	**0.4%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

idax DATA SOLUTIONS

3-Day (Tuesday - Thursday) Average
Northbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	7	3	1	3	2	0	0	0	0	0	0	0	**16**
1:00 AM	1	6	1	0	1	0	0	0	0	0	0	0	0	**9**
2:00 AM	0	7	1	0	2	1	0	1	1	0	0	0	0	**13**
3:00 AM	0	9	2	0	0	0	0	1	0	0	0	0	0	**12**
4:00 AM	0	14	6	0	3	0	0	0	1	0	0	0	0	**24**
5:00 AM	0	33	12	1	4	0	0	2	0	0	0	0	0	**52**
6:00 AM	2	79	23	0	21	2	0	2	1	0	0	0	0	**130**
7:00 AM	6	144	45	0	15	6	0	1	1	0	0	0	0	**218**
8:00 AM	2	162	34	0	22	4	0	0	0	0	0	0	0	**224**
9:00 AM	5	98	30	1	14	10	0	1	2	0	0	0	0	**161**
10:00 AM	5	115	29	2	18	1	0	1	1	0	0	0	0	**172**
11:00 AM	3	78	23	0	22	5	0	1	1	0	0	0	0	**133**
12:00 PM	2	104	25	0	12	1	0	0	1	0	0	0	0	**145**
1:00 PM	3	89	21	0	15	3	0	0	3	0	0	0	0	**134**
2:00 PM	2	106	18	1	11	2	0	0	2	0	0	0	0	**142**
3:00 PM	0	87	18	0	15	1	0	0	0	0	0	0	0	**121**
4:00 PM	4	96	20	0	11	1	0	1	0	0	0	0	0	**133**
5:00 PM	1	109	14	0	7	1	0	0	1	0	0	0	0	**133**
6:00 PM	0	73	8	0	2	0	0	0	0	0	0	0	0	**83**
7:00 PM	3	59	4	0	3	3	0	1	1	0	0	0	0	**74**
8:00 PM	1	27	7	0	2	1	0	1	0	0	0	0	0	**39**
9:00 PM	2	24	2	0	6	8	0	1	0	0	0	0	0	**43**
10:00 PM	0	22	1	0	3	1	0	0	0	0	0	0	0	**27**
11:00 PM	1	14	2	0	0	1	0	0	0	0	0	0	0	**18**
Total	**43**	**1,562**	**349**	**6**	**212**	**54**	**0**	**14**	**16**	**0**	**0**	**0**	**0**	**2,256**
Percent	**1.9%**	**69.2%**	**15.5%**	**0.3%**	**9.4%**	**2.4%**	**0.0%**	**0.6%**	**0.7%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

DATA SOLUTIONS

3-Day (Tuesday - Thursday) Average
Southbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	7	10	0	0	4	0	0	0	0	0	0	0	**21**
1:00 AM	1	7	11	0	0	2	0	0	0	0	0	0	0	**21**
2:00 AM	0	3	5	0	0	2	0	0	0	0	0	0	0	**10**
3:00 AM	0	6	4	1	2	7	0	0	0	0	0	0	0	**20**
4:00 AM	1	9	14	1	0	5	0	0	0	0	0	0	0	**30**
5:00 AM	5	16	22	0	0	19	0	0	0	0	0	0	0	**62**
6:00 AM	3	42	37	0	3	24	0	0	1	1	0	0	1	**112**
7:00 AM	13	66	88	0	1	59	0	0	0	0	0	0	0	**227**
8:00 AM	13	58	103	2	1	57	0	0	0	1	0	0	1	**236**
9:00 AM	13	71	72	0	4	65	0	0	2	3	1	0	1	**232**
10:00 AM	13	43	69	0	5	43	0	0	0	1	0	0	2	**176**
11:00 AM	18	61	96	3	4	50	0	0	1	1	0	0	0	**234**
12:00 PM	9	83	79	0	1	62	0	0	0	0	0	0	2	**236**
1:00 PM	10	69	94	2	7	50	0	0	2	1	0	0	1	**236**
2:00 PM	16	58	94	0	5	32	0	0	0	2	0	0	0	**207**
3:00 PM	4	75	82	1	1	54	0	0	0	1	1	0	1	**220**
4:00 PM	21	110	93	2	2	59	0	1	2	0	0	0	2	**292**
5:00 PM	14	71	93	0	3	67	0	0	1	0	0	0	0	**249**
6:00 PM	7	61	70	0	3	46	0	0	0	1	0	0	2	**190**
7:00 PM	7	46	33	0	0	42	0	0	0	0	0	0	0	**128**
8:00 PM	3	21	28	1	0	28	0	0	0	0	0	0	0	**81**
9:00 PM	3	27	24	0	1	33	0	0	1	0	0	0	0	**89**
10:00 PM	1	12	26	0	0	14	0	0	0	0	0	0	1	**54**
11:00 PM	4	5	19	1	0	9	0	0	0	0	0	0	1	**39**
Total	**179**	**1,027**	**1,266**	**14**	**43**	**833**	**0**	**1**	**10**	**12**	**2**	**0**	**15**	**3,402**
Percent	**5.3%**	**30.2%**	**37.2%**	**0.4%**	**1.3%**	**24.5%**	**0.0%**	**0.0%**	**0.3%**	**0.4%**	**0.1%**	**0.0%**	**0.4%**	

Vehicle Speed Report Summary

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd

Count Direction: Northbound / Southbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 05

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Northbound	1	9	94	921	1,082	138	10	1	0	0	0	0	0	0	0	0	0	2,256
Percent	0.0%	0.4%	4.2%	40.8%	48.0%	6.1%	0.4%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Southbound	23	215	658	1,743	723	35	5	0	0	0	0	0	0	0	0	0	0	3,402
Percent	0.7%	6.3%	19.3%	51.2%	21.3%	1.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	24	224	752	2,664	1,805	173	15	1	0	0	0	0	0	0	0	0	0	5,658
Percent	0.4%	4.0%	13.3%	47.1%	31.9%	3.1%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary		
Northbound		
50th Percentile (Median)	25.3	mph
85th Percentile	28.4	mph
95th Percentile	30.6	mph
Southbound		
50th Percentile (Median)	22.6	mph
85th Percentile	25.9	mph
95th Percentile	27.8	mph

Total Study Speed Statistics		
Northbound		
Mean (Average) Speed	25.3	mph
10 mph Pace	20.5 - 30.5	mph
Percent in Pace	89.1	%
Southbound		
Mean (Average) Speed	22.0	mph
10 mph Pace	17.3 - 27.3	mph
Percent in Pace	80.1	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

idax DATA SOLUTIONS

Tuesday, May 10, 2022
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	10	4	1	1	0	0	0	0	0	0	0	0	0	0	**16**
1:00 AM	0	1	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	**9**
2:00 AM	0	0	0	5	5	3	0	0	0	0	0	0	0	0	0	0	0	**13**
3:00 AM	0	0	0	4	6	2	0	0	0	0	0	0	0	0	0	0	0	**12**
4:00 AM	0	0	1	4	13	6	0	0	0	0	0	0	0	0	0	0	0	**24**
5:00 AM	0	0	1	17	25	7	1	1	0	0	0	0	0	0	0	0	0	**52**
6:00 AM	0	1	3	60	53	13	0	0	0	0	0	0	0	0	0	0	0	**130**
7:00 AM	0	0	7	87	113	9	2	0	0	0	0	0	0	0	0	0	0	**218**
8:00 AM	0	0	10	93	111	10	0	0	0	0	0	0	0	0	0	0	0	**224**
9:00 AM	0	2	8	72	77	2	0	0	0	0	0	0	0	0	0	0	0	**161**
10:00 AM	0	0	9	71	81	10	1	0	0	0	0	0	0	0	0	0	0	**172**
11:00 AM	0	0	13	71	43	6	0	0	0	0	0	0	0	0	0	0	0	**133**
12:00 PM	0	1	3	64	64	13	0	0	0	0	0	0	0	0	0	0	0	**145**
1:00 PM	1	4	6	52	61	10	0	0	0	0	0	0	0	0	0	0	0	**134**
2:00 PM	0	0	4	56	69	10	3	0	0	0	0	0	0	0	0	0	0	**142**
3:00 PM	0	0	4	54	54	8	1	0	0	0	0	0	0	0	0	0	0	**121**
4:00 PM	0	0	5	62	59	7	0	0	0	0	0	0	0	0	0	0	0	**133**
5:00 PM	0	0	3	46	78	6	0	0	0	0	0	0	0	0	0	0	0	**133**
6:00 PM	0	0	0	28	50	5	0	0	0	0	0	0	0	0	0	0	0	**83**
7:00 PM	0	0	3	21	46	4	0	0	0	0	0	0	0	0	0	0	0	**74**
8:00 PM	0	0	4	12	18	4	1	0	0	0	0	0	0	0	0	0	0	**39**
9:00 PM	0	0	5	20	17	1	0	0	0	0	0	0	0	0	0	0	0	**43**
10:00 PM	0	0	0	7	20	0	0	0	0	0	0	0	0	0	0	0	0	**27**
11:00 PM	0	0	2	5	10	1	0	0	0	0	0	0	0	0	0	0	0	**18**
Total	**1**	**9**	**94**	**921**	**1,082**	**138**	**10**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,256**
Percent	**0.0%**	**0.4%**	**4.2%**	**40.8%**	**48.0%**	**6.1%**	**0.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	25.3	mph	Mean (Average) Speed	25.3	mph
85th Percentile	28.4	mph	10 mph Pace	20.5 - 30.5	mph
95th Percentile	30.6	mph	Percent in Pace	89.1	%

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

idax DATA SOLUTIONS

Tuesday, May 10, 2022
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	1	2	9	8	1	0	0	0	0	0	0	0	0	0	0	0	**21**
1:00 AM	0	1	4	10	4	0	2	0	0	0	0	0	0	0	0	0	0	**21**
2:00 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	**10**
3:00 AM	0	6	1	10	2	1	0	0	0	0	0	0	0	0	0	0	0	**20**
4:00 AM	0	1	4	16	8	1	0	0	0	0	0	0	0	0	0	0	0	**30**
5:00 AM	0	2	11	33	16	0	0	0	0	0	0	0	0	0	0	0	0	**62**
6:00 AM	1	8	14	57	27	5	0	0	0	0	0	0	0	0	0	0	0	**112**
7:00 AM	3	6	24	139	54	1	0	0	0	0	0	0	0	0	0	0	0	**227**
8:00 AM	2	17	40	139	38	0	0	0	0	0	0	0	0	0	0	0	0	**236**
9:00 AM	0	18	54	117	39	4	0	0	0	0	0	0	0	0	0	0	0	**232**
10:00 AM	2	21	35	70	47	1	0	0	0	0	0	0	0	0	0	0	0	**176**
11:00 AM	3	16	60	123	32	0	0	0	0	0	0	0	0	0	0	0	0	**234**
12:00 PM	5	28	48	103	50	2	0	0	0	0	0	0	0	0	0	0	0	**236**
1:00 PM	3	8	54	129	38	1	3	0	0	0	0	0	0	0	0	0	0	**236**
2:00 PM	0	12	31	108	52	4	0	0	0	0	0	0	0	0	0	0	0	**207**
3:00 PM	1	9	45	120	43	2	0	0	0	0	0	0	0	0	0	0	0	**220**
4:00 PM	0	27	94	129	38	4	0	0	0	0	0	0	0	0	0	0	0	**292**
5:00 PM	1	7	50	142	47	2	0	0	0	0	0	0	0	0	0	0	0	**249**
6:00 PM	0	9	30	92	58	1	0	0	0	0	0	0	0	0	0	0	0	**190**
7:00 PM	0	4	17	59	45	3	0	0	0	0	0	0	0	0	0	0	0	**128**
8:00 PM	0	1	12	41	25	2	0	0	0	0	0	0	0	0	0	0	0	**81**
9:00 PM	0	9	16	44	20	0	0	0	0	0	0	0	0	0	0	0	0	**89**
10:00 PM	1	2	5	31	15	0	0	0	0	0	0	0	0	0	0	0	0	**54**
11:00 PM	1	2	7	17	12	0	0	0	0	0	0	0	0	0	0	0	0	**39**
Total	**23**	**215**	**658**	**1,743**	**723**	**35**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,402**
Percent	**0.7%**	**6.3%**	**19.3%**	**51.2%**	**21.3%**	**1.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	22.6	mph	Mean (Average) Speed	22	mph
85th Percentile	25.9	mph	10 mph Pace	17.3 - 27.3	mph
95th Percentile	27.8	mph	Percent in Pace	80.07	%

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

Total Study Average
Northbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	10	4	1	1	0	0	0	0	0	0	0	0	0	0	**16**
1:00 AM	0	1	3	0	5	0	0	0	0	0	0	0	0	0	0	0	0	**9**
2:00 AM	0	0	0	5	5	3	0	0	0	0	0	0	0	0	0	0	0	**13**
3:00 AM	0	0	0	4	6	2	0	0	0	0	0	0	0	0	0	0	0	**12**
4:00 AM	0	0	1	4	13	6	0	0	0	0	0	0	0	0	0	0	0	**24**
5:00 AM	0	0	1	17	25	7	1	1	0	0	0	0	0	0	0	0	0	**52**
6:00 AM	0	1	3	60	53	13	0	0	0	0	0	0	0	0	0	0	0	**130**
7:00 AM	0	0	7	87	113	9	2	0	0	0	0	0	0	0	0	0	0	**218**
8:00 AM	0	0	10	93	111	10	0	0	0	0	0	0	0	0	0	0	0	**224**
9:00 AM	0	2	8	72	77	2	0	0	0	0	0	0	0	0	0	0	0	**161**
10:00 AM	0	0	9	71	81	10	1	0	0	0	0	0	0	0	0	0	0	**172**
11:00 AM	0	0	13	71	43	6	0	0	0	0	0	0	0	0	0	0	0	**133**
12:00 PM	0	1	3	64	64	13	0	0	0	0	0	0	0	0	0	0	0	**145**
1:00 PM	1	4	6	52	61	10	0	0	0	0	0	0	0	0	0	0	0	**134**
2:00 PM	0	0	4	56	69	10	3	0	0	0	0	0	0	0	0	0	0	**142**
3:00 PM	0	0	4	54	54	8	1	0	0	0	0	0	0	0	0	0	0	**121**
4:00 PM	0	0	5	62	59	7	0	0	0	0	0	0	0	0	0	0	0	**133**
5:00 PM	0	0	3	46	78	6	0	0	0	0	0	0	0	0	0	0	0	**133**
6:00 PM	0	0	0	28	50	5	0	0	0	0	0	0	0	0	0	0	0	**83**
7:00 PM	0	0	3	21	46	4	0	0	0	0	0	0	0	0	0	0	0	**74**
8:00 PM	0	0	4	12	18	4	1	0	0	0	0	0	0	0	0	0	0	**39**
9:00 PM	0	0	5	20	17	1	0	0	0	0	0	0	0	0	0	0	0	**43**
10:00 PM	0	0	0	7	20	0	0	0	0	0	0	0	0	0	0	0	0	**27**
11:00 PM	0	0	2	5	10	1	0	0	0	0	0	0	0	0	0	0	0	**18**
Total	**1**	**9**	**94**	**921**	**1,082**	**138**	**10**	**1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**2,256**
Percent	**0.0%**	**0.4%**	**4.2%**	**40.8%**	**48.0%**	**6.1%**	**0.4%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	25.3	mph	Mean (Average) Speed	25.3	mph
85th Percentile	28.4	mph	10 mph Pace	20.5 - 30.5	mph
95th Percentile	30.6	mph	Percent in Pace	89.1	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 to 5/10/2022
Site Code: 05

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Total Study Average
Southbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	1	2	9	8	1	0	0	0	0	0	0	0	0	0	0	0	**21**
1:00 AM	0	1	4	10	4	0	2	0	0	0	0	0	0	0	0	0	0	**21**
2:00 AM	0	0	0	5	5	0	0	0	0	0	0	0	0	0	0	0	0	**10**
3:00 AM	0	6	1	10	2	1	0	0	0	0	0	0	0	0	0	0	0	**20**
4:00 AM	0	1	4	16	8	1	0	0	0	0	0	0	0	0	0	0	0	**30**
5:00 AM	0	2	11	33	16	0	0	0	0	0	0	0	0	0	0	0	0	**62**
6:00 AM	1	8	14	57	27	5	0	0	0	0	0	0	0	0	0	0	0	**112**
7:00 AM	3	6	24	139	54	1	0	0	0	0	0	0	0	0	0	0	0	**227**
8:00 AM	2	17	40	139	38	0	0	0	0	0	0	0	0	0	0	0	0	**236**
9:00 AM	0	18	54	117	39	4	0	0	0	0	0	0	0	0	0	0	0	**232**
10:00 AM	2	21	35	70	47	1	0	0	0	0	0	0	0	0	0	0	0	**176**
11:00 AM	3	16	60	123	32	0	0	0	0	0	0	0	0	0	0	0	0	**234**
12:00 PM	5	28	48	103	50	2	0	0	0	0	0	0	0	0	0	0	0	**236**
1:00 PM	3	8	54	129	38	1	3	0	0	0	0	0	0	0	0	0	0	**236**
2:00 PM	0	12	31	108	52	4	0	0	0	0	0	0	0	0	0	0	0	**207**
3:00 PM	1	9	45	120	43	2	0	0	0	0	0	0	0	0	0	0	0	**220**
4:00 PM	0	27	94	129	38	4	0	0	0	0	0	0	0	0	0	0	0	**292**
5:00 PM	1	7	50	142	47	2	0	0	0	0	0	0	0	0	0	0	0	**249**
6:00 PM	0	9	30	92	58	1	0	0	0	0	0	0	0	0	0	0	0	**190**
7:00 PM	0	4	17	59	45	3	0	0	0	0	0	0	0	0	0	0	0	**128**
8:00 PM	0	1	12	41	25	2	0	0	0	0	0	0	0	0	0	0	0	**81**
9:00 PM	0	9	16	44	20	0	0	0	0	0	0	0	0	0	0	0	0	**89**
10:00 PM	1	2	5	31	15	0	0	0	0	0	0	0	0	0	0	0	0	**54**
11:00 PM	1	2	7	17	12	0	0	0	0	0	0	0	0	0	0	0	0	**39**
Total	**23**	**215**	**658**	**1,743**	**723**	**35**	**5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,402**
Percent	**0.7%**	**6.3%**	**19.3%**	**51.2%**	**21.3%**	**1.0%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	22.6	mph	Mean (Average) Speed	22.0	mph
85th Percentile	25.9	mph	10 mph Pace	17.3 - 27.3	mph
95th Percentile	27.8	mph	Percent in Pace	80.1	%

Location: Tunnel Ave, between Bayshore Blvd and Lagoon Rd
Date Range: 5/10/2022 - 5/16/2022
Site Code: 05

	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/10/2022			5/11/2022			5/12/2022			5/13/2022			5/14/2022			5/15/2022			5/16/2022					
Time	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
12:00 AM	16	21	37	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	16	21	37
1:00 AM	9	21	30	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	21	30
2:00 AM	13	10	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	13	10	23
3:00 AM	12	20	32	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12	20	32
4:00 AM	24	30	54	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	24	30	54
5:00 AM	52	62	114	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	52	62	114
6:00 AM	130	112	242	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	130	112	242
7:00 AM	218	227	445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	218	227	445
8:00 AM	**224**	**236**	**460**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**224**	**236**	**460**
9:00 AM	161	232	393	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	161	232	393
10:00 AM	172	176	348	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	172	176	348
11:00 AM	133	234	367	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	234	367
12:00 PM	**145**	236	381	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**145**	236	381
1:00 PM	134	236	370	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	134	236	370
2:00 PM	142	207	349	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	142	207	349
3:00 PM	121	220	341	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	121	220	341
4:00 PM	133	**292**	**425**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	**292**	**425**
5:00 PM	133	249	382	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	133	249	382
6:00 PM	83	190	273	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	83	190	273
7:00 PM	74	128	202	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	74	128	202
8:00 PM	39	81	120	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39	81	120
9:00 PM	43	89	132	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	43	89	132
10:00 PM	27	54	81	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	27	54	81
11:00 PM	18	39	57	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18	39	57
Total	2,256	3,402	5,658	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2,256	3,402	5,658
Percent	40%	60%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	40%	60%	-
AM Peak	08:00	08:00	08:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	08:00	08:00	08:00
Vol.	224	236	460	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	224	236	460
PM Peak	12:00	16:00	16:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12:00	16:00	16:00
Vol.	145	292	425	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	145	292	425

1. Mid-week average includes data between Tuesday and Thursday.

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Vehicle Classification Report Summary

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct

Count Direction: Eastbound / Westbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 06

	FHWA Vehicle Classification													Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	Volume
Study Total														
Eastbound	24	2,707	556	39	373	41	0	3	13	0	0	0	2	3,758
Percent	0.6%	72.0%	14.8%	1.0%	9.9%	1.1%	0.0%	0.1%	0.3%	0.0%	0.0%	0.0%	0.1%	100%
Westbound	38	2,735	580	34	410	26	0	0	10	0	0	0	0	3,833
Percent	1.0%	71.4%	15.1%	0.9%	10.7%	0.7%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	100%
Total	62	5,442	1,136	73	783	67	0	3	23	0	0	0	2	7,591
Percent	0.8%	71.7%	15.0%	1.0%	10.3%	0.9%	0.0%	0.0%	0.3%	0.0%	0.0%	0.0%	0.0%	100%

FHWA Vehicle Classification	
Class 1 - Motorcycles	Class 8 - Four or Fewer Axle Single-Trailer Trucks
Class 2 - Passenger Cars	Class 9 - Five-Axle Single-Trailer Trucks
Class 3 - Other Two-Axle, Four-Tire Single Unit Vehicles	Class 10 - Six or More Axle Single-Trailer Trucks
Class 4 - Buses	Class 11 - Five or fewer Axle Multi-Trailer Trucks
Class 5 - Two-Axle, Six-Tire, Single-Unit Trucks	Class 12 - Six-Axle Multi-Trailer Trucks
Class 6 - Three-Axle Single-Unit Trucks	Class 13 - Seven or More Axle Multi-Trailer Trucks
Class 7 - Four or More Axle Single-Unit Trucks	

Project Manager: (415) 310-6469
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Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

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Tuesday, May 10, 2022
Eastbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	16	3	0	1	0	0	0	0	0	0	0	0	**20**
1:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	**3**
2:00 AM	0	7	1	0	1	0	0	0	0	0	0	0	0	**9**
3:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	**4**
4:00 AM	1	41	20	1	13	1	0	0	0	0	0	0	0	**77**
5:00 AM	1	170	61	1	29	2	0	0	0	0	0	0	1	**265**
6:00 AM	3	131	61	4	46	9	0	0	4	0	0	0	0	**258**
7:00 AM	2	244	32	7	32	1	0	0	3	0	0	0	0	**321**
8:00 AM	3	473	54	1	26	1	0	0	1	0	0	0	0	**559**
9:00 AM	3	334	59	7	28	5	0	0	0	0	0	0	1	**437**
10:00 AM	0	188	39	5	39	1	0	0	0	0	0	0	0	**272**
11:00 AM	1	136	42	7	29	6	0	1	1	0	0	0	0	**223**
12:00 PM	2	136	20	4	22	2	0	1	1	0	0	0	0	**188**
1:00 PM	0	136	19	1	16	6	0	1	2	0	0	0	0	**181**
2:00 PM	1	102	18	1	21	4	0	0	1	0	0	0	0	**148**
3:00 PM	3	94	26	0	22	0	0	0	0	0	0	0	0	**145**
4:00 PM	2	85	17	0	12	1	0	0	0	0	0	0	0	**117**
5:00 PM	1	119	23	0	16	1	0	0	0	0	0	0	0	**160**
6:00 PM	0	76	19	0	9	0	0	0	0	0	0	0	0	**104**
7:00 PM	0	56	12	0	3	0	0	0	0	0	0	0	0	**71**
8:00 PM	0	52	9	0	2	0	0	0	0	0	0	0	0	**63**
9:00 PM	0	48	14	0	2	1	0	0	0	0	0	0	0	**65**
10:00 PM	0	35	3	0	0	0	0	0	0	0	0	0	0	**38**
11:00 PM	1	24	3	0	2	0	0	0	0	0	0	0	0	**30**
Total	**24**	**2,707**	**556**	**39**	**373**	**41**	**0**	**3**	**13**	**0**	**0**	**0**	**2**	**3,758**
Percent	**0.6%**	**72.0%**	**14.8%**	**1.0%**	**9.9%**	**1.1%**	**0.0%**	**0.1%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	

Project Manager: (415) 310-6469
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Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

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Tuesday, May 10, 2022
Westbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	20	3	0	1	0	0	0	0	0	0	0	0	**24**
1:00 AM	0	9	2	0	0	0	0	0	0	0	0	0	0	**11**
2:00 AM	0	10	3	0	1	0	0	0	0	0	0	0	0	**14**
3:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	6	0	0	5	0	0	0	0	0	0	0	0	**11**
5:00 AM	1	26	12	2	8	1	0	0	0	0	0	0	0	**50**
6:00 AM	3	51	11	3	19	5	0	0	0	0	0	0	0	**92**
7:00 AM	3	62	19	4	23	4	0	0	3	0	0	0	0	**118**
8:00 AM	0	93	17	4	27	1	0	0	0	0	0	0	0	**142**
9:00 AM	1	85	37	4	37	5	0	0	1	0	0	0	0	**170**
10:00 AM	1	94	34	4	38	1	0	0	1	0	0	0	0	**173**
11:00 AM	3	149	53	4	46	1	0	0	1	0	0	0	0	**257**
12:00 PM	2	213	48	1	34	1	0	0	0	0	0	0	0	**299**
1:00 PM	2	158	60	1	28	2	0	0	2	0	0	0	0	**253**
2:00 PM	1	266	60	4	46	2	0	0	2	0	0	0	0	**381**
3:00 PM	4	240	56	3	27	1	0	0	0	0	0	0	0	**331**
4:00 PM	7	353	63	0	23	1	0	0	0	0	0	0	0	**447**
5:00 PM	4	442	46	0	22	0	0	0	0	0	0	0	0	**514**
6:00 PM	3	202	24	0	9	0	0	0	0	0	0	0	0	**238**
7:00 PM	1	97	6	0	6	1	0	0	0	0	0	0	0	**111**
8:00 PM	0	57	12	0	6	0	0	0	0	0	0	0	0	**75**
9:00 PM	1	52	4	0	2	0	0	0	0	0	0	0	0	**59**
10:00 PM	0	32	5	0	2	0	0	0	0	0	0	0	0	**39**
11:00 PM	1	18	4	0	0	0	0	0	0	0	0	0	0	**23**
Total	**38**	**2,735**	**580**	**34**	**410**	**26**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**3,833**
Percent	**1.0%**	**71.4%**	**15.1%**	**0.9%**	**10.7%**	**0.7%**	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Project Manager: (415) 310-6469
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Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

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Total Study Average
Eastbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	16	3	0	1	0	0	0	0	0	0	0	0	**20**
1:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	**3**
2:00 AM	0	7	1	0	1	0	0	0	0	0	0	0	0	**9**
3:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	**4**
4:00 AM	1	41	20	1	13	1	0	0	0	0	0	0	0	**77**
5:00 AM	1	170	61	1	29	2	0	0	0	0	0	0	1	**265**
6:00 AM	3	131	61	4	46	9	0	0	4	0	0	0	0	**258**
7:00 AM	2	244	32	7	32	1	0	0	3	0	0	0	0	**321**
8:00 AM	3	473	54	1	26	1	0	0	1	0	0	0	0	**559**
9:00 AM	3	334	59	7	28	5	0	0	0	0	0	0	1	**437**
10:00 AM	0	188	39	5	39	1	0	0	0	0	0	0	0	**272**
11:00 AM	1	136	42	7	29	6	0	1	1	0	0	0	0	**223**
12:00 PM	2	136	20	4	22	2	0	1	1	0	0	0	0	**188**
1:00 PM	0	136	19	1	16	6	0	1	2	0	0	0	0	**181**
2:00 PM	1	102	18	1	21	4	0	0	1	0	0	0	0	**148**
3:00 PM	3	94	26	0	22	0	0	0	0	0	0	0	0	**145**
4:00 PM	2	85	17	0	12	1	0	0	0	0	0	0	0	**117**
5:00 PM	1	119	23	0	16	1	0	0	0	0	0	0	0	**160**
6:00 PM	0	76	19	0	9	0	0	0	0	0	0	0	0	**104**
7:00 PM	0	56	12	0	3	0	0	0	0	0	0	0	0	**71**
8:00 PM	0	52	9	0	2	0	0	0	0	0	0	0	0	**63**
9:00 PM	0	48	14	0	2	1	0	0	0	0	0	0	0	**65**
10:00 PM	0	35	3	0	0	0	0	0	0	0	0	0	0	**38**
11:00 PM	1	24	3	0	2	0	0	0	0	0	0	0	0	**30**
Total	**24**	**2,707**	**556**	**39**	**373**	**41**	**0**	**3**	**13**	**0**	**0**	**0**	**2**	**3,758**
Percent	**0.6%**	**72.0%**	**14.8%**	**1.0%**	**9.9%**	**1.1%**	**0.0%**	**0.1%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

Total Study Average
Westbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	20	3	0	1	0	0	0	0	0	0	0	0	**24**
1:00 AM	0	9	2	0	0	0	0	0	0	0	0	0	0	**11**
2:00 AM	0	10	3	0	1	0	0	0	0	0	0	0	0	**14**
3:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	6	0	0	5	0	0	0	0	0	0	0	0	**11**
5:00 AM	1	26	12	2	8	1	0	0	0	0	0	0	0	**50**
6:00 AM	3	51	11	3	19	5	0	0	0	0	0	0	0	**92**
7:00 AM	3	62	19	4	23	4	0	0	3	0	0	0	0	**118**
8:00 AM	0	93	17	4	27	1	0	0	0	0	0	0	0	**142**
9:00 AM	1	85	37	4	37	5	0	0	1	0	0	0	0	**170**
10:00 AM	1	94	34	4	38	1	0	0	1	0	0	0	0	**173**
11:00 AM	3	149	53	4	46	1	0	0	1	0	0	0	0	**257**
12:00 PM	2	213	48	1	34	1	0	0	0	0	0	0	0	**299**
1:00 PM	2	158	60	1	28	2	0	0	2	0	0	0	0	**253**
2:00 PM	1	266	60	4	46	2	0	0	2	0	0	0	0	**381**
3:00 PM	4	240	56	3	27	1	0	0	0	0	0	0	0	**331**
4:00 PM	7	353	63	0	23	1	0	0	0	0	0	0	0	**447**
5:00 PM	4	442	46	0	22	0	0	0	0	0	0	0	0	**514**
6:00 PM	3	202	24	0	9	0	0	0	0	0	0	0	0	**238**
7:00 PM	1	97	6	0	6	1	0	0	0	0	0	0	0	**111**
8:00 PM	0	57	12	0	6	0	0	0	0	0	0	0	0	**75**
9:00 PM	1	52	4	0	2	0	0	0	0	0	0	0	0	**59**
10:00 PM	0	32	5	0	2	0	0	0	0	0	0	0	0	**39**
11:00 PM	1	18	4	0	0	0	0	0	0	0	0	0	0	**23**
Total	**38**	**2,735**	**580**	**34**	**410**	**26**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**3,833**
Percent	**1.0%**	**71.4%**	**15.1%**	**0.9%**	**10.7%**	**0.7%**	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

3-Day (Tuesday - Thursday) Average
Eastbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	16	3	0	1	0	0	0	0	0	0	0	0	**20**
1:00 AM	0	2	1	0	0	0	0	0	0	0	0	0	0	**3**
2:00 AM	0	7	1	0	1	0	0	0	0	0	0	0	0	**9**
3:00 AM	0	2	0	0	2	0	0	0	0	0	0	0	0	**4**
4:00 AM	1	41	20	1	13	1	0	0	0	0	0	0	0	**77**
5:00 AM	1	170	61	1	29	2	0	0	0	0	0	0	1	**265**
6:00 AM	3	131	61	4	46	9	0	0	4	0	0	0	0	**258**
7:00 AM	2	244	32	7	32	1	0	0	3	0	0	0	0	**321**
8:00 AM	3	473	54	1	26	1	0	0	1	0	0	0	0	**559**
9:00 AM	3	334	59	7	28	5	0	0	0	0	0	0	1	**437**
10:00 AM	0	188	39	5	39	1	0	0	0	0	0	0	0	**272**
11:00 AM	1	136	42	7	29	6	0	1	1	0	0	0	0	**223**
12:00 PM	2	136	20	4	22	2	0	1	1	0	0	0	0	**188**
1:00 PM	0	136	19	1	16	6	0	1	2	0	0	0	0	**181**
2:00 PM	1	102	18	1	21	4	0	0	1	0	0	0	0	**148**
3:00 PM	3	94	26	0	22	0	0	0	0	0	0	0	0	**145**
4:00 PM	2	85	17	0	12	1	0	0	0	0	0	0	0	**117**
5:00 PM	1	119	23	0	16	1	0	0	0	0	0	0	0	**160**
6:00 PM	0	76	19	0	9	0	0	0	0	0	0	0	0	**104**
7:00 PM	0	56	12	0	3	0	0	0	0	0	0	0	0	**71**
8:00 PM	0	52	9	0	2	0	0	0	0	0	0	0	0	**63**
9:00 PM	0	48	14	0	2	1	0	0	0	0	0	0	0	**65**
10:00 PM	0	35	3	0	0	0	0	0	0	0	0	0	0	**38**
11:00 PM	1	24	3	0	2	0	0	0	0	0	0	0	0	**30**
Total	**24**	**2,707**	**556**	**39**	**373**	**41**	**0**	**3**	**13**	**0**	**0**	**0**	**2**	**3,758**
Percent	**0.6%**	**72.0%**	**14.8%**	**1.0%**	**9.9%**	**1.1%**	**0.0%**	**0.1%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.1%**	

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

idax DATA SOLUTIONS

3-Day (Tuesday - Thursday) Average
Westbound

Time	FHWA Vehicle Classification													Total Volume
	1	2	3	4	5	6	7	8	9	10	11	12	13	
12:00 AM	0	20	3	0	1	0	0	0	0	0	0	0	0	**24**
1:00 AM	0	9	2	0	0	0	0	0	0	0	0	0	0	**11**
2:00 AM	0	10	3	0	1	0	0	0	0	0	0	0	0	**14**
3:00 AM	0	0	1	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	6	0	0	5	0	0	0	0	0	0	0	0	**11**
5:00 AM	1	26	12	2	8	1	0	0	0	0	0	0	0	**50**
6:00 AM	3	51	11	3	19	5	0	0	0	0	0	0	0	**92**
7:00 AM	3	62	19	4	23	4	0	0	3	0	0	0	0	**118**
8:00 AM	0	93	17	4	27	1	0	0	0	0	0	0	0	**142**
9:00 AM	1	85	37	4	37	5	0	0	1	0	0	0	0	**170**
10:00 AM	1	94	34	4	38	1	0	0	1	0	0	0	0	**173**
11:00 AM	3	149	53	4	46	1	0	0	1	0	0	0	0	**257**
12:00 PM	2	213	48	1	34	1	0	0	0	0	0	0	0	**299**
1:00 PM	2	158	60	1	28	2	0	0	2	0	0	0	0	**253**
2:00 PM	1	266	60	4	46	2	0	0	2	0	0	0	0	**381**
3:00 PM	4	240	56	3	27	1	0	0	0	0	0	0	0	**331**
4:00 PM	7	353	63	0	23	1	0	0	0	0	0	0	0	**447**
5:00 PM	4	442	46	0	22	0	0	0	0	0	0	0	0	**514**
6:00 PM	3	202	24	0	9	0	0	0	0	0	0	0	0	**238**
7:00 PM	1	97	6	0	6	1	0	0	0	0	0	0	0	**111**
8:00 PM	0	57	12	0	6	0	0	0	0	0	0	0	0	**75**
9:00 PM	1	52	4	0	2	0	0	0	0	0	0	0	0	**59**
10:00 PM	0	32	5	0	2	0	0	0	0	0	0	0	0	**39**
11:00 PM	1	18	4	0	0	0	0	0	0	0	0	0	0	**23**
Total	**38**	**2,735**	**580**	**34**	**410**	**26**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**3,833**
Percent	**1.0%**	**71.4%**	**15.1%**	**0.9%**	**10.7%**	**0.7%**	**0.0%**	**0.0%**	**0.3%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Vehicle Speed Report Summary

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct

Count Direction: Eastbound / Westbound

Date Range: 5/10/2022 to 5/10/2022

Site Code: 06

	Speed Range (mph)																	Total
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	Volume
Study Total																		
Eastbound	4	86	484	1,526	1,204	397	54	3	0	0	0	0	0	0	0	0	0	3,758
Percent	0.1%	2.3%	12.9%	40.6%	32.0%	10.6%	1.4%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Westbound	7	58	196	1,003	1,675	792	90	8	4	0	0	0	0	0	0	0	0	3,833
Percent	0.2%	1.5%	5.1%	26.2%	43.7%	20.7%	2.3%	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%
Total	11	144	680	2,529	2,879	1,189	144	11	4	0	0	0	0	0	0	0	0	7,591
Percent	0.1%	1.9%	9.0%	33.3%	37.9%	15.7%	1.9%	0.1%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	100%

Total Study Percentile Speed Summary			Total Study Speed Statistics		
Eastbound			**Eastbound**		
50th Percentile (Median)	24.4	mph	Mean (Average) Speed	24.5	mph
85th Percentile	29.3	mph	10 mph Pace	19.7 - 29.7	mph
95th Percentile	32.5	mph	Percent in Pace	72.8	%
Westbound			**Westbound**		
50th Percentile (Median)	27.0	mph	Mean (Average) Speed	26.8	mph
85th Percentile	31.3	mph	10 mph Pace	22.5 - 32.5	mph
95th Percentile	33.8	mph	Percent in Pace	75.7	%

Project Manager: (415) 310-6469
project.manager.ca@idaxdata.com

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

idax DATA SOLUTIONS

Tuesday, May 10, 2022
Eastbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	2	2	12	2	2	0	0	0	0	0	0	0	0	0	0	0	**20**
1:00 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
2:00 AM	0	0	2	6	1	0	0	0	0	0	0	0	0	0	0	0	0	**9**
3:00 AM	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	**4**
4:00 AM	0	2	10	25	26	11	3	0	0	0	0	0	0	0	0	0	0	**77**
5:00 AM	0	5	22	100	96	34	7	1	0	0	0	0	0	0	0	0	0	**265**
6:00 AM	2	19	41	90	75	26	5	0	0	0	0	0	0	0	0	0	0	**258**
7:00 AM	0	8	40	119	106	45	3	0	0	0	0	0	0	0	0	0	0	**321**
8:00 AM	1	4	55	254	170	69	5	1	0	0	0	0	0	0	0	0	0	**559**
9:00 AM	1	13	73	178	113	53	6	0	0	0	0	0	0	0	0	0	0	**437**
10:00 AM	0	2	35	107	91	28	9	0	0	0	0	0	0	0	0	0	0	**272**
11:00 AM	0	10	38	78	76	18	2	1	0	0	0	0	0	0	0	0	0	**223**
12:00 PM	0	3	24	82	59	18	2	0	0	0	0	0	0	0	0	0	0	**188**
1:00 PM	0	6	31	72	57	13	2	0	0	0	0	0	0	0	0	0	0	**181**
2:00 PM	0	5	18	55	54	15	1	0	0	0	0	0	0	0	0	0	0	**148**
3:00 PM	0	2	13	60	53	17	0	0	0	0	0	0	0	0	0	0	0	**145**
4:00 PM	0	2	15	49	37	12	2	0	0	0	0	0	0	0	0	0	0	**117**
5:00 PM	0	2	17	58	71	9	3	0	0	0	0	0	0	0	0	0	0	**160**
6:00 PM	0	0	11	45	36	12	0	0	0	0	0	0	0	0	0	0	0	**104**
7:00 PM	0	1	6	36	24	3	1	0	0	0	0	0	0	0	0	0	0	**71**
8:00 PM	0	0	7	33	17	6	0	0	0	0	0	0	0	0	0	0	0	**63**
9:00 PM	0	0	9	34	18	1	3	0	0	0	0	0	0	0	0	0	0	**65**
10:00 PM	0	0	8	16	12	2	0	0	0	0	0	0	0	0	0	0	0	**38**
11:00 PM	0	0	5	13	9	3	0	0	0	0	0	0	0	0	0	0	0	**30**
Total	**4**	**86**	**484**	**1,526**	**1,204**	**397**	**54**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,758**
Percent	**0.1%**	**2.3%**	**12.9%**	**40.6%**	**32.0%**	**10.6%**	**1.4%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	24.4	mph	Mean (Average) Speed	24.5	mph
85th Percentile	29.3	mph	10 mph Pace	19.7 - 29.7	mph
95th Percentile	32.5	mph	Percent in Pace	72.8	%

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

Tuesday, May 10, 2022
Westbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	9	11	3	1	0	0	0	0	0	0	0	0	0	0	**24**
1:00 AM	0	0	1	1	6	2	1	0	0	0	0	0	0	0	0	0	0	**11**
2:00 AM	0	0	1	5	4	2	2	0	0	0	0	0	0	0	0	0	0	**14**
3:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	0	2	3	5	1	0	0	0	0	0	0	0	0	0	0	0	**11**
5:00 AM	0	0	0	14	31	4	1	0	0	0	0	0	0	0	0	0	0	**50**
6:00 AM	0	4	11	23	37	14	2	1	0	0	0	0	0	0	0	0	0	**92**
7:00 AM	1	4	17	36	47	13	0	0	0	0	0	0	0	0	0	0	0	**118**
8:00 AM	1	4	19	47	52	16	3	0	0	0	0	0	0	0	0	0	0	**142**
9:00 AM	0	7	23	61	55	19	5	0	0	0	0	0	0	0	0	0	0	**170**
10:00 AM	1	4	10	54	69	33	2	0	0	0	0	0	0	0	0	0	0	**173**
11:00 AM	0	6	18	66	100	54	11	2	0	0	0	0	0	0	0	0	0	**257**
12:00 PM	1	0	23	92	120	56	6	1	0	0	0	0	0	0	0	0	0	**299**
1:00 PM	2	3	9	55	105	67	11	0	1	0	0	0	0	0	0	0	0	**253**
2:00 PM	0	5	21	83	159	104	7	1	1	0	0	0	0	0	0	0	0	**381**
3:00 PM	0	5	5	84	146	79	11	1	0	0	0	0	0	0	0	0	0	**331**
4:00 PM	1	5	10	96	213	112	10	0	0	0	0	0	0	0	0	0	0	**447**
5:00 PM	0	2	6	127	263	103	10	2	1	0	0	0	0	0	0	0	0	**514**
6:00 PM	0	2	9	65	118	39	4	0	1	0	0	0	0	0	0	0	0	**238**
7:00 PM	0	3	4	23	56	23	2	0	0	0	0	0	0	0	0	0	0	**111**
8:00 PM	0	3	2	19	32	19	0	0	0	0	0	0	0	0	0	0	0	**75**
9:00 PM	0	0	2	22	19	15	1	0	0	0	0	0	0	0	0	0	0	**59**
10:00 PM	0	0	2	11	18	8	0	0	0	0	0	0	0	0	0	0	0	**39**
11:00 PM	0	1	1	7	9	5	0	0	0	0	0	0	0	0	0	0	0	**23**
Total	**7**	**58**	**196**	**1,003**	**1,675**	**792**	**90**	**8**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,833**
Percent	**0.2%**	**1.5%**	**5.1%**	**26.2%**	**43.7%**	**20.7%**	**2.3%**	**0.2%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Daily Percentile Speed Summary			Speed Statistics		
50th Percentile (Median)	27.0	mph	Mean (Average) Speed	26.8	mph
85th Percentile	31.3	mph	10 mph Pace	22.5 - 32.5	mph
95th Percentile	33.8	mph	Percent in Pace	75.71	%

Project Manager: (415) 310-6469
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Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

Total Study Average
Eastbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	2	2	12	2	2	0	0	0	0	0	0	0	0	0	0	0	**20**
1:00 AM	0	0	1	2	0	0	0	0	0	0	0	0	0	0	0	0	0	**3**
2:00 AM	0	0	2	6	1	0	0	0	0	0	0	0	0	0	0	0	0	**9**
3:00 AM	0	0	1	2	1	0	0	0	0	0	0	0	0	0	0	0	0	**4**
4:00 AM	0	2	10	25	26	11	3	0	0	0	0	0	0	0	0	0	0	**77**
5:00 AM	0	5	22	100	96	34	7	1	0	0	0	0	0	0	0	0	0	**265**
6:00 AM	2	19	41	90	75	26	5	0	0	0	0	0	0	0	0	0	0	**258**
7:00 AM	0	8	40	119	106	45	3	0	0	0	0	0	0	0	0	0	0	**321**
8:00 AM	1	4	55	254	170	69	5	1	0	0	0	0	0	0	0	0	0	**559**
9:00 AM	1	13	73	178	113	53	6	0	0	0	0	0	0	0	0	0	0	**437**
10:00 AM	0	2	35	107	91	28	9	0	0	0	0	0	0	0	0	0	0	**272**
11:00 AM	0	10	38	78	76	18	2	1	0	0	0	0	0	0	0	0	0	**223**
12:00 PM	0	3	24	82	59	18	2	0	0	0	0	0	0	0	0	0	0	**188**
1:00 PM	0	6	31	72	57	13	2	0	0	0	0	0	0	0	0	0	0	**181**
2:00 PM	0	5	18	55	54	15	1	0	0	0	0	0	0	0	0	0	0	**148**
3:00 PM	0	2	13	60	53	17	0	0	0	0	0	0	0	0	0	0	0	**145**
4:00 PM	0	2	15	49	37	12	2	0	0	0	0	0	0	0	0	0	0	**117**
5:00 PM	0	2	17	58	71	9	3	0	0	0	0	0	0	0	0	0	0	**160**
6:00 PM	0	0	11	45	36	12	0	0	0	0	0	0	0	0	0	0	0	**104**
7:00 PM	0	1	6	36	24	3	1	0	0	0	0	0	0	0	0	0	0	**71**
8:00 PM	0	0	7	33	17	6	0	0	0	0	0	0	0	0	0	0	0	**63**
9:00 PM	0	0	9	34	18	1	3	0	0	0	0	0	0	0	0	0	0	**65**
10:00 PM	0	0	8	16	12	2	0	0	0	0	0	0	0	0	0	0	0	**38**
11:00 PM	0	0	5	13	9	3	0	0	0	0	0	0	0	0	0	0	0	**30**
Total	**4**	**86**	**484**	**1,526**	**1,204**	**397**	**54**	**3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,758**
Percent	**0.1%**	**2.3%**	**12.9%**	**40.6%**	**32.0%**	**10.6%**	**1.4%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	24.4	mph	Mean (Average) Speed	24.5	mph
85th Percentile	29.3	mph	10 mph Pace	19.7 - 29.7	mph
95th Percentile	32.5	mph	Percent in Pace	72.8	%

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 to 5/10/2022
Site Code: 06

Total Study Average
Westbound

Time	Speed Range (mph)																	Total Volume
	0 - 10	10 - 15	15 - 20	20 - 25	25 - 30	30 - 35	35 - 40	40 - 45	45 - 50	50 - 55	55 - 60	60 - 65	65 - 70	70 - 75	75 - 80	80 - 85	85 +	
12:00 AM	0	0	0	9	11	3	1	0	0	0	0	0	0	0	0	0	0	**24**
1:00 AM	0	0	1	1	6	2	1	0	0	0	0	0	0	0	0	0	0	**11**
2:00 AM	0	0	1	5	4	2	2	0	0	0	0	0	0	0	0	0	0	**14**
3:00 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	**1**
4:00 AM	0	0	2	3	5	1	0	0	0	0	0	0	0	0	0	0	0	**11**
5:00 AM	0	0	0	14	31	4	1	0	0	0	0	0	0	0	0	0	0	**50**
6:00 AM	0	4	11	23	37	14	2	1	0	0	0	0	0	0	0	0	0	**92**
7:00 AM	1	4	17	36	47	13	0	0	0	0	0	0	0	0	0	0	0	**118**
8:00 AM	1	4	19	47	52	16	3	0	0	0	0	0	0	0	0	0	0	**142**
9:00 AM	0	7	23	61	55	19	5	0	0	0	0	0	0	0	0	0	0	**170**
10:00 AM	1	4	10	54	69	33	2	0	0	0	0	0	0	0	0	0	0	**173**
11:00 AM	0	6	18	66	100	54	11	2	0	0	0	0	0	0	0	0	0	**257**
12:00 PM	1	0	23	92	120	56	6	1	0	0	0	0	0	0	0	0	0	**299**
1:00 PM	2	3	9	55	105	67	11	0	1	0	0	0	0	0	0	0	0	**253**
2:00 PM	0	5	21	83	159	104	7	1	1	0	0	0	0	0	0	0	0	**381**
3:00 PM	0	5	5	84	146	79	11	1	0	0	0	0	0	0	0	0	0	**331**
4:00 PM	1	5	10	96	213	112	10	0	0	0	0	0	0	0	0	0	0	**447**
5:00 PM	0	2	6	127	263	103	10	2	1	0	0	0	0	0	0	0	0	**514**
6:00 PM	0	2	9	65	118	39	4	0	1	0	0	0	0	0	0	0	0	**238**
7:00 PM	0	3	4	23	56	23	2	0	0	0	0	0	0	0	0	0	0	**111**
8:00 PM	0	3	2	19	32	19	0	0	0	0	0	0	0	0	0	0	0	**75**
9:00 PM	0	0	2	22	19	15	1	0	0	0	0	0	0	0	0	0	0	**59**
10:00 PM	0	0	2	11	18	8	0	0	0	0	0	0	0	0	0	0	0	**39**
11:00 PM	0	1	1	7	9	5	0	0	0	0	0	0	0	0	0	0	0	**23**
Total	**7**	**58**	**196**	**1,003**	**1,675**	**792**	**90**	**8**	**4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**3,833**
Percent	**0.2%**	**1.5%**	**5.1%**	**26.2%**	**43.7%**	**20.7%**	**2.3%**	**0.2%**	**0.1%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	**0.0%**	

Note: Average only condsidered on days with 24-hours of data.

Total Study Percentile Speed Summary			Total Study Speed Statistics		
50th Percentile (Median)	27.0	mph	Mean (Average) Speed	26.8	mph
85th Percentile	31.3	mph	10 mph Pace	22.5 - 32.5	mph
95th Percentile	33.8	mph	Percent in Pace	75.7	%

Location: Sierra Point Pkwy, between US-101N ramps and Shoreline Ct
Date Range: 5/10/2022 - 5/16/2022
Site Code: 06

	Tuesday			Wednesday			Thursday			Friday			Saturday			Sunday			Monday			Mid-Week Average		
	5/10/2022			5/11/2022			5/12/2022			5/13/2022			5/14/2022			5/15/2022			5/16/2022					
Time	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total	EB	WB	Total
12:00 AM	20	24	44	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	20	24	44
1:00 AM	3	11	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3	11	14
2:00 AM	9	14	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	9	14	23
3:00 AM	4	1	5	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	4	1	5
4:00 AM	77	11	88	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	77	11	88
5:00 AM	265	50	315	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	265	50	315
6:00 AM	258	92	350	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	258	92	350
7:00 AM	321	118	439	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	321	118	439
8:00 AM	**559**	142	**701**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**559**	142	**701**
9:00 AM	437	170	607	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	437	170	607
10:00 AM	272	173	445	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	272	173	445
11:00 AM	223	**257**	480	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	223	**257**	480
12:00 PM	**188**	299	487	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	**188**	299	487
1:00 PM	181	253	434	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	181	253	434
2:00 PM	148	381	529	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	148	381	529
3:00 PM	145	331	476	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	145	331	476
4:00 PM	117	447	564	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	117	447	564
5:00 PM	160	**514**	**674**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	160	**514**	**674**
6:00 PM	104	238	342	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	104	238	342
7:00 PM	71	111	182	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	71	111	182
8:00 PM	63	75	138	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	63	75	138
9:00 PM	65	59	124	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	65	59	124
10:00 PM	38	39	77	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	38	39	77
11:00 PM	30	23	53	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	30	23	53
Total	3,758	3,833	7,591	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3,758	3,833	7,591
Percent	50%	50%	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50%	50%	-
AM Peak	08:00	11:00	08:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	08:00	11:00	08:00
Vol.	559	257	701	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	559	257	701
PM Peak	12:00	17:00	17:00	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	12:00	17:00	17:00
Vol.	188	514	674	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	188	514	674

1. Mid-week average includes data between Tuesday and Thursday.

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ATTACHMENT B – INTERSECTION ANALYSIS INFORMATION

The below table presents the definitions for each LOS level.

Table 3: INTERSECTION LOS CRITERIA

LOS	Description	Average Control Delay (seconds per vehicle)[1]	
		Unsignalized Intersections	Signalized Intersections
A	Represents free flow. Individual users are virtually unaffected by others in the traffic stream.	≤ 10	≤ 10
B	Stable flow, but the presence of other users in the traffic stream begins to be noticeable.	> 10 to 15	> 10 to 20
C	Stable flow, but the operation of individual users becomes significantly affected by interactions with others in the traffic stream.	> 15 to 25	> 20 to 35
D	Represents high-density, but stable flow.	> 25 to 35	> 35 to 55
E	Represents operating conditions at or near the capacity level.	> 35 to 50	> 55 to 80
F	Represents forced or breakdown flow.	> 50	> 80

Notes:

1. *Highway Capacity Manual 7th Edition*, Transportation Research Board of the National Academies of Science, 2022.

Source: Fehr & Peers 2023

ATTACHMENT C – LOS CALCULATION SHEETS

Attachment C.1. Existing Conditions – AM Peak Hour

Intersection No. 1. Beatty Avenue / Tunnel Avenue

Node 375: Tunnel Ave & Beatty Ave		
A.1. Existing Conditions - AM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	4.8
	Worst Case Delay	13.86
	Worst Case LOS	B

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
Base Volume	0.00	154.71	28.83	39.23	71.82	129.10	94.99
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	0.00	154.71	28.83	39.23	71.82	129.10	94.99

Pedestrians							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
vx, Flow (Ped/hr)	0.00	0.00		0.00	0.00		
w, Lane Width (ft)	12.00	12.00		12.00	12.00		
Sp, Walking Speed (ft/s)	3.50	3.50		3.50	3.50		
fpb, Percent Blockage	0.00	0.00		0.00	0.00		

Capacity of Movements below Rank 1							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
Rank	2	2	1	3	2	1	1
vx, Volume	0.00	154.71		39.23	71.82		
Conflicting Volume (Veh)	224.09	224.09		514.85	176.59		
Conflicting Volume (Ped)	0.00	0.00		0.00	0.00		
Conflicting Volume	224.09	224.09		514.85	176.59		
Two-Stage Gap Acceptance				No			
Number of Storage Spaces in Median Refuge Area							
cpx, Potential Capacity	831.07	1356.57		523.48	871.73		
Capacity	762.60	1356.57		462.81	871.73		

Critical Headway and Follow Up Headway							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
tc,base, Base Critical Headway	6.90	4.10		7.10	6.20		
tc,base,I, Base Critical Headway (Stage I)							
tc,base,II, Base Critical Headway (Stage II)							
tc,HV, Heavy Vehicles Adjustment Factor	1.00	1.00		1.00	1.00		
Phv, % Heavy Vehicles	0.00	0.00		0.00	0.00		
tc,G, Grade Adjustment Factor	0.00	0.00		0.20	0.10		
G, % Grade		0.00		0.00		0.00	
T3,lt, Geometry Adjustment Factor	0.00	0.00		0.70	0.00		
tc, Critical Headway	6.90	4.10		6.40	6.20		
tc,I, Critical Headway (Stage I)							
tc,II, Critical Headway (Stage II)							
tf,base, Base Follow-Up Headway	3.10	2.20		3.50	3.30		
tf,hv, Heavy Vehicles Adjustment Factor	0.90	0.90		0.90	0.90		
tf, Follow-Up Headway	3.10	2.20		3.50	3.30		

Delay and Level of Service by Movement							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
vx, Volume	0.00	154.71	28.83	39.23	71.82	129.10	94.99
cmx, Capacity	762.60	1356.57		462.81	871.73		
V / C	0.00	0.11		0.08	0.08		
d, Delay	9.91	7.84		13.86	10.21		
LOS	A	A		B	B		
dA, Approach Delay		6.61		11.50		0.00	
Approach LOS				B			
dRank1, Rank 1 Delay		0.91				0.00	

Delay and Level of Service by Lane			
Approach	N (Major)	E	S (Major)
Lane	Lane 1	Lane 1	Lane 1
Movements	L2, L1, T	L1, R1	T, R1
vx, Volume	183.55	111.06	224.09
Flared Storage Size			
cmx, Capacity	1800.00	664.36	
V / C	0.10	0.17	
Q95, 95% Queue Length	0.28	0.60	
d, Delay	7.84	11.50	
LOS		B	
dA, Approach Delay	6.61	11.50	0.00
Approach LOS		B	

Intersection No. 4. Tunnel Avenue / Lagoon Road

Node 521: Tunnel Ave & Lagoon Rd			
A.1. Existing Conditions - AM Peak Hour	Control Type	AWSC	
	Method	HCM 7th Edition	
	Average Delay	9.23	
	Average LOS	A	

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments													
Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	0.48	28.28	0.51	101.53	1.71	5.18	0.00	16.86	190.14	147.31	0.35	0.00	0.53
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	0.48	28.28	0.51	101.53	1.71	5.18	0.00	16.86	190.14	147.31	0.35	0.00	0.53
Geometry Group	1			1			1				1		

Saturation Headway				
Approach	N	E	S	W
Lanes	Lane 1	Lane 1	Lane 1	Lane 1
Total Lane Flow Rate	29.27	108.43	354.31	0.88
Left Turn Flow Rate	0.48	101.53	16.86	0.35
Right Turn Flow Rate	0.51	5.18	147.31	0.53
PLT, Proportion LT	0.02	0.94	0.05	0.40
PRT, Proportion RT	0.02	0.05	0.42	0.60
PHV, Proportion HV	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.20	0.20	0.20	0.20
hRT,adj, Headway adjustment for right turns	-0.60	-0.60	-0.60	-0.60
hHV,adj, Headway adjustment for heavy vehicles	1.70	1.70	1.70	1.70
hadj, Headway adjustment	-0.01	0.16	-0.24	-0.28

Departure Headway				
Approach	N	E	S	W
Lanes	Lane 1	Lane 1	Lane 1	Lane 1
Total Lane Flow Rate	29.27	108.43	354.31	0.88
hd initial	3.20	3.20	3.20	3.20
x initial	0.03	0.10	0.31	0.00
hd, iteration 1	4.35	4.71	3.87	4.37
Difference, iteration 1	1.15	1.51	0.67	1.17
hd, iteration 2	4.51	4.86	3.97	4.56
Difference, iteration 2	0.15	0.14	0.10	0.19
hd, iteration 3	4.53	4.88	3.98	4.58
Difference, iteration 3	0.02	0.02	0.01	0.03
Convergence	Y	Y	Y	Y
hd final, Departure Headway	4.53	4.88	3.98	4.58
x final, Degree of Utilization	0.04	0.15	0.39	0.00

Capacity and Level of Service				
Approach	N	E	S	W
Lanes	Lane 1	Lane 1	Lane 1	Lane 1
Total Lane Flow Rate	29.27	108.43	354.31	0.88
hd, Departure Headway	4.53	4.88	3.98	4.58
x, Degree of Utilization	0.04	0.15	0.39	0.00
m, Move Up Time	2.00	2.00	2.00	2.00
ts, Service Time	2.53	2.88	1.98	2.58
Capacity	794.94	737.70	904.45	784.23
Delay	7.70	8.72	9.51	7.59
LOS	A	A	A	A
Q95, 95% Queue Length	0.11	0.51	1.88	0.00
Approach Delay	7.70	8.72	9.51	7.59
Approach LOS	A	A	A	A
Intersection Delay	9.23			
Intersection LOS	A			

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
A.1. Existing Conditions - AM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	8.53
	Average LOS	A

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	163.08	70.50	39.45	74.24	63.53	82.14
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	163.08	70.50	39.45	74.24	63.53	82.14
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	163.08	70.50	39.45	74.24	63.53	82.14
Left Turn Flow Rate	0.00	0.00	39.45	0.00	63.53	0.00
Right Turn Flow Rate	0.00	70.50	0.00	0.00	0.00	82.14
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	163.08	70.50	39.45	74.24	63.53	82.14
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.14	0.06	0.04	0.07	0.06	0.07
hd, iteration 1	4.81	4.11	5.37	4.87	5.53	4.33
Difference, iteration 1	1.61	0.91	2.17	1.67	2.33	1.13
hd, iteration 2	4.97	4.27	5.57	5.07	5.77	4.58
Difference, iteration 2	0.17	0.17	0.19	0.19	0.24	0.24
hd, iteration 3	5.00	4.29	5.60	5.09	5.80	4.60
Difference, iteration 3	0.02	0.02	0.03	0.03	0.03	0.03
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	5.00	4.29	5.60	5.09	5.80	4.60
x final, Degree of Utilization	0.23	0.08	0.06	0.11	0.10	0.11

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	163.08	70.50	39.45	74.24	63.53	82.14
hd, Departure Headway	5.00	4.29	5.60	5.09	5.80	4.60
x, Degree of Utilization	0.23	0.08	0.06	0.11	0.10	0.11
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	2.70	1.99	3.30	2.79	3.50	2.30
Capacity	719.91	837.76	643.10	706.11	620.04	781.81
Delay	9.15	7.39	8.66	8.39	9.16	7.84
LOS	A	A	A	A	A	A
Q95, 95% Queue Length	0.87	0.27	0.20	0.35	0.34	0.35
Approach Delay	8.62		8.48		8.42	
Approach LOS	A		A		A	
Intersection Delay	8.53					
Intersection LOS	A					

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Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy		
A.1. Existing Conditions - AM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	6.86
	Worst Case Delay	14.05
	Worst Case LOS	B

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		112.41	67.23	1.28	0.00	404.74	0.00	245.22
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume		112.41	67.23	1.28	0.00	404.74	0.00	245.22

Pedestrians								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
vx, Flow (Ped/hr)				0.00	0.00	0.00	0.00	
w, Lane Width (ft)				12.00	12.00	12.00	12.00	
Sp, Walking Speed (ft/s)				3.50	3.50	3.50	3.50	
fpb, Percent Blockage				0.00	0.00	0.00	0.00	

Capacity of Movements below Rank 1								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
Rank		1	1	3	3	2	2	1
vx, Volume				1.28	0.00	404.74	0.00	
Conflicting Volume (Veh)				391.24	424.86	245.22	179.64	
Conflicting Volume (Ped)				0.00	0.00	0.00	0.00	
Conflicting Volume				391.24	424.86	245.22	179.64	
Two-Stage Gap Acceptance				No	No			
Number of Storage Spaces in Median Refuge Area								
cpx, Potential Capacity				571.62	524.30	798.50	1408.15	
Capacity				571.62	524.30	798.50	1408.15	

Critical Headway and Follow Up Headway								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
tc,base, Base Critical Headway				7.10	6.50	6.20	4.10	
tc,base,I, Base Critical Headway (Stage I)								
tc,base,II, Base Critical Headway (Stage II)								
tc,HV, Heavy Vehicles Adjustment Factor				1.00	1.00	1.00	1.00	
Phv, % Heavy Vehicles				0.00	0.00	0.00	0.00	
tc,G, Grade Adjustment Factor				0.20	0.20	0.10	0.00	
G, % Grade	0.00	0.00		0.00			0.00	
T3,lt, Geometry Adjustment Factor				0.00	0.00	0.00	0.00	
tc, Critical Headway				7.10	6.50	6.20	4.10	
tc,I, Critical Headway (Stage I)								
tc,II, Critical Headway (Stage II)								
tf,base, Base Follow-Up Headway				3.50	4.00	3.30	2.20	
tf,hv, Heavy Vehicles Adjustment Factor				0.90	0.90	0.90	0.90	
tf, Follow-Up Headway				3.50	4.00	3.30	2.20	

Delay and Level of Service by Movement								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
vx, Volume		112.41	67.23	1.28	0.00	404.74	0.00	245.22
cmx, Capacity				571.62	524.30	798.50	1408.15	
V / C				0.00	0.00	0.51	0.00	
d, Delay				11.31	11.88	14.05	7.56	
LOS				B	B	B	A	
dA, Approach Delay	0.00	0.00		14.04			0.00	
Approach LOS	A			B				
dRank1, Rank 1 Delay		0.00					0.00	

Delay and Level of Service by Lane							
Approach	N	E (Major)		S		W (Major)	
Lane		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Movements				L1, T			
vx, Volume		112.41	67.23	1.28	404.74	0.00	245.22
Flared Storage Size							
cmx, Capacity				571.62			
V / C				0.00			
Q95, 95% Queue Length				0.01			
d, Delay				11.31			
LOS				B			
dA, Approach Delay	0.00	0.00		14.04		0.00	
Approach LOS	A			B			

Intersection No. 7. Geneva Avenue / Carter Street

Node 180: Geneva Ave & Carter St.		
A.1. Existing Conditions - AM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	26.31
	Average LOS	C
	V/C	0.48
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement							
Approach	E			S		W	
Movement	L2	L1	T	L1	R1	T	R1
Base Volume	27	106	661	246	148	697	441
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	7	26	165	62	37	174	110
Adjusted Volume	27	106	661	246	148	697	441

Volume and Adjustments by Lane Group						
Approach	E		S		W	
Lane Group	L	C	L	R	C	R
ID	10565	10566	10569	10570	10567	10568
Lanes	L	T, T	L	R	T, T	R
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	133	661	246	148	697	441
PLT, Proportion Left Turns	1.00	0.00	1.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	1.00	0.00	1.00

Saturation Flow Rate						
Approach	E		S		W	
Lane Group	10565	10566	10569	10570	10567	10568
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	2	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.952	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.952	1.000	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	0.850	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane						
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615

Capacity, Control Delay, and Level of Service Determination						
Approach	E		S		W	
Lane Group	10565	10566	10569	10570	10567	10568
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	132.72	660.93	246.02	148.2	697.44	440.83
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615
c, Capacity	241	1929	563	502	1206	538
g/C, Green / Cycle	0.13	0.53	0.31	0.31	0.33	0.33
X, Volume / Capacity	0.55	0.34	0.44	0.29	0.58	0.82
d1, Uniform Delay	36.48	11.99	24.72	23.51	24.78	27.51
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	8.74	0.49	2.46	1.49	2.03	13.03
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.13	0.53	0.31	0.31	0.33	0.33
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	45.22	12.48	27.17	25.00	26.80	40.54
LOS	D	B	C	C	C	D
dA, Approach Delay	17.95		26.36		32.12	
Approach LOS	B		C		C	
dI, Intersection Delay	26.31					
Intersection LOS	C					

Back of Queue						
Approach	E		S		W	
Arrival Type	3		3		3	
Lane Group	10565	10566	10569	10570	10567	10568
g/C, Green / Cycle	0.13	0.53	0.31	0.31	0.33	0.33
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	2.66	3.46	4.15	2.38	5.86	8.22
Q2, Second-term Queued	0.59	0.13	0.38	0.21	0.34	1.95
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	3.24	3.59	4.53	2.58	6.20	10.17
f8%, % Factor	1.80	1.80	1.77	1.80	1.66	1.51
Q%, Back of Queue Percentile	95	95	95	95	95	95
% Back of Queue	5.84	6.46	8.02	4.65	10.28	15.40

Signal Timing Information						
Approach	E		S		W	
Lane Group	10565	10566	10569	10570	10567	10568
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Signal Type	P	P	P	P	P	P
C, Cycle Length	90.00	90.00	90.00	90.00	90.00	90.00
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	5.00	5.00	9.00	9.00	4.00	4.00
Green Time Start	36	0	55	55	0	0
Green Time End	48	48	83	83	30	30
G, Actual Green Time	12	48	28	28	30	30
gi, Effective Green Time	12	48	28	28	30	30
g/C, Green / Cycle	0.13	0.53	0.31	0.31	0.33	0.33
(v/s)i, Volume / Saturation Flow Rate	0.07	0.18	0.14	0.09	0.19	0.27
Critical Lane Group	Y		Y			Y

Left Turn Adjustment Factors for Permitted Phasing						
Approach	E		S		W	
Lane Group	10565	10566	10569	10570	10567	10568
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Subject is Single(S) or Multi(M)						
Opposed by Single(S) or Multi(M)						
C, Cycle Length						
G(s), Actual GT						
g(s), Eff. perm. GT						
go(s), Opposing Eff. GT						
No, Number Lanes in Opposing						
N, Number Left Lanes						
VLT, Adj. LT Flow Rate						
PLT, Proportion LT in Lane Group						
PLTo, Proportion LT in Opposing						
LT Volume per Cycle						
Vo, Opposing Flow						
Volc, Adjusted Opposing Flow						
FLUo, Opposing Lane Utilization						
Rpo, Opposing Platoon Ratio						
gf						
qro, Opposing Queue Ratio						
gq, Opposing Queue Clearing Time						
gu						
PL						
de facto caused by PL >= 1.0						
EL1						
EL2						
gdiff						
fm						
CAVs adjustment for Permitted Left Turns						
CAVs adjustment for Protected Left Turns						
fLT, Left Turn Adjustment	0.95	1.00	0.95	1.00	1.00	1.00

Pedestrian and Bicycle Adjustment Factors							
Approach	E			S		W	
Movement	L2	L1	T	L1	R1	T	R1
gp, Pedestrian Green	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 8. Bayshore Boulevard / Tunnel Avenue

Node 145: Bayshore Blvd & Tunnel Ave		
A.1. Existing Conditions - AM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	17.2
	Average LOS	B
	V/C	0.39
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement						
Approach	N			E	S	
Movement	L2	L1	T	R1	T	R1
Base Volume	9	128	646	244	882	27
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	2	32	161	61	220	7
Adjusted Volume	9	128	646	244	882	27

Volume and Adjustments by Lane Group					
Approach	N		E	S	
Lane Group	L	C	R	C	C
ID	10561	10562	10560	10563	10564
Lanes	L	T, T	R	T	RT
Control Type	Perm	No Left	No Left	No Left	No Left
V, Volume	136	646	244	454	454
PLT, Proportion Left Turns	1.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	0.06

Saturation Flow Rate					
Approach	N		E	S	
Lane Group	10561	10562	10560	10563	10564
Control Type	Perm	No Left	No Left	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.607	1.000	1.000	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	0.990
flpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000
Has Short Lane					
s, Saturation Flow Rate	1154	3618	1615	1900	1880

Capacity, Control Delay, and Level of Service Determination					
Approach	N		E	S	
Lane Group	10561	10562	10560	10563	10564
Control Type	Perm	No Left	No Left	No Left	No Left
V, Volume	136.38	645.68	243.85	454.33	454.33
s, Saturation Flow Rate	1154	3618	1615	1900	1880
c, Capacity	380	2138	470	1123	1111
g/C, Green / Cycle	0.29	0.59	0.29	0.59	0.59
X, Volume / Capacity	0.36	0.3	0.52	0.4	0.41
d1, Uniform Delay	32.99	11.20	32.57	12.10	12.14
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	2.62	0.36	4.06	1.09	1.12
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.29	0.59	0.29	0.59	0.59
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00
d, Delay	35.61	11.57	36.63	13.18	13.25
LOS	D	B	D	B	B
dA, Approach Delay	15.76		36.63	13.22	
Approach LOS	B		D	B	
dI, Intersection Delay	17.2				
Intersection LOS	B				

Back of Queue					
Approach	N		E	S	
Arrival Type	3		3	3	
Lane Group	10561	10562	10560	10563	10564
g/C, Green / Cycle	0.29	0.59	0.29	0.59	0.59
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	2.96	3.69	5.46	5.61	5.62
Q2, Second-term Queued	0.28	0.11	0.53	0.34	0.34
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	3.23	3.80	5.99	5.94	5.97
fB%, % Factor	1.80	1.80	1.67	1.67	1.67
Q%, Back of Queue Percentile	95	95	95	95	95
% Back of Queue	5.82	6.84	10.00	9.94	9.98

Signal Timing Information					
Approach	N		E	S	
Lane Group	10561	10562	10560	10563	10564
Control Type	Perm	No Left	No Left	No Left	No Left
Signal Type	P	P	P	P	P
C, Cycle Length	110.00	110.00	110.00	110.00	110.00
Gb, Minimum Pedestrian Timing	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	2.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	4.00	4.00	4.00	4.00	4.00
Green Time Start	0	38	0	38	38
Green Time End	32	103	32	103	103
G, Actual Green Time	32	65	32	65	65
gi, Effective Green Time	32	65	32	65	65
g/C, Green / Cycle	0.29	0.59	0.29	0.59	0.59
(v/s)i, Volume / Saturation Flow Rate	0.12	0.18	0.15	0.24	0.24
Critical Lane Group			Y		Y

Left Turn Adjustment Factors for Permitted Phasing					
Approach	N		E	S	
Lane Group	10561	10562	10560	10563	10564
Control Type	Perm	No Left	No Left	No Left	No Left
Subject is Single(S) or Multi(M)	S				
Opposed by Single(S) or Multi(M)	M				
C, Cycle Length	110.00				
G(s), Actual GT	32.00				
g(s), Eff. perm. GT	32.00				
go(s), Opposing Eff. GT	32.00				
No, Number Lanes in Opposing	0				
N, Number Left Lanes	1				
VLT, Adj. LT Flow Rate	136.38				
PLT, Proportion LT in Lane Group	1.00				
PLTo, Proportion LT in Opposing	0.00				
LT Volume per Cycle	4.17				
Vo, Opposing Flow	243.85				
Volc, Adjusted Opposing Flow	0.00				
FLUo, Opposing Lane Utilization	1.00				
Rpo, Opposing Platoon Ratio	1.00				
gf	0.00				
qro, Opposing Queue Ratio	0.71				
gq, Opposing Queue Clearing Time	2.00				
gu	30.00				
PL	1.00				
de facto caused by PL >= 1.0					
EL1	1.65				
EL2	0.00				
gdiff	0.00				
fm	0.61				
CAVs adjustment for Permitted Left Turns					
CAVs adjustment for Protected Left Turns					
fLT, Left Turn Adjustment	0.61	1.00	1.00	1.00	1.00

Pedestrian and Bicycle Adjustment Factors						
Approach	N			E	S	
Movement	L2	L1	T	R1	T	R1
gp, Pedestrian Green	0.00	0.00		0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00	0.00		0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00	0.00		0.00		0.00
ApbT, Adjustment Factor	1.00	1.00		1.00		1.00
fRpb, Right Turn Factor	1.00	1.00		1.00		1.00
fLpb, Left Turn Factor	1.00	1.00		1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 10. Bayshore Boulevard / Industrial Way

Node 407: Bayshore Blvd & Industrial Way		
A.1. Existing Conditions - AM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	6.17
	Average LOS	A
	V/C	0.28
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement							
Approach	N			E		S	
Movement	L2	L1	T	L1	R1	T	R1
Base Volume	0	16	968	8	16	480	16
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	4	242	2	4	120	4
Adjusted Volume	0	16	968	8	16	480	16

Volume and Adjustments by Lane Group						
Approach	N		E		S	
Lane Group	L	C	L	R	C	R
ID	10575	10576	10573	10574	10571	10572
Lanes	L	T, T	L	R	T, T	R
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	16	968	8	16	480	16
PLT, Proportion Left Turns	1.00	0.00	1.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	1.00	0.00	1.00

Saturation Flow Rate						
Approach	N		E		S	
Lane Group	10575	10576	10573	10574	10571	10572
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	2	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000
fHV,g, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.952	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.952	1.000	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	0.850	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Sollback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane						
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615

Capacity, Control Delay, and Level of Service Determination						
Approach	N		E		S	
Lane Group	10575	10576	10573	10574	10571	10572
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	15.82	968.17	8.07	15.8	479.79	16.19
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615
c, Capacity	160	2554	266	238	2022	903
g/C, Green / Cycle	0.09	0.71	0.15	0.15	0.56	0.56
X, Volume / Capacity	0.1	0.38	0.03	0.07	0.24	0.02
d1, Uniform Delay	28.51	4.02	24.85	24.98	7.63	6.68
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	1.24	0.43	0.21	0.54	0.28	0.04
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.09	0.71	0.15	0.15	0.56	0.56
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	29.75	4.45	25.06	25.52	7.91	6.72
LOS	C	A	C	C	A	A
dA, Approach Delay	4.85		25.36		7.87	
Approach LOS	A		C		A	
dI, Intersection Delay	6.17					
Intersection LOS	A					

Back of Queue						
Approach	N		E		S	
Arrival Type	3		3		3	
Lane Group	10575	10576	10573	10574	10571	10572
g/C, Green / Cycle	0.09	0.71	0.15	0.15	0.56	0.56
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.22	1.32	0.11	0.21	1.32	0.08
Q2, Second-term Queued	0.05	0.15	0.02	0.04	0.08	0.01
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB. Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	0.27	1.47	0.12	0.25	1.40	0.09
fB%, % Factor	1.80	1.80	1.80	1.80	1.80	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95
% Back of Queue	0.49	2.64	0.22	0.45	2.51	0.16

Signal Timing Information						
Approach	N		E		S	
Lane Group	10575	10576	10573	10574	10571	10572
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Signal Type	P	P	P	P	P	P
C, Cycle Length	68.00	68.00	68.00	68.00	68.00	68.00
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.00	3.70	2.00	2.00	3.70	3.70
Green Time Start	0	0	54	54	10	10
Green Time End	6	48	64	64	48	48
G, Actual Green Time	6	48	10	10	38	38
gi, Effective Green Time	6	48	10	10	38	38
g/C, Green / Cycle	0.09	0.71	0.15	0.15	0.56	0.56
(vi/s)i, Volume / Saturation Flow Rate	0.01	0.27	0.00	0.01	0.13	0.01
Critical Lane Group		Y		Y		

Left Turn Adjustment Factors for Permitted Phasing						
Approach	N		E		S	
Lane Group	10575	10576	10573	10574	10571	10572
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Subject is Single(S) or Multi(M)						
Opposed by Single(S) or Multi(M)						
C, Cycle Length						
G(s), Actual GT						
g(s), Eff. perm. GT						
go(s), Opposing Eff. GT						
No, Number Lanes in Opposing						
N, Number Left Lanes						
VLT, Adj. LT Flow Rate						
PLT, Proportion LT in Lane Group						
PLTo, Proportion LT in Opposing						
LT Volume per Cycle						
Vo, Opposing Flow						
Volc, Adjusted Opposing Flow						
FLUo, Opposing Lane Utilization						
Rpo, Opposing Platoon Ratio						
gf						
qro, Opposing Queue Ratio						
gq, Opposing Queue Clearing Time						
gu						
PL						
de facto caused by PL >= 1.0						
EL1						
EL2						
gdiff						
fm						
CAVs adjustment for Permitted Left Turns						
CAVs adjustment for Protected Left Turns						
fLT, Left Turn Adjustment	0.95	1.00	0.95	1.00	1.00	1.00

Pedestrian and Bicycle Adjustment Factors							
Approach	N			E		S	
Movement	L2	L1	T	L1	R1	T	R1
gp, Pedestrian Green	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 11. Bayshore Boulevard / Main Street

Node 1108: Bayshore Blvd & Main St		
A.1. Existing Conditions - AM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	0.61
	Worst Case Delay	20.12
	Worst Case LOS	C

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
Base Volume	964.70	11.54	0.00	23.82	495.98	56.38
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	964.70	11.54	0.00	23.82	495.98	56.38

Pedestrians						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
vx, Flow (Ped/hr)			0.00	0.00		0.00
w, Lane Width (ft)			12.00	12.00		12.00
Sp, Walking Speed (ft/s)			3.50	3.50		3.50
fpb, Percent Blockage			0.00	0.00		0.00

Capacity of Movements below Rank 1						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
Rank	1	1	2	2	1	2
vx, Volume			0.00	23.82		56.38
Conflicting Volume (Veh)			964.70	964.70		482.35
Conflicting Volume (Ped)			0.00	0.00		0.00
Conflicting Volume			964.70	964.70		482.35
Two-Stage Gap Acceptance						
Number of Storage Spaces in Median Refuge Area						
cpx, Potential Capacity			269.09	721.89		535.50
Capacity			240.76	721.89		535.50

Critical Headway and Follow Up Headway						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
tc,base, Base Critical Headway			6.90	4.10		6.90
tc,base,I, Base Critical Headway (Stage I)						
tc,base,II, Base Critical Headway (Stage II)						
tc,HV, Heavy Vehicles Adjustment Factor			2.00	2.00		2.00
Phv, % Heavy Vehicles			0.00	0.00		0.00
tc,G, Grade Adjustment Factor			0.00	0.00		0.10
G, % Grade	0.00			0.00		0.00
T3,lt, Geometry Adjustment Factor			0.00	0.00		0.00
tc, Critical Headway			6.90	4.10		6.90
tc,I, Critical Headway (Stage I)						
tc,II, Critical Headway (Stage II)						
tf,base, Base Follow-Up Headway			3.10	2.20		3.30
tf,hv, Heavy Vehicles Adjustment Factor			1.00	1.00		1.00
tf, Follow-Up Headway			3.10	2.20		3.30

Delay and Level of Service by Movement						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
vx, Volume	964.70	11.54	0.00	23.82	495.98	56.38
cmx, Capacity			240.76	721.89		535.50
V / C			0.00	0.03		0.11
d, Delay			20.12	10.16		12.51
LOS			C	B		B
dA, Approach Delay	0.00			0.47		12.51
Approach LOS						B
dRank1, Rank 1 Delay	0.00			0.00		

Delay and Level of Service by Lane							
Approach	N (Major)			S (Major)			W
Lane	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1
Movements				L2, L1			
vx, Volume	482.35	482.35	11.54	23.82	247.99	247.99	56.38
Flared Storage Size							
cmx, Capacity				721.89			
V / C				0.03			
Q95, 95% Queue Length				0.10			
d, Delay				10.16			
LOS				B			
dA, Approach Delay	0.00			0.47			12.51
Approach LOS							B

Intersection No. 12. Bayshore Boulevard / Guadalupe Canyon Parkway

Node 606: Bayshore Blvd & Guadalupe Canyon Pkwy

A.1. Existing Conditions - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	16.16
Average LOS	B
V/C	0.32
Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	818	203	124	415	105	466
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	205	51	31	104	26	117
Adjusted Volume	818	203	124	415	105	466

Volume and Adjustments by Lane Group

Approach	N		S		W	
Lane Group	C	R	L	C	L	R
ID	32	33	30	31	34	35
Lanes	T, T	R	L	T, T	L, L	R
Control Type	No Left	No Left	Prot	No Left	Prot	No Left
V, Volume	818	203	124	415	105	466
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	1.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W		
Lane Group	32	33	30	31	34	35	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	
N, Number of Lanes	2	1	1	2	2	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	0.952	1.000	1.000	0.952	0.971	1.000	
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	0.952	1.000	
fRT, Right Turn Adjustment	1.000	0.850	1.000	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane							
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W		
Lane Group	32	33	30	31	34	35	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
V, Volume	818.13	202.72	124.32	414.6	105.22	348	118
						466	
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615
						1615	
c, Capacity	1109	495	603	2508	703	1120	323
						1443	
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.2	0.69	0.20
						0.89	
X, Volume / Capacity	0.74	0.41	0.21	0.17	0.15	0.31	0.37
						0.32	
d1, Uniform Delay	23.29	20.61	17.90	3.98	24.74	0.30	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	4.39	2.49	0.77	0.14	0.45	0.59	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.31	0.31	0.33	0.69	0.20	0.89	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	27.69	23.11	18.67	4.13	25.19	0.89	
LOS	C	C	B	A	C	A	
dA, Approach Delay	26.78		7.48		5.37		
Approach LOS	C		A		A		
dI, Intersection Delay	16.16						
Intersection LOS	B						

Back of Queue

Approach	N		S		W	
Arrival Type	3		3		3	
Lane Group	32	33	30	31	34	35
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.20	0.89
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	5.75	2.52	1.38	0.66	0.70	0.00
Q2, Second-term Queued	0.68	0.34	0.13	0.05	0.04	0.24
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	6.43	2.87	1.51	0.71	0.74	0.24
fB%, % Factor	1.50	1.76	1.80	1.80	1.80	1.80
Q%, Back of Queue Percentile	90	90	90	90	90	90
% Back of Queue	9.67	5.03	2.71	1.28	1.34	0.43

Signal Timing Information

Approach	N		S		W		
Lane Group	32	33	30	31	34	35	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
Signal Type	P	P	P	P	P	P	
C, Cycle Length	75.00	75.00	75.00	75.00	75.00	75.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2	2
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
l2, Clearance Loss Time	3.00	3.00	2.00	3.00	2.00	3	2
Green Time Start	29	29	0	0	56	0	56
Green Time End	52	52	25	52	71	52	71
G, Actual Green Time	23	23	25	52	15	52	15
gi, Effective Green Time	23	23	25	52	15	52	15
						0.69	0.20
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.2	0.89	
(v/s)i, Volume / Saturation Flow Rate	0.23	0.13	0.07	0.11	0.03	0.22	0.07
Critical Lane Group	Y		Y		Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W		
Lane Group	32	33	30	31	34	35	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
qro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
gp, Pedestrian Green		0.00	0.00		0.00	0.00
OCCpedg, Average Pedestrian Occupancy		0.00	0.00		0.00	0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00	0.00
ApbT, Adjustment Factor		1.00	1.00		1.00	1.00
fRpb, Right Turn Factor		1.00	1.00		1.00	1.00
fLpb, Left Turn Factor		1.00	1.00		1.00	1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 13. Bayshore Boulevard / Valley Drive

Node 1004: Bayshore Blvd & Valley Dr		
A.1. Existing Conditions - AM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	25.24
	Average LOS	C
	V/C	0.57
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	0	1185	99	0	0	0	324	484	1	54	1	240
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	296	25	0	0	0	81	121	0	14	0	60
Adjusted Volume	0	1185	99	0	0	0	324	484	1	54	1	240

Volume and Adjustments by Lane Group

Approach	N			E	S			W		
Lane Group	L	C	R	C	L	C	C	L	C	R
ID	47620	47621	47622	47619	47616	47617	47618	47623	47624	47625
Lanes	L	T,T	R	LTR	L,L	T	RT	L	LT	R
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
V, Volume	0	1185	99	1	324	243	243	24	31	240
PLT, Proportion Left Turns	1.00	0.00	0.00	0.31	1.00	0.00	0.00	1.00	0.98	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.29	0.00	0.00	0.01	0.00	0.00	1.00

Saturation Flow Rate

Approach	N			E	S			W		
Lane Group	47620	47621	47622	47619	47616	47617	47618	47623	47624	47625
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	2	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.971	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.871	0.952	1.000	1.000	0.758	0.776	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	0.951	1.000	1.000	0.999	1.000	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane										
s, Saturation Flow Rate	1810	3618	1615	1573	3514	1900	1898	1439	1475	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E	S			W		
Lane Group	47620	47621	47622	47619	47616	47617	47618	47623	47624	47625
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
V, Volume	0.1	1185.16	98.91	0.72	324.1	242.88	242.66	23.82	31.13	239.99
s, Saturation Flow Rate	1810	3618	1615	1573	3514	1900	1898	1439	1475	1615
c, Capacity	196	1472	657	612	380	773	772	560	611	562
g/C, Green / Cycle	0.11	0.41	0.41	0.35	0.11	0.41	0.41	0.35	0.35	0.35
X, Volume / Capacity	0	0.81	0.15	0	0.85	0.31	0.31	0.04	0.05	0.43
d1, Uniform Delay	29.03	19.10	13.68	15.53	31.98	14.72	14.72	15.79	15.79	18.23
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	0.00	4.79	0.48	0.00	20.79	1.06	1.06	0.14	0.16	2.37
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.11	0.41	0.41	0.35	0.11	0.41	0.41	0.35	0.35	0.35
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	29.03	23.89	14.16	15.53	52.77	15.79	15.79	15.94	15.95	20.59
LOS	C	C	B	B	D	B	B	B	B	C
dA, Approach Delay		23.14		15.53		30.59			19.73	
Approach LOS		C		B		C			B	
dI, Intersection Delay	25.24									
Intersection LOS	C									

Back of Queue

Approach	N			E	S			W		
Arrival Type		3		3		3			3	
Lane Group	47620	47621	47622	47619	47616	47617	47618	47623	47624	47625
g/C, Green / Cycle	0.11	0.41	0.41	0.35	0.11	0.41	0.41	0.35	0.35	0.35
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.00	7.46	0.89	0.01	2.59	2.36	2.35	0.24	0.31	2.79
Q2, Second-term Queued	0.00	0.98	0.09	0.00	1.10	0.23	0.23	0.02	0.03	0.37
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	0.00	8.44	0.98	0.01	3.69	2.58	2.58	0.26	0.34	3.16
fB%, % Factor	1.80	1.44	1.80	1.80	1.67	1.80	1.80	1.80	1.80	1.72
Q%, Back of Queue Percentile	90	90	90	90	90	90	90	90	90	90
% Back of Queue	0.00	12.16	1.76	0.02	6.15	4.64	4.64	0.47	0.61	5.43

Signal Timing Information

Approach	N			E	S			W		
Lane Group	47620	47621	47622	47619	47616	47617	47618	47623	47624	47625
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	73.00	73.00	73.00	73.00	73.00	73.00	73.00	73.00	73.00	73.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	65.1	5	5	34.7	65.1	5	5	34.7	34.7	34.7
Green Time End	73	34.7	34.7	60.1	73	34.7	34.7	60.1	60.1	60.1
G, Actual Green Time	7.9	29.7	29.7	25.4	7.9	29.7	29.7	25.4	25.4	25.4
gi, Effective Green Time	7.9	29.7	29.7	25.4	7.9	29.7	29.7	25.4	25.4	25.4
g/C, Green / Cycle	0.11	0.41	0.41	0.35	0.11	0.41	0.41	0.35	0.35	0.35
(v/s)i, Volume / Saturation Flow Rate	0.00	0.33	0.06	0.00	0.09	0.13	0.13	0.02	0.02	0.15
Critical Lane Group		Y			Y					Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E	S			W		
Lane Group	47620	47621	47622	47619	47616	47617	47618	47623	47624	47625
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
Subject is Single(S) or Multi(M)				S				S	S	
Opposed by Single(S) or Multi(M)				M				S	S	
C, Cycle Length				73.00				73.00	73.00	
G(s), Actual GT				25.40				25.40	25.40	
g(s), Eff. perm. GT				25.40				25.40	25.40	
go(s), Opposing Eff. GT				25.40				25.40	25.40	
No, Number Lanes in Opposing				1				1	1	
N, Number Left Lanes				1				1	1	
VLT, Adj. LT Flow Rate				0.22				54.41	30.59	
PLT, Proportion LT in Lane Group				0.31				1.00	0.98	
PLTo, Proportion LT in Opposing				0.18				0.31	0.31	
LT Volume per Cycle				0.00				1.10	0.62	
Vo, Opposing Flow				240.53				0.50	0.50	
Voic, Adjusted Opposing Flow				5.37				0.01	0.01	
FLUo, Opposing Lane Utilization				0.91				1.00	1.00	
Rpo, Opposing Platoon Ratio				1.00				1.00	1.00	
gf				4.51				0.00	0.04	
qro, Opposing Queue Ratio				0.65				0.65	0.65	
qq, Opposing Queue Clearing Time				4.51				2.02	2.02	
gu				20.89				23.38	23.38	
PL				0.31				1.00	0.98	
de facto caused by PL >= 1.0										
EL1				1.64				1.32	1.32	
EL2				0.00				1.05	1.05	
gdiff				0.00				2.02	1.98	
fm				0.87				0.76	0.78	
CAVs adjustment for Permitted Left Turns										
CAVs adjustment for Protected Left Turns										
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.87	0.95	1.00	1.00	0.76	0.78	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 14. Bayshore Boulevard / Old County Road / Tunnel Avenue

Node 753: Bayshore Blvd & Old County Rd		
A.1. Existing Conditions - AM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	35.63
	Average LOS	D
	V/C	0.53
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	157	1222	47	18	40	72	0	52	669	85	68	112	86
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	39	305	12	4	10	18	0	13	167	21	17	28	21
Adjusted Volume	157	1222	47	18	40	72	0	52	669	85	68	112	86

Volume and Adjustments by Lane Group

Approach	N			E		S			W	
Lane Group	L	C	R	C	R	L	C	C	L	C	R
ID	10595	10596	10597	10593	10594	10590	10591	10592	10598	10599	10600
Lanes	L	T, T	R	LT	R	L	T	RT	L	LT	R
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	157	1222	47	58	72	52	384	370	68	112	86
PLT, Proportion Left Turns	1.00	0.00	0.00	0.31	0.00	1.00	0.00	0.00	1.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.23	0.00	0.00	1.00

Saturation Flow Rate

Approach	N			E		S			W		
Lane Group	10595	10596	10597	10593	10594	10590	10591	10592	10598	10599	10600
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fhv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.985	1.000	0.952	1.000	1.000	0.952	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	0.850	1.000	1.000	0.961	1.000	1.000	0.850
flpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane											
s, Saturation Flow Rate	1810	3618	1615	1871	1615	1810	1900	1826	1810	1900	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E		S			W		
Lane Group	10595	10596	10597	10593	10594	10590	10591	10592	10598	10599	10600
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	157.14	1221.58	46.85	58	72.34	52.25	384.06	369.51	68.43	112.24	85.74
s, Saturation Flow Rate	1810	3618	1615	1871	1615	1810	1900	1826	1810	1900	1615
c, Capacity	128	1574	703	321	277	170	907	872	210	221	188
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
X, Volume / Capacity	1.23	0.78	0.07	0.18	0.26	0.31	0.42	0.42	0.33	0.51	0.46
d1, Uniform Delay	41.95	21.74	14.83	31.97	32.43	38.15	15.46	15.47	36.65	37.47	37.24
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	152.21	3.81	0.18	1.23	2.28	4.61	1.45	1.51	4.07	8.12	7.80
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	194.16	25.56	15.02	33.20	34.71	42.76	16.91	16.98	40.71	45.59	45.04
LOS	F	C	B	C	C	D	B	B	D	D	D
dA, Approach Delay	43.80			34.04		18.62			44.16		
Approach LOS	D			C		B			D		
dI, Intersection Delay	35.63										
Intersection LOS	D										

Back of Queue

Approach	N			E		S			W		
Arrival Type	3			3		3			3		
Lane Group	10595	10596	10597	10593	10594	10590	10591	10592	10598	10599	10600
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	2.72	9.78	0.51	1.06	1.34	1.03	4.60	4.42	1.39	2.33	1.77
Q2, Second-term Queued	5.42	0.83	0.04	0.11	0.18	0.22	0.37	0.37	0.24	0.50	0.41
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB. Earlv Arrival Adi. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	8.15	10.61	0.55	1.17	1.51	1.25	4.96	4.79	1.63	2.83	2.17
f8%, % Factor	1.68	1.50	1.80	1.80	1.80	1.80	1.74	1.75	1.80	1.80	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95	95	95
% Back of Queue	13.66	15.95	0.99	2.10	2.72	2.25	8.61	8.38	2.93	5.09	3.91

Signal Timing Information

Approach	N			E		S			W		
Lane Group	10595	10596	10597	10593	10594	10590	10591	10592	10598	10599	10600
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.00	3.70	3.70	2.50	2.50	2.00	3.70	3.70	2.50	2.50	2.50
Green Time Start	0	14.2	14.2	74	74	0	9.4	9.4	58	58	58
Green Time End	6.4	53.5	53.5	89.5	89.5	8.5	52.5	52.5	68.5	68.5	68.5
G, Actual Green Time	6.4	39.3	39.3	15.5	15.5	8.5	43.1	43.1	10.5	10.5	10.5
gi, Effective Green Time	6.4	39.3	39.3	15.5	15.5	8.5	43.1	43.1	10.5	10.5	10.5
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
(v/s)i, Volume / Saturation Flow Rate	0.09	0.34	0.03	0.03	0.04	0.03	0.20	0.20	0.04	0.06	0.05
Critical Lane Group	Y	Y			Y					Y	

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E		S			W		
Lane Group	10595	10596	10597	10593	10594	10590	10591	10592	10598	10599	10600
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
qf											
qro, Opposing Queue Ratio											
qq, Opposing Queue Clearing Time											
qu											
PL											
de facto caused by PL >= 1.0											
EL1											
EL2											
qdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
qp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 15. Bayshore Boulevard / Van Waters and Rodgers Road

Node 1035: Bayshore Blvd & Van Waters and Rogers Rd	
A.1. Existing Conditions - AM Peak Hour	
Control Type	Signalized
Method	HCM 7th Edition
Average Delay	9.59
Average LOS	A
V/C	0.38
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement							
Approach	N		E		S		
Movement	L1	T	L1	R1	L1	T	R1
Base Volume	52	1273	0	4	0	802	44
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	13	318	0	1	0	200	11
Adjusted Volume	52	1273	0	4	0	802	44

Volume and Adjustments by Lane Group							
Approach	N		E		S		
Lane Group	L	C	L	R	L	C	R
ID	10606	10607	10604	10605	10601	10602	10603
Lanes	L	T, T	L	R	L	T, T	R
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
V, Volume	52	1273	0	4	0	802	44
PLT, Proportion Left Turns	1.00	0.00	1.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	1.00	0.00	0.00	1.00

Saturation Flow Rate							
Approach	N		E		S		
Lane Group	10606	10607	10604	10605	10601	10602	10603
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1	2	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000	0.952	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.952	1.000	0.952	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	0.850	1.000	1.000	0.850
flpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate	1810	3618	1810	1615	1810	3618	1615

Capacity, Control Delay, and Level of Service Determination							
Approach	N		E		S		
Lane Group	10606	10607	10604	10605	10601	10602	10603
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
V, Volume	51.81	1273.23	0.16	4.23	0	801.59	43.6
s, Saturation Flow Rate	1810	3618	1810	1615	1810	3618	1615
c, Capacity	112	2409	236	210	112	2409	1076
g/C, Green / Cycle	0.06	0.67	0.13	0.13	0.06	0.67	0.67
X, Volume / Capacity	0.46	0.53	0	0.02	0	0.33	0.04
d1, Uniform Delay	43.79	8.32	36.57	36.67	0.00	6.93	5.54
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	13.04	0.83	0.01	0.18	0.00	0.37	0.07
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.06	0.67	0.13	0.13	0.06	0.67	0.67
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	56.83	9.16	36.58	36.84	0.00	7.30	5.61
LOS	E	A	D	D	A	A	A
dA, Approach Delay	11.02		36.83		7.22		
Approach LOS	B		D		A		
dI, Intersection Delay	9.59						
Intersection LOS	A						

Back of Queue							
Approach	N		E		S		
Arrival Type	3		3		3		
Lane Group	10606	10607	10604	10605	10601	10602	10603
g/C, Green / Cycle	0.06	0.67	0.13	0.13	0.06	0.67	0.67
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	1.15	5.31	0.00	0.09	0.00	2.78	0.24
Q2, Second-term Queued	0.41	0.28	0.00	0.01	0.00	0.12	0.02
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB. Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	1.56	5.59	0.00	0.10	0.00	2.91	0.26
fB%, % Factor	1.80	1.69	1.80	1.80	1.00	1.80	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95	95
% Back of Queue	2.81	9.47	0.01	0.18	0.00	5.24	0.47

Signal Timing Information							
Approach	N		E		S		
Lane Group	10606	10607	10604	10605	10601	10602	10603
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
Signal Type	P	P	P	P	P	P	P
C, Cycle Length	96.70	96.70	96.70	96.70	96.70	96.70	96.70
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.50	3.70	2.00	2.00	2.50	3.70	3.70
Green Time Start	0	10.5	80.6	80.6	0	10.5	10.5
Green Time End	6	74.9	93.2	93.2	6	74.9	74.9
G, Actual Green Time	6	64.4	12.6	12.6	6	64.4	64.4
gi, Effective Green Time	6	64.4	12.6	12.6	6	64.4	64.4
g/C, Green / Cycle	0.06	0.67	0.13	0.13	0.06	0.67	0.67
(v/s)i, Volume / Saturation Flow Rate	0.03	0.35	0.00	0.00	0.00	0.22	0.03
Critical Lane Group	Y	Y		Y			

Left Turn Adjustment Factors for Permitted Phasing							
Approach	N		E		S		
Lane Group	10606	10607	10604	10605	10601	10602	10603
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
qf							
qro, Opposing Queue Ratio							
qq, Opposing Queue Clearing Time							
qu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
qdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	0.95	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors							
Approach	N		E		S		
Movement	L1	T	L1	R1	L1	T	R1
qp, Pedestrian Green	0.00		0.00	0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 16. Bayshore Boulevard / San Bruno Avenue

Node 818: Bayshore Blvd & San Bruno Ave		
A.1. Existing Conditions - AM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	1.5
	Worst Case Delay	17.97
	Worst Case LOS	C

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Base Volume	1270.81	8.80	69.34	840.55	146.92
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	1270.81	8.80	69.34	840.55	146.92

Pedestrians					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Flow (Ped/hr)			0.00		0.00
w, Lane Width (ft)			12.00		12.00
Sp, Walking Speed (ft/s)			3.50		3.50
fpb, Percent Blockage			0.00		0.00

Capacity of Movements below Rank 1					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Rank	1	1	2	1	2
vx, Volume			69.34		146.92
Conflicting Volume (Veh)			1270.81		639.81
Conflicting Volume (Ped)			0.00		0.00
Conflicting Volume			1270.81		639.81
Two-Stage Gap Acceptance					
Number of Storage Spaces in Median Refuge Area					
cpx, Potential Capacity			553.47		423.02
Capacity			553.47		423.02

Critical Headway and Follow Up Headway					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
tc,base, Base Critical Headway			4.10		6.90
tc,base,I, Base Critical Headway (Stage I)					
tc,base,II, Base Critical Headway (Stage II)					
tc,HV, Heavy Vehicles Adjustment Factor			2.00		2.00
Phv, % Heavy Vehicles			0.00		0.00
tc,G, Grade Adjustment Factor			0.00		0.10
G, % Grade	0.00		0.00		0.00
T3,It, Geometry Adjustment Factor			0.00		0.00
tc, Critical Headway			4.10		6.90
tc,I, Critical Headway (Stage I)					
tc,II, Critical Headway (Stage II)					
tf,base, Base Follow-Up Headway			2.20		3.30
tf,hv, Heavy Vehicles Adjustment Factor			1.00		1.00
tf, Follow-Up Headway			2.20		3.30

Delay and Level of Service by Movement					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Volume	1270.81	8.80	69.34	840.55	146.92
cmx, Capacity			553.47		423.02
V / C			0.13		0.35
d, Delay			12.43		17.97
LOS			B		C
dA, Approach Delay	0.00		0.95		17.97
Approach LOS					C
dRank1, Rank 1 Delay	0.00		0.00		

Delay and Level of Service by Lane						
Approach	N (Major)		S (Major)			W
Lane	Lane 1	Lane 2	Lane 1	Lane 2	Lane 3	Lane 1
Movements		T, R1				
vx, Volume	639.81	639.81	69.34	420.28	420.28	146.92
Flared Storage Size						
cmx, Capacity						
V / C						
Q95, 95% Queue Length						
d, Delay						
LOS						
dA, Approach Delay	0.00		0.95			17.97
Approach LOS						C

A.1. Existing Conditions - AM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Existing Conditions**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 9 **Geneva Ave/Bayshore Ave** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	U Turn	-	-	-	-	-	-	-	-	-	-	-	-
	Left Turn	262	262	100.2%	11.6	250	289	0.0	55.4	8.8	46.0	73.6	E
	Through	247	249	100.6%	11.4	225	266	0.1	31.3	3.0	27.7	38.4	C
	Subtotal	509	511	100.4%	5.1	501	519	0.1	44.3	6.4	38.2	56.5	D
SB	U Turn	70	70	100.1%	1.1	69	72	0.0	44.5	6.4	33.3	56.1	D
	Through	451	443	98.2%	2.9	438	447	0.4	36.4	2.9	32.9	40.1	D
	Right Turn	252	256	101.5%	1.5	253	258	0.2	6.9	0.6	5.9	7.8	A
	Subtotal	773	769	99.4%	2.3	766	772	0.2	27.5	2.3	24.1	30.5	C
EB	U Turn	-	-	-	-	-	-	-	-	-	-	-	-
	Left Turn	390	370	95.0%	10.0	359	389	1.0	10.0	1.4	8.7	13.2	B
	Right Turn	458	556	121.4%	9.5	534	567	4.4	5.9	0.6	5.2	7.0	A
	Subtotal	848	927	109.3%	4.1	920	932	2.6	7.6	0.8	6.6	9.1	A
Total		2,130	2,206	103.6%	7.1	2,196	2,217	1.6	23.3	2.2	21.1	27.2	C

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	3	1	26.7%	0.6	0	2	1.6	1.6	3.4	0.0	9.0	A
	Through	13	31	240.0%	1.6	29	34	3.9	8.8	0.9	7.7	10.2	A
	Right Turn	18	4	22.2%	1.2	2	6	4.2	5.8	4.4	0.0	12.3	A
	Subtotal	34	36	105.9%	0.5	35	37	0.3	8.8	0.9	7.8	10.3	A
SB	Left Turn	120	143	119.1%	12.4	124	162	2.0	9.7	0.7	8.2	10.7	A
	Through	21	12	54.8%	3.3	6	16	2.4	10.8	4.9	0.0	18.2	B
	Right Turn	42	42	99.5%	5.7	35	48	0.0	5.9	0.8	4.8	7.2	A
	Subtotal	183	196	107.2%	13.8	167	213	1.0	9.0	0.6	8.0	9.8	A
EB	Left Turn	113	122	107.8%	9.6	110	138	0.8	9.6	1.1	8.2	11.6	A
	Through	160	144	89.8%	9.4	129	156	1.3	10.0	0.9	8.2	11.5	A
	Right Turn	3	1	23.3%	0.5	0	1	1.7	0.5	1.4	0.0	4.6	A
	Subtotal	276	266	96.4%	1.7	263	269	0.6	9.8	1.0	8.3	11.6	A
WB	Left Turn	12	34	285.0%	4.0	26	40	4.6	8.4	1.2	6.9	10.6	A
	Through	115	102	89.0%	7.1	92	115	1.2	11.0	0.9	9.5	12.1	B
	Right Turn	97	106	109.5%	4.8	98	112	0.9	1.2	0.4	0.5	2.0	A
	Subtotal	224	243	108.4%	2.0	240	247	1.2	6.5	0.8	5.0	7.6	A
Total		717	741	103.4%	14.3	710	760	0.9	8.5	0.5	7.7	9.4	A
							Worst Approach Delay	EB	9.8	1.0	8.3	11.6	A

Intersection 3 **Alana Way/Harney Way** **Two Way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	129	127	98.4%	9.9	112	140	0.2	9.6	1.1	7.8	11.2	A
	Through	90	87	97.1%	5.5	80	97	0.3	3.5	0.8	2.3	4.7	A
	Right Turn	115	119	103.4%	9.4	104	131	0.4	0.3	0.1	0.2	0.6	A
	Subtotal	334	333	99.8%	3.9	326	339	0.0	4.7	0.7	3.1	5.4	A
SB	Left Turn	2	19	935.0%	3.9	14	26	5.2	8.3	1.6	6.5	11.3	A
	Through	79	47	59.2%	4.8	39	57	4.1	8.1	0.9	7.1	9.7	A
	Right Turn	24	13	55.8%	4.2	8	19	2.5	5.3	0.3	5.0	5.8	A
	Subtotal	105	79	75.1%	1.2	77	80	2.7	7.6	0.9	6.7	9.2	A
EB	Left Turn	61	61	100.7%	4.6	53	69	0.1	11.8	1.2	9.6	13.4	B
	Through	62	41	66.5%	6.9	33	56	2.9	9.2	1.4	6.9	12.0	A
	Right Turn	251	199	79.2%	7.7	187	209	3.5	9.9	1.2	8.6	12.9	A
	Subtotal	374	302	80.6%	6.1	289	310	3.9	10.2	0.7	9.1	11.5	B
WB	Left Turn	202	213	105.4%	5.4	205	223	0.8	0.4	0.1	0.2	0.7	A
	Through	142	138	97.5%	5.1	128	144	0.3	0.1	0.0	0.0	0.2	A
	Right Turn	3	0	6.7%	0.4	0	1	2.2	0.0	0.0	0.0	0.0	A
	Subtotal	347	352	101.3%	1.6	349	354	0.2	0.3	0.1	0.2	0.4	A
Total		1,160	1,065	91.8%	6.3	1,053	1,072	2.8	5.0	0.4	4.4	5.6	A
							Worst Approach Delay	EB	10.2	0.7	9.1	11.5	B

A.1. Existing Conditions - AM Peak Hour

Brisbane Baylands
Existing AM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way S**
NB	UT																													
	L2																													
	LT	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	22	22	42	43	44	22	39	22	36	22	31	10	22	44
	TH	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	22	22	42	43	44	22	39	22	36	22	31	10	22	44
	RT	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	22	22	42	43	44	22	39	22	36	22	31	10	22	44
	R2																													
SB	UT																													
	L2																													
	LT	75	5	3	3	4	4	4	5	4	4	4	4	1	3	5	85	65	44	51	83	85	61	66	65	102	71	18	44	102
	TH	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	21	21	21	21	17	22	21	21	21	21	1	17	22
	RT	75	1	0	1	0	1	1	1	1	1	1	1	0	0	1	44	21	41	22	22	38	42	37	43	21	33	10	21	44
	R2																													
EB	UT																													
	L2																													
	LT	475	9	9	12	10	11	7	11	11	10	11	10	1	7	12	127	101	104	91	104	104	138	111	126	100	111	15	91	138
	TH	475	9	9	12	10	11	7	11	11	10	11	10	1	7	12	127	101	104	91	104	104	138	111	126	100	111	15	91	138
	RT	475	9	9	12	10	11	7	11	11	10	11	10	1	7	12	127	101	104	91	104	104	138	111	126	100	111	15	91	138
	R2																													
WB	UT																													
	L2																													
	LT	1,275	4	4	3	3	3	3	5	4	4	4	4	1	3	5	63	66	43	45	65	62	87	62	62	82	64	14	43	87
	TH	1,275	4	4	3	3	3	3	5	4	4	4	4	1	3	5	63	66	43	45	65	62	87	62	62	82	64	14	43	87
	RT	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	20	19	19	21	21	0	21	37	21	20	9	0	37
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Two Way**
NB	UT																													
	L2																													
	LT	125	0	1	1	1	1	0	1	1	1	1	1	0	0	1	61	43	42	63	150	40	63	82	83	63	69	32	40	150
	TH	3,250	0	0	1	1	1	0	0	1	1	0	1	0	0	1	105	81	81	106	196	86	106	128	125	106	112	34	81	196
	RT	3,250	0	0	0	0	1	0	0	0	1	0	0	0	0	1	45	27	26	47	134	24	47	67	67	47	53	32	24	134
	R2																													
SB	UT																													
	L2																													
	LT	550	1	2	2	1	2	2	1	2	1	2	2	0	1	2	26	69	64	46	66	54	44	47	26	64	51	16	26	69
	TH	550	1	2	2	1	2	2	1	2	1	2	2	0	1	2	25	68	63	46	65	54	43	46	25	63	50	16	25	68
	RT	125	0	0	0	0	0	0	0	0	0	0	0	0	0	0	42	24	23	24	23	24	23	23	24	22	25	6	22	42
	R2																													
EB	UT																													
	L2																													
	LT	400	4	3	4	3	4	3	4	3	4	3	3	1	3	4	87	87	109	109	113	87	105	109	109	86	100	12	86	113
	TH	400	4	3	4	3	4	4	4	4	4	3	4	1	3	4	87	88	109	109	113	88	106	109	110	86	100	12	86	113
	RT	400	1	1	1	0	0	0	1	1	0	0	1	0	0	1	43	44	40	37	43	43	65	42	21	36	41	11	21	65
	R2																													
WB	UT																													
	L2																													
	LT	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TH	575	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	0	0	81	0	81	81	81	82	81	57	39	0	82
	RT	575	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	R2																													

Attachment C.2. Existing Conditions – PM Peak Hour

Intersection No. 1. Beatty Avenue / Tunnel Avenue

Node 375: Tunnel Ave & Beatty Ave		
A.2. Existing Conditions - PM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	4.13
	Worst Case Delay	11.49
	Worst Case LOS	B

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
Base Volume	0.00	92.15	15.66	25.68	46.94	149.40	20.83
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	0.00	92.15	15.66	25.68	46.94	149.40	20.83

Pedestrians							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
vx, Flow (Ped/hr)	0.00	0.00		0.00	0.00		
w, Lane Width (ft)	12.00	12.00		12.00	12.00		
Sp, Walking Speed (ft/s)	3.50	3.50		3.50	3.50		
fpb, Percent Blockage	0.00	0.00		0.00	0.00		

Capacity of Movements below Rank 1							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
Rank	2	2	1	3	2	1	1
vx, Volume	0.00	92.15		25.68	46.94		
Conflicting Volume (Veh)	170.23	170.23		359.77	159.82		
Conflicting Volume (Ped)	0.00	0.00		0.00	0.00		
Conflicting Volume	170.23	170.23		359.77	159.82		
Two-Stage Gap Acceptance				No			
Number of Storage Spaces in Median Refuge Area							
cpx, Potential Capacity	900.92	1419.31		642.99	890.59		
Capacity	853.43	1419.31		600.88	890.59		

Critical Headway and Follow Up Headway							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
tc,base, Base Critical Headway	6.90	4.10		7.10	6.20		
tc,base,I, Base Critical Headway (Stage I)							
tc,base,II, Base Critical Headway (Stage II)							
tc,HV, Heavy Vehicles Adjustment Factor	1.00	1.00		1.00	1.00		
Phv, % Heavy Vehicles	0.00	0.00		0.00	0.00		
tc,G, Grade Adjustment Factor	0.00	0.00		0.20	0.10		
G, % Grade		0.00		0.00		0.00	
T3,lt, Geometry Adjustment Factor	0.00	0.00		0.70	0.00		
tc, Critical Headway	6.90	4.10		6.40	6.20		
tc,I, Critical Headway (Stage I)							
tc,II, Critical Headway (Stage II)							
tf,base, Base Follow-Up Headway	3.10	2.20		3.50	3.30		
tf,hv, Heavy Vehicles Adjustment Factor	0.90	0.90		0.90	0.90		
tf, Follow-Up Headway	3.10	2.20		3.50	3.30		

Delay and Level of Service by Movement							
Approach	N (Major)			E		S (Major)	
Movement	L2	L1	T	L1	R1	T	R1
vx, Volume	0.00	92.15	15.66	25.68	46.94	149.40	20.83
cmx, Capacity	853.43	1419.31		600.88	890.59		
V / C	0.00	0.06		0.04	0.05		
d, Delay	9.33	7.64		11.49	9.54		
LOS	A	A		B	A		
dA, Approach Delay		6.53		10.23		0.00	
Approach LOS				B			
dRank1, Rank 1 Delay		0.50				0.00	

Delay and Level of Service by Lane			
Approach	N (Major)	E	S (Major)
Lane	Lane 1	Lane 1	Lane 1
Movements	L2, L1, T	L1, R1	T, R1
vx, Volume	107.81	72.62	170.23
Flared Storage Size			
cmx, Capacity	1800.00	760.86	
V / C	0.06	0.10	
Q95, 95% Queue Length	0.16	0.32	
d, Delay	7.64	10.23	
LOS		B	
dA, Approach Delay	6.53	10.23	0.00
Approach LOS		B	

Intersection No. 4. Tunnel Avenue / Lagoon Road

Node 521: Tunnel Ave & Lagoon Rd		
A.2. Existing Conditions - PM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	9.1
	Average LOS	A

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments													
Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	0.55	24.18	0.00	229.16	0.04	17.27	0.00	0.45	140.58	47.83	1.09	0.00	26.48
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	0.55	24.18	0.00	229.16	0.04	17.27	0.00	0.45	140.58	47.83	1.09	0.00	26.48
Geometry Group	1			1			1				1		

Saturation Headway				
Approach	N	E	S	W
Lanes	Lane 1	Lane 1	Lane 1	Lane 1
Total Lane Flow Rate	24.73	246.47	188.86	27.57
Left Turn Flow Rate	0.55	229.16	0.45	1.09
Right Turn Flow Rate	0.00	17.27	47.83	26.48
PLT, Proportion LT	0.02	0.93	0.00	0.04
PRT, Proportion RT	0.00	0.07	0.25	0.96
PHV, Proportion HV	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.20	0.20	0.20	0.20
hRT,adj, Headway adjustment for right turns	-0.60	-0.60	-0.60	-0.60
hHV,adj, Headway adjustment for heavy vehicles	1.70	1.70	1.70	1.70
hadj, Headway adjustment	0.00	0.14	-0.15	-0.57

Departure Headway				
Approach	N	E	S	W
Lanes	Lane 1	Lane 1	Lane 1	Lane 1
Total Lane Flow Rate	24.73	246.47	188.86	27.57
hd initial	3.20	3.20	3.20	3.20
x initial	0.02	0.22	0.17	0.02
hd, iteration 1	4.53	4.43	4.24	3.89
Difference, iteration 1	1.33	1.23	1.04	0.69
hd, iteration 2	4.76	4.56	4.42	4.10
Difference, iteration 2	0.23	0.13	0.18	0.21
hd, iteration 3	4.79	4.58	4.44	4.13
Difference, iteration 3	0.03	0.02	0.02	0.03
Convergence	Y	Y	Y	Y
hd final, Departure Headway	4.79	4.58	4.44	4.13
x final, Degree of Utilization	0.03	0.31	0.23	0.03

Capacity and Level of Service				
Approach	N	E	S	W
Lanes	Lane 1	Lane 1	Lane 1	Lane 1
Total Lane Flow Rate	24.73	246.47	188.86	27.57
hd, Departure Headway	4.79	4.58	4.44	4.13
x, Degree of Utilization	0.03	0.31	0.23	0.03
m, Move Up Time	2.00	2.00	2.00	2.00
ts, Service Time	2.79	2.58	2.44	2.13
Capacity	750.88	785.14	810.49	870.69
Delay	7.96	9.66	8.78	7.27
LOS	A	A	A	A
Q95, 95% Queue Length	0.10	1.34	0.90	0.10
Approach Delay	7.96	9.66	8.78	7.27
Approach LOS	A	A	A	A
Intersection Delay	9.1			
Intersection LOS	A			

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
A.2. Existing Conditions - PM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	9.05
	Average LOS	A

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	30.39	137.71	105.23	268.83	11.69	38.57
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	30.39	137.71	105.23	268.83	11.69	38.57
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	30.39	137.71	105.23	268.83	11.69	38.57
Left Turn Flow Rate	0.00	0.00	105.23	0.00	11.69	0.00
Right Turn Flow Rate	0.00	137.71	0.00	0.00	0.00	38.57
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	30.39	137.71	105.23	268.83	11.69	38.57
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.03	0.12	0.09	0.24	0.01	0.03
hd, iteration 1	4.78	4.07	5.17	4.67	5.81	4.62
Difference, iteration 1	1.58	0.87	1.97	1.47	2.61	1.42
hd, iteration 2	4.93	4.23	5.24	4.74	6.14	4.94
Difference, iteration 2	0.16	0.16	0.08	0.08	0.33	0.33
hd, iteration 3	4.95	4.25	5.26	4.76	6.16	4.97
Difference, iteration 3	0.02	0.02	0.01	0.01	0.02	0.02
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	4.95	4.25	5.26	4.76	6.16	4.97
x final, Degree of Utilization	0.04	0.16	0.15	0.36	0.02	0.05

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	30.39	137.71	105.23	268.83	11.69	38.57
hd, Departure Headway	4.95	4.25	5.26	4.76	6.16	4.97
x, Degree of Utilization	0.04	0.16	0.15	0.36	0.02	0.05
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	2.65	1.95	2.96	2.46	3.86	2.67
Capacity	726.75	846.59	684.28	756.34	583.56	724.61
Delay	7.87	7.77	8.91	10.05	8.99	7.95
LOS	A	A	A	B	A	A
Q95, 95% Queue Length	0.13	0.58	0.54	1.61	0.06	0.17
Approach Delay	7.79		9.73		8.19	
Approach LOS	A		A		A	
Intersection Delay	9.05					
Intersection LOS	A					

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy		
A.2. Existing Conditions - PM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	1.2
	Worst Case Delay	14.2
	Worst Case LOS	B

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		374.04	205.74	0.01	0.00	99.86	0.00	68.96
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume		374.04	205.74	0.01	0.00	99.86	0.00	68.96

Pedestrians								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
vx, Flow (Ped/hr)				0.00	0.00	0.00	0.00	
w, Lane Width (ft)				12.00	12.00	12.00	12.00	
Sp, Walking Speed (ft/s)				3.50	3.50	3.50	3.50	
fpb, Percent Blockage				0.00	0.00	0.00	0.00	

Capacity of Movements below Rank 1								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
Rank		1	1	3	3	2	2	1
vx, Volume				0.01	0.00	99.86	0.00	
Conflicting Volume (Veh)				545.87	648.74	68.96	579.78	
Conflicting Volume (Ped)				0.00	0.00	0.00	0.00	
Conflicting Volume				545.87	648.74	68.96	579.78	
Two-Stage Gap Acceptance				No	No			
Number of Storage Spaces in Median Refuge Area								
cpx, Potential Capacity				451.69	391.47	999.69	1004.11	
Capacity				451.69	391.47	999.69	1004.11	

Critical Headway and Follow Up Headway								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
tc,base, Base Critical Headway				7.10	6.50	6.20	4.10	
tc,base,I, Base Critical Headway (Stage I)								
tc,base,II, Base Critical Headway (Stage II)								
tc,HV, Heavy Vehicles Adjustment Factor				1.00	1.00	1.00	1.00	
Phv, % Heavy Vehicles				0.00	0.00	0.00	0.00	
tc,G, Grade Adjustment Factor				0.20	0.20	0.10	0.00	
G, % Grade	0.00	0.00		0.00			0.00	
T3,lt, Geometry Adjustment Factor				0.00	0.00	0.00	0.00	
tc, Critical Headway				7.10	6.50	6.20	4.10	
tc,I, Critical Headway (Stage I)								
tc,II, Critical Headway (Stage II)								
tf,base, Base Follow-Up Headway				3.50	4.00	3.30	2.20	
tf,hv, Heavy Vehicles Adjustment Factor				0.90	0.90	0.90	0.90	
tf, Follow-Up Headway				3.50	4.00	3.30	2.20	

Delay and Level of Service by Movement								
Approach	N	E (Major)		S			W (Major)	
Movement		T	R1	L1	T	R1	L1	T
vx, Volume		374.04	205.74	0.01	0.00	99.86	0.00	68.96
cmx, Capacity				451.69	391.47	999.69	1004.11	
V / C				0.00	0.00	0.10	0.00	
d, Delay				12.97	14.20	9.00	8.59	
LOS				B	B	A	A	
dA, Approach Delay	0.00	0.00		9.00			0.00	
Approach LOS	A			A				
dRank1, Rank 1 Delay		0.00					0.00	

Delay and Level of Service by Lane							
Approach	N	E (Major)		S		W (Major)	
Lane		Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Movements				L1, T			
vx, Volume		374.04	205.74	0.01	99.86	0.00	68.96
Flared Storage Size							
cmx, Capacity				451.69			
V / C				0.00			
Q95, 95% Queue Length				0.00			
d, Delay				12.97			
LOS				B			
dA, Approach Delay	0.00	0.00		9.00		0.00	
Approach LOS	A			A			

Intersection No. 7. Geneva Avenue / Carter Street

Node 180: Geneva Ave & Carter St.		
A.2. Existing Conditions - PM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	23.15
	Average LOS	C
	V/C	0.43
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement							
Approach	E			S		W	
Movement	L2	L1	T	L1	R1	T	R1
Base Volume	15	123	819	349	110	567	246
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	4	31	205	87	27	142	62
Adjusted Volume	15	123	819	349	110	567	246

Volume and Adjustments by Lane Group						
Approach	E		S		W	
Lane Group	L	C	L	R	C	R
ID	10613	10614	10617	10618	10615	10616
Lanes	L	T, T	L	R	T, T	R
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	137	819	349	110	567	246
PLT, Proportion Left Turns	1.00	0.00	1.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	1.00	0.00	1.00

Saturation Flow Rate						
Approach	E		S		W	
Lane Group	10613	10614	10617	10618	10615	10616
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	2	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.952	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.952	1.000	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	0.850	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Sollback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane						
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615

Capacity, Control Delay, and Level of Service Determination						
Approach	E		S		W	
Lane Group	10613	10614	10617	10618	10615	10616
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	137.45	819.16	349.45	109.65	567.34	246.28
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615
c, Capacity	241	1929	563	502	1206	538
g/C, Green / Cycle	0.13	0.53	0.31	0.31	0.33	0.33
X, Volume / Capacity	0.57	0.42	0.62	0.22	0.47	0.46
d1, Uniform Delay	36.58	12.67	26.47	22.91	23.72	23.60
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	9.42	0.69	5.08	1.00	1.32	2.79
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.13	0.53	0.31	0.31	0.33	0.33
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	46.00	13.36	31.55	23.91	25.04	26.39
LOS	D	B	C	C	C	C
dA, Approach Delay	18.05		29.72		25.45	
Approach LOS	B		C		C	
dI, Intersection Delay	23.15					
Intersection LOS	C					

Back of Queue						
Approach	E		S		W	
Arrival Type	3		3		3	
Lane Group	10613	10614	10617	10618	10615	10616
g/C, Green / Cycle	0.13	0.53	0.31	0.31	0.33	0.33
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	2.76	4.53	6.31	1.71	4.56	3.94
Q2, Second-term Queued	0.63	0.18	0.79	0.14	0.22	0.42
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB. Earlv Arrival Adi. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	3.39	4.71	7.10	1.85	4.78	4.36
f8%, % Factor	1.80	1.76	1.62	1.80	1.75	1.79
Q%, Back of Queue Percentile	95	95	95	95	95	95
% Back of Queue	6.10	8.27	11.47	3.33	8.37	7.78

Signal Timing Information						
Approach	E		S		W	
Lane Group	10613	10614	10617	10618	10615	10616
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Signal Type	P	P	P	P	P	P
C, Cycle Length	90.00	90.00	90.00	90.00	90.00	90.00
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	5.00	5.00	9.00	9.00	4.00	4.00
Green Time Start	36	0	55	55	0	0
Green Time End	48	48	83	83	30	30
G, Actual Green Time	12	48	28	28	30	30
gi, Effective Green Time	12	48	28	28	30	30
g/C, Green / Cycle	0.13	0.53	0.31	0.31	0.33	0.33
(v/s)i, Volume / Saturation Flow Rate	0.08	0.23	0.19	0.07	0.16	0.15
Critical Lane Group	Y		Y		Y	

Left Turn Adjustment Factors for Permitted Phasing						
Approach	E		S		W	
Lane Group	10613	10614	10617	10618	10615	10616
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Subject is Single(S) or Multi(M)						
Opposed by Single(S) or Multi(M)						
C, Cycle Length						
G(s), Actual GT						
g(s), Eff. perm. GT						
go(s), Opposing Eff. GT						
No, Number Lanes in Opposing						
N, Number Left Lanes						
VLT, Adj. LT Flow Rate						
PLT, Proportion LT in Lane Group						
PLTo, Proportion LT in Opposing						
LT Volume per Cycle						
Vo, Opposing Flow						
Volc, Adjusted Opposing Flow						
FLUo, Opposing Lane Utilization						
Rpo, Opposing Platoon Ratio						
gf						
qro, Opposing Queue Ratio						
gq, Opposing Queue Clearing Time						
gu						
PL						
de facto caused by PL >= 1.0						
EL1						
EL2						
gdiff						
fm						
CAVs adjustment for Permitted Left Turns						
CAVs adjustment for Protected Left Turns						
fLT, Left Turn Adjustment	0.95	1.00	0.95	1.00	1.00	1.00

Pedestrian and Bicycle Adjustment Factors							
Approach	E			S		W	
Movement	L2	L1	T	L1	R1	T	R1
gp, Pedestrian Green	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 8. Bayshore Boulevard / Tunnel Avenue

Node 145: Bayshore Blvd & Tunnel Ave		
A.2. Existing Conditions - PM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	17.39
	Average LOS	B
	V/C	0.43
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement						
Approach	N			E	S	
Movement	L2	L1	T	R1	T	R1
Base Volume	19	121	987	254	983	0
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	5	30	247	63	246	0
Adjusted Volume	19	121	987	254	983	0

Volume and Adjustments by Lane Group					
Approach	N		E	S	
Lane Group	L	C	R	C	C
ID	10609	10610	10608	10611	10612
Lanes	L	T, T	R	T	RT
Control Type	Perm	No Left	No Left	No Left	No Left
V, Volume	140	987	254	491	491
PLT, Proportion Left Turns	1.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	0.00

Saturation Flow Rate					
Approach	N		E	S	
Lane Group	10609	10610	10608	10611	10612
Control Type	Perm	No Left	No Left	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.602	1.000	1.000	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000
fso, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000
Has Short Lane					
s, Saturation Flow Rate	1144	3618	1615	1900	1900

Capacity, Control Delay, and Level of Service Determination					
Approach	N		E	S	
Lane Group	10609	10610	10608	10611	10612
Control Type	Perm	No Left	No Left	No Left	No Left
V, Volume	139.98	987.37	253.65	491.35	491.35
s, Saturation Flow Rate	1144	3618	1615	1900	1900
c, Capacity	377	2138	470	1123	1123
g/C, Green / Cycle	0.29	0.59	0.29	0.59	0.59
X, Volume / Capacity	0.37	0.46	0.54	0.44	0.44
d1, Uniform Delay	33.15	12.66	32.81	12.42	12.42
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	2.78	0.72	4.40	1.24	1.24
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.29	0.59	0.29	0.59	0.59
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00
d, Delay	35.93	13.38	37.21	13.66	13.66
LOS	D	B	D	B	B
dA, Approach Delay	16.18		37.21	13.66	
Approach LOS	B		D	B	
dI, Intersection Delay	17.39				
Intersection LOS	B				

Back of Queue					
Approach	N		E	S	
Arrival Type	3		3	3	
Lane Group	10609	10610	10608	10611	10612
g/C, Green / Cycle	0.29	0.59	0.29	0.59	0.59
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	3.05	6.38	5.72	6.22	6.22
Q2, Second-term Queued	0.29	0.21	0.57	0.39	0.39
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	3.34	6.59	6.29	6.61	6.61
fB%, % Factor	1.80	1.64	1.65	1.64	1.64
Q%, Back of Queue Percentile	95	95	95	95	95
% Back of Queue	6.01	10.80	10.41	10.83	10.83

Signal Timing Information					
Approach	N		E	S	
Lane Group	10609	10610	10608	10611	10612
Control Type	Perm	No Left	No Left	No Left	No Left
Signal Type	P	P	P	P	P
C, Cycle Length	110.00	110.00	110.00	110.00	110.00
Gb, Minimum Pedestrian Timing	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	2.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	4.00	4.00	4.00	4.00	4.00
Green Time Start	0	38	0	38	38
Green Time End	32	103	32	103	103
G, Actual Green Time	32	65	32	65	65
gi, Effective Green Time	32	65	32	65	65
g/C, Green / Cycle	0.29	0.59	0.29	0.59	0.59
(v/s)i, Volume / Saturation Flow Rate	0.12	0.27	0.16	0.26	0.26
Critical Lane Group		Y	Y		

Left Turn Adjustment Factors for Permitted Phasing					
Approach	N		E	S	
Lane Group	10609	10610	10608	10611	10612
Control Type	Perm	No Left	No Left	No Left	No Left
Subject is Single(S) or Multi(M)	S				
Opposed by Single(S) or Multi(M)	M				
C, Cycle Length	110.00				
G(s), Actual GT	32.00				
g(s), Eff. perm. GT	32.00				
go(s), Opposing Eff. GT	32.00				
No, Number Lanes in Opposing	0				
N, Number Left Lanes	1				
VLT, Adj. LT Flow Rate	139.98				
PLT, Proportion LT in Lane Group	1.00				
PLTo, Proportion LT in Opposing	0.00				
LT Volume per Cycle	4.28				
Vo, Opposing Flow	253.65				
Volc, Adjusted Opposing Flow	0.00				
FLUo, Opposing Lane Utilization	1.00				
Rpo, Opposing Platoon Ratio	1.00				
gf	0.00				
qro, Opposing Queue Ratio	0.71				
gq, Opposing Queue Clearing Time	2.00				
gu	30.00				
PL	1.00				
de facto caused by PL >= 1.0					
EL1	1.66				
EL2	0.00				
gdiff	0.00				
fm	0.60				
CAVs adjustment for Permitted Left Turns					
CAVs adjustment for Protected Left Turns					
fLT, Left Turn Adjustment	0.60	1.00	1.00	1.00	1.00

Pedestrian and Bicycle Adjustment Factors						
Approach	N			E	S	
Movement	L2	L1	T	R1	T	R1
gp, Pedestrian Green	0.00	0.00		0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00	0.00		0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00	0.00		0.00		0.00
ApbT, Adjustment Factor	1.00	1.00		1.00		1.00
fRpb, Right Turn Factor	1.00	1.00		1.00		1.00
fLpb, Left Turn Factor	1.00	1.00		1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 10. Bayshore Boulevard / Industrial Way

Node 407: Bayshore Blvd & Industrial Way		
A.2. Existing Conditions - PM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	9.24
	Average LOS	A
	V/C	0.33
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement							
Approach	N			E		S	
Movement	L2	L1	T	L1	R1	T	R1
Base Volume	0	23	461	24	36	1055	7
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	6	115	6	9	264	2
Adjusted Volume	0	23	461	24	36	1055	7

Volume and Adjustments by Lane Group						
Approach	N		E		S	
Lane Group	L	C	L	R	C	R
ID	10623	10624	10621	10622	10619	10620
Lanes	L	T, T	L	R	T, T	R
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	23	461	24	36	1055	7
PLT, Proportion Left Turns	1.00	0.00	1.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	1.00	0.00	1.00

Saturation Flow Rate						
Approach	N		E		S	
Lane Group	10623	10624	10621	10622	10619	10620
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	2	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.952	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.952	1.000	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	0.850	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane						
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615

Capacity, Control Delay, and Level of Service Determination						
Approach	N		E		S	
Lane Group	10623	10624	10621	10622	10619	10620
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
V, Volume	23.04	461.03	23.81	36.49	1055.41	6.75
s, Saturation Flow Rate	1810	3618	1810	1615	3618	1615
c, Capacity	160	2554	266	238	2022	903
g/C, Green / Cycle	0.09	0.71	0.15	0.15	0.56	0.56
X, Volume / Capacity	0.14	0.18	0.09	0.15	0.52	0.01
d1, Uniform Delay	28.63	3.37	25.07	25.31	9.34	6.65
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	1.89	0.16	0.66	1.37	0.97	0.02
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.09	0.71	0.15	0.15	0.56	0.56
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	30.52	3.53	25.73	26.68	10.31	6.66
LOS	C	A	C	C	B	A
dA, Approach Delay	4.81		26.30		10.29	
Approach LOS	A		C		B	
dI, Intersection Delay	9.24					
Intersection LOS	A					

Back of Queue						
Approach	N		E		S	
Arrival Type	3		3		3	
Lane Group	10623	10624	10621	10622	10619	10620
g/C, Green / Cycle	0.09	0.71	0.15	0.15	0.56	0.56
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.32	0.53	0.32	0.50	3.55	0.03
Q2, Second-term Queued	0.08	0.06	0.05	0.09	0.27	0.00
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB. Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	0.40	0.58	0.37	0.59	3.82	0.04
fB%, % Factor	1.80	1.80	1.80	1.80	1.80	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95
% Back of Queue	0.72	1.05	0.67	1.07	6.88	0.06

Signal Timing Information						
Approach	N		E		S	
Lane Group	10623	10624	10621	10622	10619	10620
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Signal Type	P	P	P	P	P	P
C, Cycle Length	68.00	68.00	68.00	68.00	68.00	68.00
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.00	3.70	2.00	2.00	3.70	3.70
Green Time Start	0	0	54	54	10	10
Green Time End	6	48	64	64	48	48
G, Actual Green Time	6	48	10	10	38	38
gi, Effective Green Time	6	48	10	10	38	38
g/C, Green / Cycle	0.09	0.71	0.15	0.15	0.56	0.56
(v/s)i, Volume / Saturation Flow Rate	0.01	0.13	0.01	0.02	0.29	0.00
Critical Lane Group	Y			Y	Y	

Left Turn Adjustment Factors for Permitted Phasing						
Approach	N		E		S	
Lane Group	10623	10624	10621	10622	10619	10620
Control Type	Prot	No Left	Prot	No Left	No Left	No Left
Subject is Single(S) or Multi(M)						
Opposed by Single(S) or Multi(M)						
C, Cycle Length						
G(s), Actual GT						
g(s), Eff. perm. GT						
go(s), Opposing Eff. GT						
No, Number Lanes in Opposing						
N, Number Left Lanes						
VLT, Adj. LT Flow Rate						
PLT, Proportion LT in Lane Group						
PLTo, Proportion LT in Opposing						
LT Volume per Cycle						
Vo, Opposing Flow						
Volc, Adjusted Opposing Flow						
FLUo, Opposing Lane Utilization						
Rpo, Opposing Platoon Ratio						
gf						
qro, Opposing Queue Ratio						
gq, Opposing Queue Clearing Time						
qu						
PL						
de facto caused by PL >= 1.0						
EL1						
EL2						
gdiff						
fm						
CAVs adjustment for Permitted Left Turns						
CAVs adjustment for Protected Left Turns						
fLT, Left Turn Adjustment	0.95	1.00	0.95	1.00	1.00	1.00

Pedestrian and Bicycle Adjustment Factors							
Approach	N			E		S	
Movement	L2	L1	T	L1	R1	T	R1
gp, Pedestrian Green	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 11. Bayshore Boulevard / Main Street

Node 1108: Bayshore Blvd & Main St		
A.2. Existing Conditions - PM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	0.46
	Worst Case Delay	11.58
	Worst Case LOS	B

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
Base Volume	463.20	21.63	0.00	65.65	1062.16	19.89
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	463.20	21.63	0.00	65.65	1062.16	19.89

Pedestrians						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
vx, Flow (Ped/hr)			0.00	0.00		0.00
w, Lane Width (ft)			12.00	12.00		12.00
Sp, Walking Speed (ft/s)			3.50	3.50		3.50
fpb, Percent Blockage			0.00	0.00		0.00

Capacity of Movements below Rank 1						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
Rank	1	1	2	2	1	2
vx, Volume			0.00	65.65		19.89
Conflicting Volume (Veh)			463.20	463.20		231.60
Conflicting Volume (Ped)			0.00	0.00		0.00
Conflicting Volume			463.20	463.20		231.60
Two-Stage Gap Acceptance						
Number of Storage Spaces in Median Refuge Area						
cpx, Potential Capacity			579.57	1108.64		776.76
Capacity			564.73	1108.64		776.76

Critical Headway and Follow Up Headway						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
tc,base, Base Critical Headway			6.90	4.10		6.90
tc,base,I, Base Critical Headway (Stage I)						
tc,base,II, Base Critical Headway (Stage II)						
tc,HV, Heavy Vehicles Adjustment Factor			2.00	2.00		2.00
Phv, % Heavy Vehicles			0.00	0.00		0.00
tc,G, Grade Adjustment Factor			0.00	0.00		0.10
G, % Grade	0.00			0.00		0.00
T3,lt, Geometry Adjustment Factor			0.00	0.00		0.00
tc, Critical Headway			6.90	4.10		6.90
tc,I, Critical Headway (Stage I)						
tc,II, Critical Headway (Stage II)						
tf,base, Base Follow-Up Headway			3.10	2.20		3.30
tf,hv, Heavy Vehicles Adjustment Factor			1.00	1.00		1.00
tf, Follow-Up Headway			3.10	2.20		3.30

Delay and Level of Service by Movement						
Approach	N (Major)		S (Major)			W
Movement	T	R1	L2	L1	T	R1
vx, Volume	463.20	21.63	0.00	65.65	1062.16	19.89
cmx, Capacity			564.73	1108.64		776.76
V / C			0.00	0.06		0.03
d, Delay			11.58	8.45		9.76
LOS			B	A		A
dA, Approach Delay	0.00			0.49		9.76
Approach LOS						A
dRank1, Rank 1 Delay	0.00			0.00		

Delay and Level of Service by Lane							
Approach	N (Major)			S (Major)			W
Lane	Lane 1	Lane 2	Lane 3	Lane 1	Lane 2	Lane 3	Lane 1
Movements				L2, L1			
vx, Volume	231.60	231.60	21.63	65.65	531.08	531.08	19.89
Flared Storage Size							
cmx, Capacity				1108.64			
V / C				0.06			
Q95, 95% Queue Length				0.19			
d, Delay				8.45			
LOS				A			
dA, Approach Delay	0.00			0.49			9.76
Approach LOS							A

Intersection No. 12. Bayshore Boulevard / Guadalupe Canyon Parkway

Node 606: Bayshore Blvd & Guadalupe Canyon Pkwy

A.2. Existing Conditions - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	13.63
Average LOS	B
V/C	0.37
Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	397	88	357	919	207	186
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	99	22	89	230	52	46
Adjusted Volume	397	88	357	919	207	186

Volume and Adjustments by Lane Group

Approach	N		S		W	
Lane Group	C	R	L	C	L	R
ID	56	57	54	55	58	59
Lanes	T, T	R	L	T, T	L, L	R
Control Type	No Left	No Left	Prot	No Left	Prot	No Left
V, Volume	397	88	357	919	207	186
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	1.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W		
Lane Group	56	57	54	55	58	59	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900		
N, Number of Lanes	2	1	1	2	2	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	0.952	1.000	1.000	0.952	0.971	1.000	
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	0.952	1.000	
fRT, Right Turn Adjustment	1.000	0.850	1.000	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane							
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W		
Lane Group	56	57	54	55	58	59	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
V, Volume	397.09	87.75	356.77	919.39	206.86	139	47
						186	
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615
						1615	
c, Capacity	1109	495	603	2508	703	1120	323
						1443	
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.2	0.69	0.20
						0.89	
X, Volume / Capacity	0.36	0.18	0.59	0.37	0.29	0.12	0.15
						0.13	
d1, Uniform Delay	20.25	19.06	20.76	4.73	25.50	0.24	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	0.90	0.78	4.22	0.41	1.06	0.18	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.31	0.31	0.33	0.69	0.20	0.89	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	21.15	19.84	24.98	5.14	26.57	0.43	
LOS	C	B	C	A	C	A	
dA, Approach Delay	20.91		10.69		14.20		
Approach LOS	C		B		B		
dI, Intersection Delay	13.63						
Intersection LOS	B						

Back of Queue

Approach	N		S		W	
Arrival Type	3		3		3	
Lane Group	56	57	54	55	58	59
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.20	0.89
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	2.43	1.01	4.59	1.74	1.41	0.00
Q2, Second-term Queued	0.14	0.11	0.71	0.14	0.10	0.07
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	2.57	1.12	5.30	1.88	1.52	0.07
fB%, % Factor	1.80	1.80	1.56	1.80	1.80	1.80
Q%, Back of Queue Percentile	90	90	90	90	90	90
% Back of Queue	4.62	2.01	8.24	3.39	2.73	0.13

Signal Timing Information

Approach	N		S		W		
Lane Group	56	57	54	55	58	59	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
Signal Type	P	P	P	P	P	P	
C, Cycle Length	75.00	75.00	75.00	75.00	75.00	75.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2	2
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
l2, Clearance Loss Time	3.00	3.00	2.00	3.00	2.00	3	2
Green Time Start	29	29	0	0	56	0	56
Green Time End	52	52	25	52	71	52	71
G, Actual Green Time	23	23	25	52	15	52	15
gi, Effective Green Time	23	23	25	52	15	52	15
						0.69	0.20
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.2	0.89	
(v/s)i, Volume / Saturation Flow Rate	0.11	0.05	0.20	0.25	0.06	0.09	0.03
Critical Lane Group	Y		Y		Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W		
Lane Group	56	57	54	55	58	59	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left	
						Prot	Perm
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
fLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
qro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
gp, Pedestrian Green		0.00	0.00		0.00	0.00
OCCpedg, Average Pedestrian Occupancy		0.00	0.00		0.00	0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00	0.00
ApbT, Adjustment Factor		1.00	1.00		1.00	1.00
fRpb, Right Turn Factor		1.00	1.00		1.00	1.00
fLpb, Left Turn Factor		1.00	1.00		1.00	1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 13. Bayshore Boulevard / Valley Drive

Node 1004: Bayshore Blvd & Valley Dr		
A.2. Existing Conditions - PM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	13.94
	Average LOS	B
	V/C	0.54
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	0	507	76	1	114	8	170	1170	1	98	0	294
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	127	19	0	29	2	43	293	0	25	0	74
Adjusted Volume	0	507	76	1	114	8	170	1170	1	98	0	294

Volume and Adjustments by Lane Group

Approach	N			E	S			W		
Lane Group	L	C	R	C	L	C	C	L	C	R
ID	114	115	116	113	110	111	112	117	118	119
Lanes	L	T, T	R	LTR	L, L	T	RT	L	LT	R
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
V, Volume	0	507	76	123	170	586	586	35	63	294
PLT, Proportion Left Turns	1.00	0.00	0.00	0.01	1.00	0.00	0.00	1.00	0.99	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.06	0.00	0.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N			E	S			W		
Lane Group	114	115	116	113	110	111	112	117	118	119
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	2	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.971	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.999	0.952	1.000	1.000	0.679	0.695	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	0.989	1.000	1.000	1.000	1.000	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane										
s, Saturation Flow Rate	1810	3618	1615	1877	3514	1900	1899	1289	1320	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E	S			W		
Lane Group	114	115	116	113	110	111	112	117	118	119
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
V, Volume	0.08	506.64	76.22	123.25	170.23	585.77	585.63	35.07	63.36	294.11
s, Saturation Flow Rate	1810	3618	1615	1877	3514	1900	1899	1289	1320	1615
c, Capacity	238	1893	845	633	463	994	994	407	522	493
g/C, Green / Cycle	0.13	0.52	0.52	0.3	0.13	0.52	0.52	0.3	0.3	0.3
X, Volume / Capacity	0	0.27	0.09	0.19	0.37	0.59	0.59	0.09	0.12	0.6
d1, Uniform Delay	22.62	7.93	7.15	15.51	23.77	9.85	9.85	15.05	15.18	17.72
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	0.00	0.35	0.21	0.69	2.25	2.56	2.56	0.42	0.48	5.26
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.13	0.52	0.52	0.30	0.13	0.52	0.52	0.30	0.30	0.30
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	22.62	8.27	7.36	16.19	26.02	12.41	12.42	15.47	15.65	22.98
LOS	C	A	A	B	C	B	B	B	B	C
dA, Approach Delay		8.16		16.19		14.14			21.13	
Approach LOS		A		B		B			C	
dI, Intersection Delay	13.94									
Intersection LOS	B									

Back of Queue

Approach	N			E	S			W		
Arrival Type		3		3		3			3	
Lane Group	114	115	116	113	110	111	112	117	118	119
g/C, Green / Cycle	0.13	0.52	0.52	0.30	0.13	0.52	0.52	0.30	0.30	0.30
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.00	1.29	0.35	1.24	0.98	3.71	3.71	0.30	0.55	2.97
Q2, Second-term Queued	0.00	0.09	0.05	0.12	0.14	0.71	0.71	0.05	0.07	0.72
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	0.00	1.38	0.40	1.36	1.12	4.42	4.42	0.35	0.62	3.69
fB%, % Factor	1.80	1.80	1.80	1.80	1.80	1.61	1.61	1.80	1.80	1.67
Q%, Back of Queue Percentile	90	90	90	90	90	90	90	90	90	90
% Back of Queue	0.00	2.49	0.72	2.44	2.02	7.11	7.10	0.63	1.11	6.14

Signal Timing Information

Approach	N			E	S			W		
Lane Group	114	115	116	113	110	111	112	117	118	119
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	2.00	0.00	0.00	0.00	2.00	2.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	31.4	0	0	39.3	31.4	0	0	39.3	39.3	39.3
Green Time End	39.3	31.4	31.4	57.6	39.3	31.4	31.4	57.6	57.6	57.6
G, Actual Green Time	7.9	31.4	31.4	18.3	7.9	31.4	31.4	18.3	18.3	18.3
gi, Effective Green Time	7.9	31.4	31.4	18.3	7.9	31.4	31.4	18.3	18.3	18.3
g/C, Green / Cycle	0.13	0.52	0.52	0.3	0.13	0.52	0.52	0.3	0.3	0.3
(v/s)i, Volume / Saturation Flow Rate	0.00	0.14	0.05	0.07	0.05	0.31	0.31	0.03	0.05	0.18
Critical Lane Group					Y		Y			Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E	S			W		
Lane Group	114	115	116	113	110	111	112	117	118	119
Control Type	Prot	No Left	No Left	Perm	Prot	No Left	No Left	Perm	Perm	No Left
Subject is Single(S) or Multi(M)				S				S	S	
Opposed by Single(S) or Multi(M)				M				S	S	
C, Cycle Length				60.00				60.00	60.00	
G(s), Actual GT				18.30				18.30	18.30	
g(s), Eff. perm. GT				18.30				18.30	18.30	
go(s), Opposing Eff. GT				18.30				18.30	18.30	
No, Number Lanes in Opposing				1				1	1	
N, Number Left Lanes				1				1	1	
VLT, Adj. LT Flow Rate				1.26				98.09	63.02	
PLT, Proportion LT in Lane Group				0.01				1.00	0.99	
PLTo, Proportion LT in Opposing				0.25				0.01	0.01	
LT Volume per Cycle				0.02				1.63	1.05	
Vo, Opposing Flow				294.45				121.99	121.99	
Voic, Adjusted Opposing Flow				5.40				2.03	2.03	
FLUo, Opposing Lane Utilization				0.91				1.00	1.00	
Rpo, Opposing Platoon Ratio				1.00				1.00	1.00	
gf				14.97				0.00	0.01	
qro, Opposing Queue Ratio				0.70				0.70	0.70	
qq, Opposing Queue Clearing Time				14.97				4.93	4.93	
gu				3.33				13.37	13.37	
PL				0.01				1.00	0.99	
de facto caused by PL >= 1.0										
EL1				1.72				1.47	1.47	
EL2				0.00				1.37	1.36	
gdiff				0.00				4.93	4.92	
fm				1.00				0.68	0.69	
CAVs adjustment for Permitted Left Turns										
CAVs adjustment for Protected Left Turns										
fLT, Left Turn Adjustment	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.68	0.69	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 14. Bayshore Boulevard / Old County Road / Tunnel Avenue

Node 753: Bayshore Blvd & Old County Rd

A.2. Existing Conditions - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	26.57
Average LOS	C
V/C	0.51
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	46	702	51	29	111	141	0	113	1090	72	112	71	65
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	11	176	13	7	28	35	0	28	273	18	28	18	16
Adjusted Volume	46	702	51	29	111	141	0	113	1090	72	112	71	65

Volume and Adjustments by Lane Group

Approach	N			E		S			W		
Lane Group	L	C	R	C	R	L	C	C	L	C	R
ID	10643	10644	10645	10641	10642	10638	10639	10640	10646	10647	10648
Lanes	L	T, T	R	LT	R	L	T	RT	L	LT	R
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	46	702	51	139	141	113	587	575	90	93	65
PLT, Proportion Left Turns	1.00	0.00	0.00	0.21	0.00	1.00	0.00	0.00	1.00	0.23	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.13	0.00	0.00	1.00

Saturation Flow Rate

Approach	N			E		S			W		
Lane Group	10643	10644	10645	10641	10642	10638	10639	10640	10646	10647	10648
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fhv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.990	1.000	0.952	1.000	1.000	0.952	0.989	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	0.850	1.000	1.000	0.978	1.000	1.000	0.850
flpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane											
s, Saturation Flow Rate	1810	3618	1615	1881	1615	1810	1900	1859	1810	1878	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E		S			W		
Lane Group	10643	10644	10645	10641	10642	10638	10639	10640	10646	10647	10648
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	45.62	702.34	51.34	139.12	140.7	112.57	586.91	575.4	90.04	92.64	64.65
s, Saturation Flow Rate	1810	3618	1615	1881	1615	1810	1900	1859	1810	1878	1615
c, Capacity	128	1574	703	323	277	170	907	887	210	218	188
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
X, Volume / Capacity	0.36	0.45	0.07	0.43	0.51	0.66	0.65	0.65	0.43	0.42	0.34
d1, Uniform Delay	39.98	17.87	14.87	33.46	33.94	39.51	17.85	17.87	37.11	37.09	36.73
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	7.55	0.92	0.20	4.16	6.50	18.38	3.56	3.66	6.25	5.94	4.95
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	47.54	18.79	15.08	37.61	40.44	57.89	21.41	21.53	43.35	43.03	41.68
LOS	D	B	B	D	D	E	C	C	D	D	D
dA, Approach Delay	20.19			39.03		24.68			42.79		
Approach LOS	C			D		C			D		
dI, Intersection Delay	26.57										
Intersection LOS	C										

Back of Queue

Approach	N			E		S			W		
Arrival Type	3			3		3			3		
Lane Group	10643	10644	10645	10641	10642	10638	10639	10640	10646	10647	10648
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.92	4.62	0.56	2.65	2.72	2.30	8.11	7.96	1.85	1.90	1.31
Q2, Second-term Queued	0.27	0.20	0.04	0.37	0.50	0.87	0.90	0.90	0.37	0.36	0.26
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB. Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	1.19	4.82	0.60	3.03	3.22	3.17	9.00	8.86	2.21	2.26	1.57
f8%, % Factor	1.80	1.75	1.80	1.80	1.80	1.80	1.55	1.55	1.80	1.80	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95	95	95
% Back of Queue	2.15	8.42	1.08	5.45	5.80	5.70	13.93	13.74	3.98	4.07	2.83

Signal Timing Information

Approach	N			E		S			W		
Lane Group	10643	10644	10645	10641	10642	10638	10639	10640	10646	10647	10648
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.00	3.70	3.70	2.50	2.50	2.00	3.70	3.70	2.50	2.50	2.50
Green Time Start	0	14.2	14.2	74	74	0	9.4	9.4	58	58	58
Green Time End	6.4	53.5	53.5	89.5	89.5	8.5	52.5	52.5	68.5	68.5	68.5
G, Actual Green Time	6.4	39.3	39.3	15.5	15.5	8.5	43.1	43.1	10.5	10.5	10.5
gi, Effective Green Time	6.4	39.3	39.3	15.5	15.5	8.5	43.1	43.1	10.5	10.5	10.5
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
(v/s)i, Volume / Saturation Flow Rate	0.03	0.19	0.03	0.07	0.09	0.06	0.31	0.31	0.05	0.05	0.04
Critical Lane Group					Y	Y		Y	Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E		S			W		
Lane Group	10643	10644	10645	10641	10642	10638	10639	10640	10646	10647	10648
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
df											
qro, Opposing Queue Ratio											
qq, Opposing Queue Clearing Time											
qu											
PL											
de facto caused by PL >= 1.0											
EL1											
EL2											
qdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.99	1.00	0.95	1.00	1.00	0.95	0.99	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
qp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 15. Bayshore Boulevard / Van Waters and Rodgers Road

Node 1035: Bayshore Blvd & Van Waters and Rogers Rd

A.2. Existing Conditions - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	10.45
Average LOS	B
V/C	0.38
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N		E		S		
Movement	L1	T	L1	R1	L1	T	R1
Base Volume	2	794	49	89	0	1186	1
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	198	12	22	0	297	0
Adjusted Volume	2	794	49	89	0	1186	1

Volume and Adjustments by Lane Group

Approach	N		E		S		
Lane Group	L	C	L	R	L	C	R
ID	10654	10655	10652	10653	10649	10650	10651
Lanes	L	T, T	L	R	L	T, T	R
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
V, Volume	2	794	49	89	0	1186	1
PLT, Proportion Left Turns	1.00	0.00	1.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	1.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		E		S		
Lane Group	10654	10655	10652	10653	10649	10650	10651
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1	2	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000	0.952	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.952	1.000	0.952	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	0.850	1.000	1.000	0.850
flpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fso, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate	1810	3618	1810	1615	1810	3618	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		E		S		
Lane Group	10654	10655	10652	10653	10649	10650	10651
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
V, Volume	1.65	793.89	49.13	88.74	0	1186.15	0.83
s, Saturation Flow Rate	1810	3618	1810	1615	1810	3618	1615
c, Capacity	112	2409	236	210	112	2409	1076
g/C, Green / Cycle	0.06	0.67	0.13	0.13	0.06	0.67	0.67
X, Volume / Capacity	0.01	0.33	0.21	0.42	0	0.49	0
d1, Uniform Delay	42.57	6.91	37.59	38.70	0.00	8.03	5.40
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	0.24	0.37	2.00	6.09	0.00	0.72	0.00
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.06	0.67	0.13	0.13	0.06	0.67	0.67
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	42.81	7.28	39.59	44.79	0.00	8.75	5.40
LOS	D	A	D	D	A	A	A
dA, Approach Delay	7.35		42.94		8.75		
Approach LOS	A		D		A		
dI, Intersection Delay	10.45						
Intersection LOS	B						

Back of Queue

Approach	N		E		S		
Arrival Type	3		3		3		
Lane Group	10654	10655	10652	10653	10649	10650	10651
g/C, Green / Cycle	0.06	0.67	0.13	0.13	0.06	0.67	0.67
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.04	2.75	1.05	1.94	0.00	4.77	0.00
Q2, Second-term Queued	0.01	0.12	0.13	0.36	0.00	0.24	0.00
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB. Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	0.04	2.87	1.18	2.30	0.00	5.01	0.00
fB%, % Factor	1.80	1.80	1.80	1.80	1.00	1.73	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95	95
% Back of Queue	0.08	5.17	2.12	4.14	0.00	8.68	0.01

Signal Timing Information

Approach	N		E		S		
Lane Group	10654	10655	10652	10653	10649	10650	10651
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
Signal Type	P	P	P	P	P	P	P
C, Cycle Length	96.70	96.70	96.70	96.70	96.70	96.70	96.70
Gb, Minimum Pedestrian Timing	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.50	3.70	2.00	2.00	2.50	3.70	3.70
Green Time Start	0	10.5	80.6	80.6	0	10.5	10.5
Green Time End	6	74.9	93.2	93.2	6	74.9	74.9
G, Actual Green Time	6	64.4	12.6	12.6	6	64.4	64.4
gi, Effective Green Time	6	64.4	12.6	12.6	6	64.4	64.4
g/C, Green / Cycle	0.06	0.67	0.13	0.13	0.06	0.67	0.67
(v/s)i, Volume / Saturation Flow Rate	0.00	0.22	0.03	0.05	0.00	0.33	0.00
Critical Lane Group	Y			Y		Y	

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		E		S		
Lane Group	10654	10655	10652	10653	10649	10650	10651
Control Type	Prot	No Left	Prot	No Left	Prot	No Left	No Left
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
qf							
qro, Opposing Queue Ratio							
qq, Opposing Queue Clearing Time							
qu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
qdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	0.95	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		E		S		
Movement	L1	T	L1	R1	L1	T	R1
qp, Pedestrian Green	0.00		0.00	0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 16. Bayshore Boulevard / San Bruno Avenue

Node 818: Bayshore Blvd & San Bruno Ave		
A.2. Existing Conditions - PM Peak Hour	Control Type	TWSC
	Method	HCM 7th Edition
	dI, Average Delay	1.28
	Worst Case Delay	12.55
	Worst Case LOS	B

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Base Volume	821.37	20.31	148.67	1188.15	110.57
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	821.37	20.31	148.67	1188.15	110.57

Pedestrians					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Flow (Ped/hr)			0.00		0.00
w, Lane Width (ft)			12.00		12.00
Sp, Walking Speed (ft/s)			3.50		3.50
fpb, Percent Blockage			0.00		0.00

Capacity of Movements below Rank 1					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Rank	1	1	2	1	2
vx, Volume			148.67		110.57
Conflicting Volume (Veh)			821.37		420.84
Conflicting Volume (Ped)			0.00		0.00
Conflicting Volume			821.37		420.84
Two-Stage Gap Acceptance					
Number of Storage Spaces in Median Refuge Area					
cpx, Potential Capacity			816.70		586.90
Capacity			816.70		586.90

Critical Headway and Follow Up Headway					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
tc,base, Base Critical Headway			4.10		6.90
tc,base,I, Base Critical Headway (Stage I)					
tc,base,II, Base Critical Headway (Stage II)					
tc,HV, Heavy Vehicles Adjustment Factor			2.00		2.00
Phv, % Heavy Vehicles			0.00		0.00
tc,G, Grade Adjustment Factor			0.00		0.10
G, % Grade	0.00		0.00		0.00
T3,It, Geometry Adjustment Factor			0.00		0.00
tc, Critical Headway			4.10		6.90
tc,I, Critical Headway (Stage I)					
tc,II, Critical Headway (Stage II)					
tf,base, Base Follow-Up Headway			2.20		3.30
tf,hv, Heavy Vehicles Adjustment Factor			1.00		1.00
tf, Follow-Up Headway			2.20		3.30

Delay and Level of Service by Movement					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Volume	821.37	20.31	148.67	1188.15	110.57
cmx, Capacity			816.70		586.90
V / C			0.18		0.19
d, Delay			10.39		12.55
LOS			B		B
dA, Approach Delay	0.00		1.16		12.55
Approach LOS					B
dRank1, Rank 1 Delay	0.00		0.00		

Delay and Level of Service by Lane						
Approach	N (Major)		S (Major)			W
Lane	Lane 1	Lane 2	Lane 1	Lane 2	Lane 3	Lane 1
Movements		T, R1				
vx, Volume	420.84	420.84	148.67	594.07	594.07	110.57
Flared Storage Size						
cmx, Capacity						
V / C						
Q95, 95% Queue Length						
d, Delay						
LOS						
dA, Approach Delay	0.00		1.16			12.55
Approach LOS						B

A.2. Existing Conditions - PM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Existing Conditions**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 9 **Geneva Ave/Bayshore Ave** **Signal**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	U Turn	17	16	96.5%	4.0	11	22	0.1	18.4	9.6	3.7	38.5	B
	Left Turn	634	642	101.2%	19.8	610	675	0.3	20.9	3.0	18.1	28.1	C
	Through	491	484	98.6%	15.9	460	510	0.3	32.2	3.9	26.5	37.0	C
	Subtotal	1,142	1,142	100.0%	6.7	1,134	1,153	0.0	25.7	2.4	22.4	30.0	C
SB	U Turn	96	94	97.8%	0.7	93	95	0.2	15.6	3.1	10.3	20.5	B
	Through	306	280	91.3%	2.1	276	283	1.5	29.7	3.6	25.7	36.0	C
	Right Turn	450	458	101.9%	1.8	455	460	0.4	9.4	1.2	7.4	11.8	A
	Subtotal	852	832	97.6%	2.6	827	836	0.7	17.0	1.3	15.5	19.6	B
EB	U Turn	10	9	93.0%	2.7	5	13	0.2	35.1	27.3	0.0	85.7	D
	Left Turn	331	344	104.0%	11.8	325	364	0.7	36.1	4.6	30.6	43.9	D
	Right Turn	239	238	99.5%	12.0	218	252	0.1	7.1	0.5	6.3	8.2	A
	Subtotal	580	591	101.9%	3.4	587	596	0.5	24.7	3.5	20.7	31.1	C
Total		2,574	2,565	99.7%	7.9	2,555	2,577	0.2	22.7	0.8	21.7	24.4	C

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	8	6	76.3%	2.6	2	10	0.7	5.7	3.0	0.0	7.9	A
	Through	12	11	90.0%	2.4	7	15	0.4	7.9	0.8	6.9	9.2	A
	Right Turn	6	0	3.3%	0.4	0	1	3.3	0.0	0.0	0.0	0.0	A
	Subtotal	26	17	65.8%	0.3	17	18	1.9	7.8	0.7	6.9	9.2	A
SB	Left Turn	121	136	112.7%	6.9	128	147	1.4	7.5	1.2	6.2	10.2	A
	Through	6	7	116.7%	1.4	5	9	0.4	6.2	3.3	0.0	9.5	A
	Right Turn	38	90	237.6%	8.1	75	100	6.5	9.1	1.1	7.7	10.9	A
	Subtotal	165	234	141.6%	11.9	218	251	4.9	8.1	0.8	6.8	9.4	A
EB	Left Turn	29	42	143.8%	4.6	34	47	2.1	6.8	0.7	6.2	7.8	A
	Through	102	88	86.7%	4.3	84	97	1.4	7.7	0.7	6.9	9.0	A
	Right Turn	1	0	30.0%	0.5	0	1	0.9	0.0	0.0	0.0	0.0	A
	Subtotal	132	130	98.8%	1.4	127	132	0.1	7.4	0.5	6.6	8.2	A
WB	Left Turn	3	16	533.3%	4.5	9	25	4.2	7.5	1.5	5.8	10.8	A
	Through	64	55	85.3%	4.5	45	60	1.2	9.7	0.5	9.0	10.9	A
	Right Turn	129	87	67.8%	7.4	75	98	4.0	0.6	0.2	0.4	1.2	A
	Subtotal	196	158	80.6%	1.2	156	160	2.9	4.7	0.8	3.8	6.0	A
Total		519	539	103.9%	12.0	524	556	0.9	6.9	0.4	6.3	7.4	A
						Worst Approach Delay		SB	8.1	0.8	6.8	9.4	A

Intersection 3 **Alana Way/Harney Way** **Two Way Stop**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	270	166	61.4%	8.3	152	178	7.1	9.5	1.1	8.6	12.2	A
	Through	73	101	138.5%	5.0	95	110	3.0	2.3	1.0	1.5	4.5	A
	Right Turn	155	159	102.5%	7.9	147	174	0.3	0.5	0.2	0.3	1.0	A
	Subtotal	498	426	85.5%	4.5	420	435	3.4	4.4	1.2	3.0	7.3	A
SB	Left Turn	8	4	55.0%	1.8	1	7	1.4	4.7	3.4	0.0	9.0	A
	Through	96	66	68.3%	5.9	58	75	3.4	7.6	0.6	6.8	8.3	A
	Right Turn	82	52	63.3%	6.0	42	61	3.7	5.5	0.4	5.0	6.4	A
	Subtotal	186	122	65.5%	1.5	118	123	5.2	6.7	0.4	5.9	7.2	A
EB	Left Turn	28	47	166.1%	6.3	39	56	3.0	14.6	2.2	11.7	17.6	B
	Through	142	115	80.8%	5.8	107	122	2.4	14.4	1.0	13.1	16.0	B
	Right Turn	72	23	31.5%	4.6	16	29	7.2	8.7	2.5	5.9	14.3	A
	Subtotal	242	184	76.0%	13.4	162	205	4.0	13.7	0.9	12.4	14.8	B
WB	Left Turn	75	127	168.8%	7.7	118	141	5.1	0.3	0.1	0.1	0.5	A
	Through	131	105	80.3%	8.3	92	117	2.4	0.1	0.1	0.0	0.2	A
	Right Turn	5	15	298.0%	3.3	10	20	3.1	0.8	0.6	0.4	2.3	A
	Subtotal	211	247	116.9%	1.6	245	250	2.4	0.2	0.1	0.1	0.3	A
Total		1,137	978	86.0%	15.3	957	1,001	4.9	5.5	0.4	4.9	6.3	A
						Worst Approach Delay		EB	13.7	0.9	12.4	14.8	B

A.2. Existing Conditions - PM Peak Hour

Brisbane Baylands
Existing PM

Queue Report

		Storage	Average Queue Length (ft) by Run										Average Queue Length (ft)				Maximum Queue Length (ft) by Run										Maximum Queue Length (ft)			
		(ft)	1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way**
NB	UT																													
	L2																													
	LT	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	23	43	22	22	22	23	21	22	23	24	7	21	43
	TH	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	23	43	22	22	22	23	21	22	23	24	7	21	43
	RT	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	23	43	22	22	22	23	21	22	23	24	7	21	43
	R2																													
SB	UT																													
	L2																													
	LT	75	3	3	4	3	3	3	4	4	3	3	3	0	3	4	61	64	66	62	75	45	66	65	59	66	63	8	45	75
	TH	75	0	0	0	0	0	0	0	0	0	0	0	0	0	0	21	21	22	21	20	22	21	21	20	22	21	1	20	22
	RT	75	1	1	1	2	2	2	1	2	1	1	1	0	1	2	40	43	43	45	43	44	41	45	36	42	42	3	36	45
	R2																													
EB	UT																													
	L2																													
	LT	475	3	2	3	3	3	2	3	3	3	3	3	0	2	3	64	45	44	64	67	66	67	66	60	88	63	12	44	88
	TH	475	3	2	3	3	3	2	3	3	3	3	3	0	2	3	64	45	44	64	67	66	67	66	60	88	63	12	44	88
	RT	475	3	2	3	3	3	2	3	3	3	3	3	0	2	3	64	45	44	64	67	66	67	66	60	88	63	12	44	88
	R2																													
WB	UT																													
	L2																													
	LT	1,275	1	2	1	1	1	1	2	1	1	1	1	0	1	2	22	42	64	44	46	23	45	43	23	23	37	14	22	64
	TH	1,275	1	2	1	1	1	1	2	1	1	1	1	0	1	2	22	42	64	44	46	23	45	43	23	23	37	14	22	64
	RT	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	19	19	22	21	19	0	18	19	19	18	6	0	22
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Two Way**
NB	UT																													
	L2																													
	LT	125	0	1	2	0	1	1	1	0	0	0	1	1	0	2	20	82	84	44	46	62	75	42	21	46	52	23	20	84
	TH	3,250	0	1	1	0	0	0	0	0	0	0	0	0	0	1	20	127	127	81	92	104	121	82	40	19	81	42	19	127
	RT	3,250	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	66	68	28	30	46	59	26	0	30	35	24	0	68
	R2																													
SB	UT																													
	L2																													
	LT	550	2	1	1	2	1	2	2	1	1	2	2	0	1	2	43	48	45	68	26	48	49	26	26	49	43	13	26	68
	TH	550	2	1	1	2	1	2	2	1	2	2	2	0	1	2	43	47	44	67	25	47	49	25	25	48	42	13	25	67
	RT	125	1	1	2	1	1	1	1	2	1	1	1	0	1	2	43	24	47	24	44	47	44	60	44	44	42	11	24	60
	R2																													
EB	UT																													
	L2																													
	LT	400	9	7	7	8	10	9	5	5	8	8	7	2	5	10	133	108	128	109	133	150	88	132	111	111	120	18	88	150
	TH	400	9	7	7	8	10	9	5	5	8	8	8	2	5	10	133	108	129	109	133	150	89	132	111	111	121	18	89	150
	RT	400	0	0	0	0	0	0	0	0	0	0	0	0	0	0	19	21	21	20	21	19	20	20	41	20	22	7	19	41
	R2																													
WB	UT																													
	L2																													
	LT	225	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TH	575	0	0	0	0	0	0	0	0	0	0	0	0	0	0	81	0	82	81	82	80	82	81	81	0	65	34	0	82
	RT	575	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	20	0	0	20	21	0	6	10	0	21
	R2																													

ATTACHMENT D – TRAVEL PATTERN DATA

Travel patterns in the AM and PM peak hours have similar pairs; therefore, the data for the AM peak hour is presented as a represent general peak hour conditions. **Table 4** presents the average weekday peak hour travel patterns between each of the eight study zones. **Table 5** presents the weekday travel patterns for Brisbane residents, employees, and visitors.

Table 4 – Average Weekday AM Peak (7:00-10:00 am) Cut-through Travel Distribution

North Bayshore Boulevard		Destination					
		Brisbane	Southern Peninsula[1]	San Francisco	North/East Bay[2]	Daly City	SUM
Origin	Brisbane	1.0%	1.7%	4.6%	0.7%	2.4%	10.4%
	Southern Peninsula	3.2%	2.1%	12.6%	0.0%	3.6%	21.6%
	San Francisco	15.6%	20.1%	5.4%	0.2%	2.0%	43.3%
	North/East Bay	1.6%	0.3%	0.3%	0.0%	0.1%	2.3%
	Daly City	2.1%	13.1%	2.2%	0.3%	4.8%	22.5%
	SUM	23.5%	37.3%	25.0%	1.2%	13.0%	100.0%

South Bayshore Boulevard		Destination					
		Brisbane	Southern Peninsula[1]	San Francisco	North/East Bay[2]	Daly City	SUM
Origin	Brisbane	1.5%	14.2%	0.7%	0.1%	0.3%	16.9%
	Southern Peninsula	19.2%	3.0%	12.7%	0.1%	3.5%	38.5%
	San Francisco	0.5%	23.0%	3.1%	0.2%	0.8%	27.6%
	North/East Bay	0.1%	0.2%	0.1%	0.0%	0.1%	0.6%
	Daly City	1.2%	12.8%	1.2%	0.3%	1.0%	16.5%
	SUM	22.5%	53.3%	17.9%	0.6%	5.7%	100.0%

Internal-Internal (II) Pair

Internal-External or External Internal (IXXI) Pair

External-External (XX) Pair

1. Includes San Mateo, Santa Clara, Santa Cruz, Alameda Counties
2. Includes: Napa & Sonoma & Solano & Marin & Contra Costa Counties

Table 5 – Average Weekday Daily Origins and Destinations inside of Brisbane

North Bayshore Pass-Through Zone			
Trip Type	**Origin**	**Destination**	**Share of Northern Travel**
Brisbane to External	Brisbane E Residential	External	2.1%
	Brisbane E Industrial	External	7.9%
	Brisbane N	External	1.0%
	Brisbane S	External	1.9%
External to Brisbane	External	Brisbane E Residential	1.5%
	External	Brisbane E Industrial	5.8%
	External	Brisbane N	1.6%
	External	Brisbane S	1.4%
Sums	IX Sum		16.7%
	XI Sum		15.6%
	SUM		32.3%
South Bayshore Pass-Through Zone			
Trip Type	**Origin**	**Destination**	**Share of South Travel**
Brisbane to External	Brisbane E Residential	External	3.4%
	Brisbane E Industrial	External	8.4%
	Brisbane N	External	0.9%
	Brisbane S	External	1.7%
External to Brisbane	External	Brisbane E Residential	3.6%
	External	Brisbane E Industrial	8.5%
	External	Brisbane N	1.5%
	External	Brisbane S	1.9%
Sums	IX Sum		12.5%
	XI Sum		12.4%
	SUM		24.9%

Appendix B: Future Year Forecasting Approach

The travel demand forecasting approach includes two models: the City/County Association of Governments of San Mateo County Travel Demand Model (C/CAG Model) and Brisbane's sub-area travel model. The C/CAG Model was used to create the regional travel pattern and trip distribution inputs for Brisbane's sub-area travel model, which was then used to estimate VMT, daily roadway volumes, and vehicle queues in the project study area. Appendix B includes a detailed description of the modeling methodology, a memorandum presenting the travel demand model selection and validation approach, a description of the future year land use and transportation changes included within each analysis scenario, and some considerations related to the inherent uncertainty of estimating future year conditions.

Appendix B.1. Modeling Methodology

As noted in Chapter 4, a travel demand forecasting model is required to provide a complete estimate and accounting of VMT effects and changes to traffic patterns associated with land use projects. Based on an assessment of level of detail and sensitivity within Brisbane (see **Appendix B.2**), the City of Brisbane selected the C/CAG-VTA Bi-County Transportation Model ("C/CAG Model") for use in assessing regional travel changes for the Project.

However, the current C/CAG model has only seven transportation analysis zones (TAZs) representing the study area and while the level of detail for the roadway network is appropriate for assessing regional travel patterns, local travel patterns are affected by factors such as traffic signal timing, bottlenecks, and vehicle queues, that a macroscopic (e.g., regional scale) model is less attuned too. Therefore, the City of Brisbane developed a sub-area model to better account for local travel patterns and to disaggregate land use zones to allow for a more detailed analysis of the Project than would be possible with the current C/CAG model. The Brisbane Sub-Area model also includes refinements to the roadway network to include public streets and major driveways in the study area.

The "mesoscopic"[55] Brisbane Sub-Area model is based on a sub-area extraction from the C/CAG Travel Demand Model (Cube software platform) and is primarily a traffic assignment model for the purpose of providing a detailed representation of traffic circulation and operational performance of the roadway network in the project study area. This combination of inputs to the Brisbane Sub-Area model allows for the transportation analysis to capture more sensitivity to local circulation and traffic operations than the C/CAG model, as the Brisbane Sub-Area model incorporates signal timings, intersection and lane geometries, and turn movement delays while maintaining appropriate regional sensitivity for VMT

[55] A scale of model that includes features of both "macroscopic" regional travel demand models that allow for the assignment of vehicle trips, such as the C/CAG model, and "microsimulation" models that assess the operations of individual roadway segments or intersections, such as VISSIM or Synchro.

analysis. The Brisbane Sub-Area model accounts for roadway capacity, traffic congestion, and local circulation in a manner that the C/CAG model does not and allows for a variety of metrics to be extracted. The Brisbane Sub-Area model is suitable to evaluate land use, transportation system changes, and Project-level mode share with effects that are primarily contained within the City boundary. This model is used to estimate roadway and turning volume forecasts, queue lengths, and cut-through traffic in the project study area. The sub-area roadway network includes most public streets and major driveways in the study area as shown in **Figure 3** and **Figure 8**.

To evaluate changes with larger magnitudes and regional implications, such as large residential or regional transit projects, a regional model run is performed followed by the sub-area model run with the updated regional model context, as described further in the **Travel Demand Forecasting** section.

Software Selection

For the "mesoscopic" analysis, Visum (PTV), Cube Avenue (Citilabs), and TransCAD (Caliper) were considered, as all three have Caltrans acceptance and the ability for both dynamic traffic assignment (DTA) or near-DTA capabilities to model traffic congestion. Visum is selected for the following reasons:

- In Fehr & Peers' experience, the powerful and flexible data structure of Visum allows for relatively faster and more efficient model editing (roadway network, TAZ) compared to the other two platforms, making it a more effective tool. Visum offers a superior "Scenario Management" functionality for running multiple scenarios.
- Select link (or flow-bundle) analysis and visualization is instant. In the Cube platform, select link analyses require additional scripting and run time.
- Visum has better integration with traffic operations analysis tools such as Vissim, Vistro, and Synchro.
- Visum can integrate trip generation and trip distribution at mesoscopic scale (allowing for quicker scenario testing). Cube Avenue does not have this capability.

This sub-area model uses Visum's *Scenario Management* feature. Scenario Management is a valuable tool that allows related networks to be contained in a single file. This tool allows for more efficient workflow as changes made in the base network are carried over to other scenarios, and modifications (a set of changes to the base network) can be applied to create multiple scenarios. This tool is helpful for comparing scenarios against differences in network geometry, travel demand, outputs, and times of day, with visualizations that help you make comparisons. This model was most recently updated and saved in *PTV Visum 2023, Service Pack 1-5*.

The overall workflow of the sub-area traffic assignment is noted below. Steps 1-5 are described under the **Travel Demand Forecasting** section below. Steps 6-10 are described in the **Traffic Assignment and Performance Indicators and Outputs** Section.

Travel Demand Forecasting Steps

1. Calibrate C/CAG Model to Reflect Existing and Planned Future Conditions
2. Run C/CAG Model with Sub-Area and Extract Sub-Area Demand
3. Import C/CAG Sub-Area Demand into Visum
4. Disaggregate Transportation-Analysis Zones (TAZs)
5. Calibrate Origin-Destination (OD) Demand and Perform Edits (if needed)

Traffic Assignment and Performance Indicators and Outputs Steps

6. Refine Roadway Network (if needed)
7. Prepare Network Capacities
8. Run Traffic Assignment
9. Prepare Performance Indicators and Outputs
10. Validate Sub-Area Model

Visum allows for the transfer of model outputs to Vissim, where a focused study is performed for the Geneva Avenue extension and future Candlestick Interchange to account for the closely spaced intersections and interactions of the U.S. 101 ramp terminal with adjacent intersections.

Travel Demand Forecasting

Travel demand forecasting includes a series of steps to feed origin-destination travel demand matrices (OD matrices) from the C/CAG Model into the Baylands Sub-Area model. The sub-area model framework includes refinements and enhancements to the initial sub-area extraction from the C/CAG regional model. The current C/CAG model has seven transportation analysis zones (TAZs) representing the study area, and the zones were disaggregated into smaller zones in the sub-area model for a more detailed analysis. The Brisbane Sub-Area model also includes refinements to the roadway network to include most public streets and major driveways in the study area. These steps are described in detail below.

1. Calibrate C/CAG Model to Reflect Existing and Planned Future Conditions

The C/CAG Model is a trip-based regional travel demand model that considers regional land use patterns, approximated highway congestion, and connecting transit service within the nine-county Bay Area region. The C/CAG model was reviewed and updated through a series of diagnostic tests as recommended by FHWA to assess the model's performance and reasonableness, and a series of refinements were made to the model inputs for land use, roadway network and transit service within Brisbane and adjacent communities. The existing conditions model calibration was based on the most recent population and employment information available from the American Community Survey (ACS) and Longitudinal Employer-Household Dynamics (LEHD data) from 2019 while future year conditions were based on a review of the mid-term and cumulative projects and the most recent ABAG projections for the year 2040 to align with the C/CAG model forecast year and cumulative analysis year. These updates improve the C/CAG model's effectiveness in reasonably estimating current travel patterns and changes in travel patterns in response to land use and transportation network changes.

2. Run C/CAG Model with Sub-Area and Extract Sub-Area Demand

The C/CAG model was run to determine regional travel patterns and the sub-area travel demand was extracted from the regional model into the Brisbane Sub-Area model. The Brisbane Sub-Area model performs traffic assignment with OD matrices as inputs from the C/CAG regional model. It does not include trip generation, trip distribution and mode choice components.

3. Import C/CAG Sub-Area Demand into Visum

The C/CAG sub-area AM and PM one hour OD matrices in excel format are imported into Visum. The C/CAG OD matrices for the seven vehicle types (drive alone, shared 2, shared 3+, truck 2-axle, etc.) were aggregated into a CAR and HGV (truck) matrix in Visum. For this study, the CAR and HGV matrices were combined to assess the peak hour vehicle traffic on the study roadways.

4. Disaggregate TAZs

The C/CAG zones are disaggregated into smaller zones to further refine the Origin-Destination pairs and subsequent routing of trips in the transportation network, which has more routing choices than in the C/CAG model for the study area. The current C/CAG model has seven TAZs representing the City of Brisbane with one TAZ representing the Brisbane Baylands Project. The Brisbane Sub-Area model disaggregated the TAZ representing the Brisbane Baylands Project into nine zones so the City of Brisbane is represented by 15 zones in the Brisbane Sub-Area model. Additionally, the current C/CAG model has one TAZ representing the area north of the Project (Executive Park, Candlestick Point, Hunters Point). This TAZ was disaggregated into six zones. The disaggregation of C/CAG zones into smaller zones accounts for the variation in land uses, street network, and neighborhoods that make up the zones high share of future growth.

Zone disaggregation in Visum is done through weighting, or shares, for the portion of trips within the C/CAG zone that should be assigned to each zone within the C/CAG zone. Weighting for existing land uses is based on observed data for representative land uses. Future background land use growth weighting is developed based on typical ITE rates, and the project land uses weighting is developed from Fehr & Peers' MXD+ tool, which takes ITE trip rates and has a share of internal trip reductions and external vehicle trip reductions to account for active transportation. The methodology accounts for built environment factors such as density and diversity of land uses, design of the pedestrian and bicycle environment, site demographics, accessibility of transit, and TDM, among other factors, as described in **Chapter 4**. Weighting can be distributed differently for the AM and PM periods as well as for the inbound and outbound directions, similar to ITE trip rates. Visum's multi-point assignment method is used for connector shares, which distributes the demand of each single OD pair between zones to all available connectors proportionally to their weights. Connector weighting or demand is related to connector capacity in the volume-delay function of the connector.

5. Calibrate Origin-Destination (OD) Demand and Perform Edits (if needed)

The Brisbane Sub-Area model was calibrated to existing conditions using suggested calibration targets for vehicle volumes developed by Caltrans and FHWA. The Brisbane Sub-Area model includes an *OD Adjustment* matrix (for the AM and PM peak hour) to account for differences between existing conditions observed traffic count data and existing conditions C/CAG OD data.

On congested corridors like U.S. 101 north of Beatty Avenue/Alana Way/Harney Way interchange, observed traffic counts are typically constrained due to congestion and do not represent the true demand volumes. For a given location along the corridor, demand volumes are typically estimated based on the number of counted vehicles and the number of vehicles in queue upstream of that location.

For a peak period, which starts and ends in uncongested conditions, e.g., 1:00 PM to 7:00 PM, the total peak period demand volume should equal the total peak period traffic count. However, at most bottleneck locations on this corridor, the total peak period demand volume estimated in the previous step was substantially different and higher than the total peak period traffic count. Further inspections of the PeMS traffic counts suggested that the PeMS detector counts are depressed at congested mainline and ramp locations. Due to the apparent limitation of PeMS detector data at congested locations, alternate counts were collected for the on- and off-ramps, and mainline locations where available, from other sources for peak period counts at ramp terminal intersections including at the Lagoon Road/Sierra Point Parkway U.S. 101 on- and off-ramps.

To calibrate the Brisbane Sub-Area model to hourly observed data, the O-D matrices were sliced into one-hour increments. The matrices were then adjusted using Visum's built-in O-D estimation process (TFlowFuzzy) to reflect hourly demand volumes along the corridor. The observed data used for matrix calibration includes turning movement volumes from StreetLight and traffic counts, and link level volumes from the Caltrans Performance Measurement System (PeMS) data. This *OD Adjustment* matrix is applied to the future year scenarios for consistency. There are limitations to this approach such as arbitrariness introduced by OD matrix estimation. After travel demand is prepared, refinements in the Sub-Area model were made to run the traffic assignment for each scenario and assess traffic conditions. The following section describes this process.

Traffic Assignment & Performance Indicators and Outputs

The Sub-Area model was applied on the project to generate various performance indicators including vehicle travel times, sub-area vehicle miles traveled, and intersection delays. Many of these metrics rely on user-defined attributes and formulas defined in the Visum model to post-process and summarize the outputs. Traffic Assignment is rerun when there are changes to O-D demand or to the roadway network as these both affect the assignment output and results.



6. Refine Roadway Network

The C/CAG model roadway network was extracted from Cube and imported into Visum to serve as the base for the further refinements to the roadway network for the sub-area model. The roadway network for existing conditions includes most public streets, major driveways, and frequent cut through routes in the study area. The roadway network for future conditions was modified in Visum for each scenario. For plus project scenarios, the Baylands Specific Plan was referenced to incorporate the addition of seven new neighborhoods in Baylands to build out the street network, lane geometries, intersection control, among other network details.

The Sub-Area model is used to understand the effects of regional growth on the City of Brisbane, roadway changes including Geneva Avenue extension, test interim land use scenarios, and study Citywide Infrastructure planning projects like a road-diet or widening, and traffic signal and ramp operations.

7. Prepare Network Capacities

Baseline capacities were assigned to links and turns based on typically observed and modeled capacities for a given set of roadway characteristics and in a manner consistent with the C/CAG model and FHWA guidance. Link capacities are determined using roadway characteristics such as roadway class, posted speed, and number of lanes. Turn capacities are determined from the type of turn and from/to priority of the turn movement (e.g., a minor street turning left onto a major street). These capacities are used to translate the OD matrices to link and turn level volumes, based on capacity of the roadway network, through Visum's optimization method.

8. Run Traffic Assignment

In the sub-area model, the current car and truck origin-destination matrix is adjusted based on each respective scenario before the traffic assignment. Once the matrices are changed, the traffic assignment is run.

9. Prepare Performance Indicators and Outputs

The preparation of both performance indicators and outputs stem from the creation of both user defined data and formula attributes, which are then output for post processing. For the purpose of this study, the outputs included roadway traffic volumes and vehicle queues at off-ramps.

10. Validate Sub-Area Model

The sub-area model is validated based on relevant national guidance and checks were performed to test the model's response to changes in the transportation system and its ability to reasonably predict future conditions. Vehicle travel times from the traffic assignment were compared to estimates from crowd-sourced data available on the internet, including Google Maps travel times to confirm the model's reasonableness. Outputs for intersection level of service for existing conditions were compared to real data to assess and validate the model. For future scenarios the results were compared across scenarios to



assess whether the results make sense. Static validation results for the Brisbane Sub-Area model under existing conditions are presented below.

Brisbane Sub-Area Model Static Validation Results

Static validation compares a model's "static" estimation of travel behavior to observed travel behavior. The Brisbane Sub-Area model volumes were compared to existing traffic count data to evaluate how closely the model output matches actual counts; both traffic counts that were used for model calibration, described in Step 5 of travel demand forecasting, as well as counts not used in model calibration but were available under the baseline traffic year were compared and documented below. Additionally, the Brisbane Sub-Area model validation results were compared to the validation results for the C/CAG model, which can be found in **Appendix B.2**.

The Brisbane Sub-Area model was calibrated using intersection turning movement volumes and link level volumes. Criteria measures and targets were used to measure the model's accuracy. The results of the model validation are presented in **Table B-1** below. As shown in **Table B-1**, the model volumes met all acceptability targets for validation.

Table B-1: Brisbane Sub-Area Model Static Validation Results: Baseline Year

Validation Measure	Acceptability Target	AM Peak Period	PM Peak Period
Model-to-Count Ratio (All Locations)	Within ±10%	0.5%	-1.0%
Sum of link volumes compared to sum of all link counts	Within ±5%	0.5%	0.7%
Sum of turn volumes compared to sum of all link counts	Within ±5%	-2.5%	-4.2%
Turn volumes should have a GEH[1] statistic less than 5	> 85% of cases	100%	95%
Freeway link volumes should have a GEH[1] statistic less than 5	> 85% of cases	93%	93%
R-squared[2] value for turn volumes	Close to 1	1.00	1.00
R-squared[2] value for freeway link volumes	Close to 1	1.00	1.00
Number of Validation Locations[3]	_	34	34

Notes:

1. GEH is a measure of goodness of fit named after the statistician who developed it.
2. R-squared measures the strength of the relationship between your model and the dependent variable on a convenient 0 – 100% scale.
3. Validation locations include 14 freeway ramps and 20 intersections.

Source: California 2017 RTP Guidelines, California Transportation Commission

Intersection Level Static Validation

All of the Brisbane Baylands Project study intersections as well as supplemental intersections in the study area were used for model calibration. The intersection volumes were developed from a mix of Streetlight and traffic counts collected in 2019 and 2020. **Table B-2** presents a comparison of the AM peak hour and PM Peak hour intersection count volumes used for model calibration to the intersection model volumes under Existing Conditions. The turning movement volumes are 3-4 percent lower than the sum of all turning counts. The R squared values are equal to 1.0 for both the AM and PM peak hour. In the AM peak hour, all of the turn movement locations have a GEH value lower than 5. In the PM peak hour, 19 out of the 20 locations (95%) have a GEH lower than 5.

Table B-2: Intersection Level Static Validation

Intersection	AM Peak Hour				PM Peak Hour			
	Count	Model Volume	% of Count	GEH	Count	Model Volume	% of Count	GEH
Study Intersections								
1. Beatty Ave / Tunnel Ave	613	513	84%	4.2	424	347	82%	3.9
2. Beatty Avenue / Alana Way / U.S. 101 SB Ramps	727	762	105%	1.3	489	529	108%	1.8
3. Harney Way / Alana Way / Thomas Mellon Drive / U.S. 101 NB Ramps	1,177	1,071	91%	3.2	1,146	1,075	94%	2.1
4. Tunnel Ave / Lagoon Road	503	487	97%	0.7	482	482	100%	0.0
5. Sierra Point Pkwy / Lagoon Road / U.S. 101 southbound ramps	537	482	90%	2.4	660	585	89%	3.0
6. Sierra Point Pkwy / U.S. 101 northbound ramps	838	810	97%	1.0	753	738	98%	0.6
7. Geneva Ave / Carter St	2,281	2,294	101%	0.3	2,221	2,210	100%	0.2
Supplemental Intersections								
8. Bayshore Blvd / Tunnel Ave	1,885	1,908	101%	0.5	2,331	2,324	100%	0.1
9. Bayshore Blvd / Geneva Ave	2,160	2,195	102%	0.7	2,564	2,407	94%	3.1
10. Bayshore Blvd / Industrial Way	1,518	1,491	98%	0.7	1,698	1,595	94%	2.5
11. Bayshore Blvd / Main St	1,540	1,541	100%	0.0	1,733	1,622	94%	2.7
12. Bayshore Blvd / Guadalupe Canyon Parkway	2,224	2,122	95%	2.2	2,289	2,140	93%	3.2
13. Bayshore Blvd / Valley Dr	2,436	2,370	97%	1.4	2,373	2,304	97%	1.4
14. Bayshore Blvd / Old County Rd / Tunnel Ave	2,621	2,608	100%	0.3	2,596	2,582	99%	0.3
15. Bayshore Blvd / Van Waters and Rodgers Rd	2,262	2,158	95%	2.2	2,211	2,102	95%	2.3
16. Bayshore Blvd / San Bruno Ave	2,432	2,320	95%	2.3	2,432	2,270	93%	3.3
17. Quarry Road/ S Hill Drive	252	203	81%	3.2	259	180	69%	5.4
18. Valley Dr / S Hill Dr	801	699	87%	3.7	839	766	91%	2.6
19. Valley Dr / Park Ln	607	604	99%	0.1	575	581	101%	0.3
20. Guadalupe Canyon Pkwy / N Hill Dr	978	1,041	106%	2.0	1,036	1,059	102%	0.7

Source: Fehr & Peers, 2024.

Link Level Static Validation

The model was calibrated to link level volumes from the Caltrans Performance Measurement System (PeMS) data. **Table B-3** presents a comparison of the existing AM peak hour and PM Peak hour roadway volumes used for model calibration to the link volumes under the Existing Conditions model scenario. Link level volumes are closer to existing counts than the turn movement volumes that were used to calibrate the Sub-Area model. The sum of all link volumes used in calibration are within 1% of the sum of all link level counts. The R squared values are equal to 1.0 for both the AM and PM peak hour. 13 out of the 14 links (93%) have a GEH value of lower than 5 in both the AM and PM peak hour.

Table B-3: Peak Hour Link Level Static Validation

VDS	AM Peak Hour				PM Peak Hour			
	Count	Model Volume	% of Count	GEH	Count	Model Volume	% of Count	GEH
401358	9,073	9,014	99%	0.6	8,612	8,531	99%	0.9
401448	9,064	9,079	100%	0.2	7,972	8,016	101%	0.5
400744	8,610	8,597	100%	0.1	7,316	7,407	101%	1.1
400260	8,231	8,227	100%	0.0	7,390	7,354	100%	0.4
401357	8,219	8,232	100%	0.1	7,020	7,075	101%	0.7
401454	7,728	7,753	100%	0.3	6,448	6,442	100%	0.1
401795	7,505	7,633	102%	1.5	6,757	6,860	102%	1.2
403092	421	422	100%	0.0	811	800	99%	0.4
405529	391	399	102%	0.4	102	98	96%	0.4
405839	334	462	138%	6.4	137	229	167%	6.8
405867	309	310	100%	0.0	205	257	125%	3.4
405883	201	229	114%	1.9	146	166	113%	1.6
405884	88	134	152%	4.4	216	277	128%	3.9
405864	88	63	71%	2.9	210	202	96%	0.5

Notes:
1. PeMs identifies unique detector locations collected vehicle volumes with a number, referred to as VDS.

Source: Fehr & Peers, 2024.

Figure B-1 displays a comparison of the count volumes to the model volumes for freeway links used in static validation.

Figure B-1. Freeway Link Static Validation

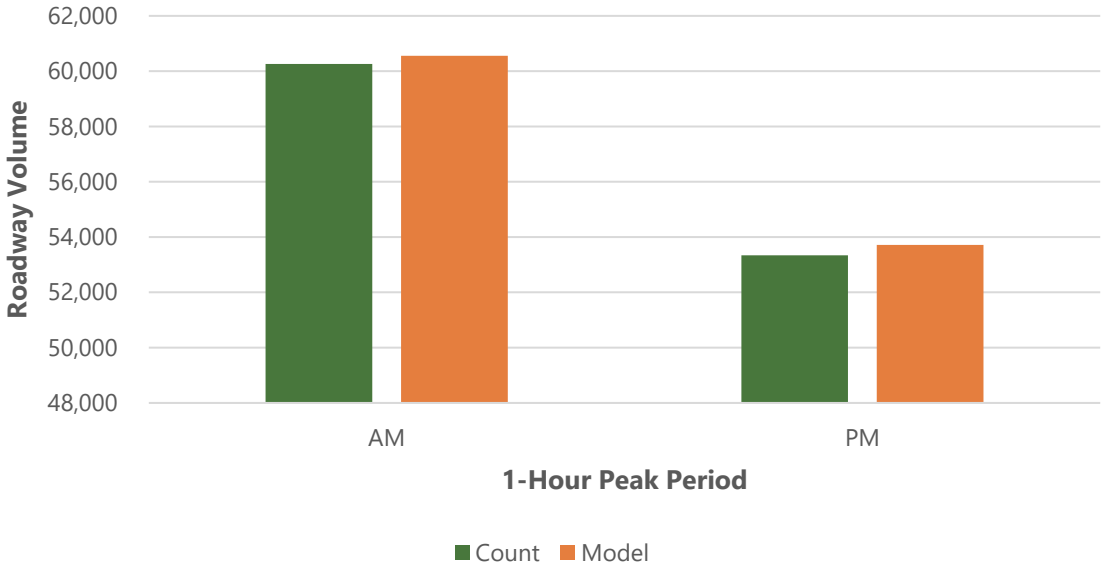
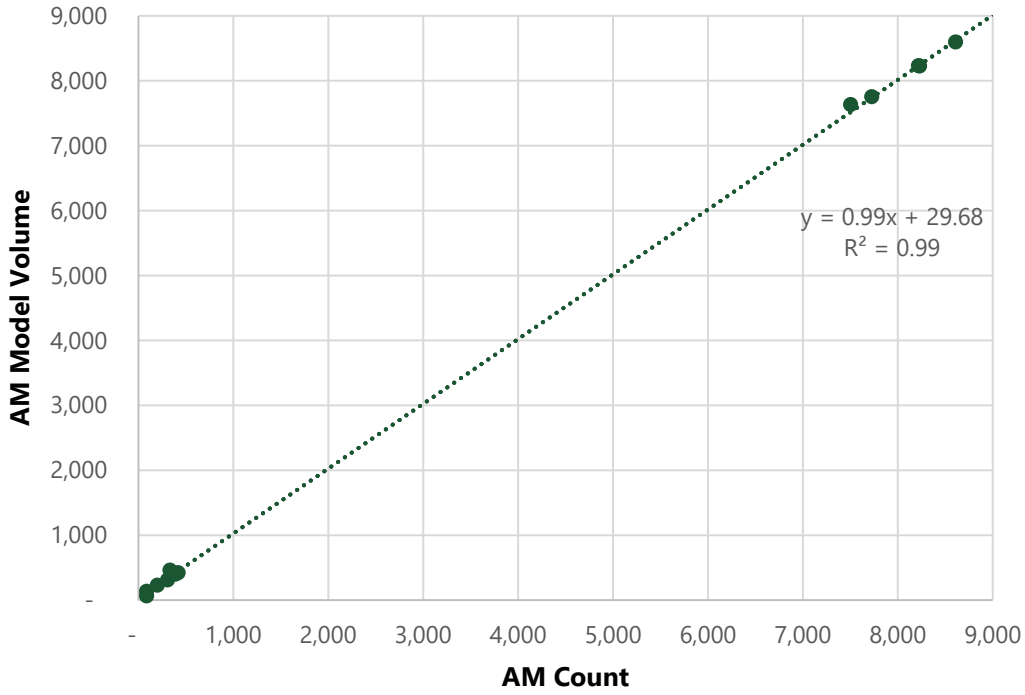


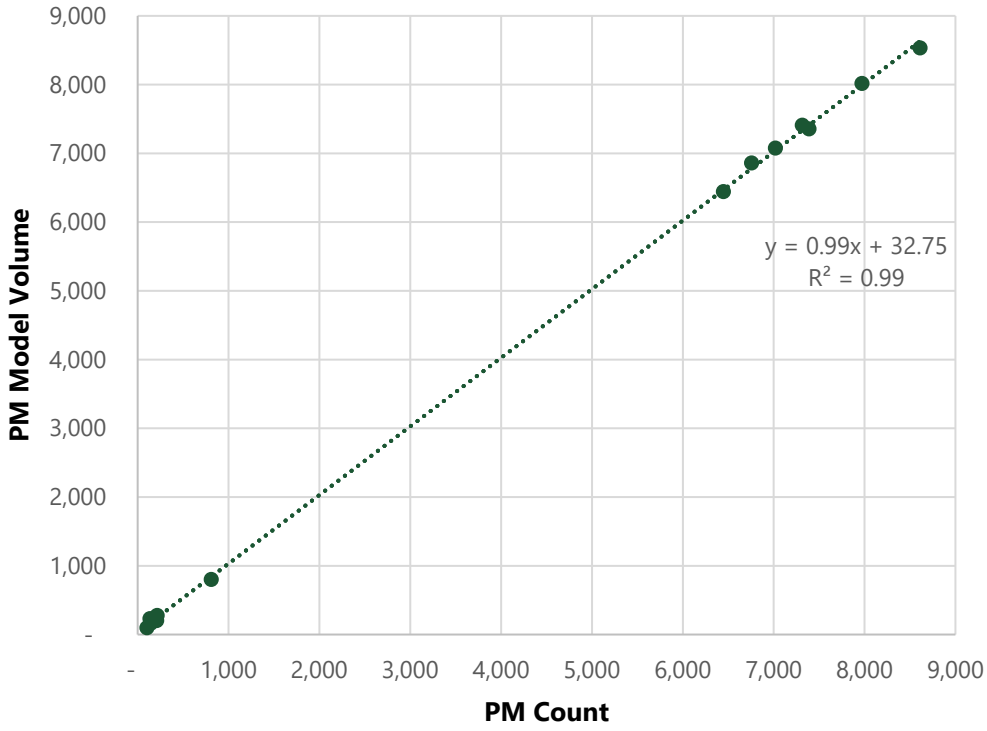
Figure B-2 and **Figure B-3** display the R-squared plot for the AM and PM peak hours respectively.

Figure B-2. 1-Hour AM Peak Freeway Link Calibration R-Squared Plot



Source: Fehr & Peers, 2024

Figure B-3. 1-Hour OM Peak Freeway Link Calibration R-Squared Plot



Source: Fehr & Peers, 2024

Appendix B.2. Travel Demand Model Review and Selection

The following memorandum presents the approach to selecting the appropriate model and the steps taken to calibrate and validate the selected C/CAG model.

FEHR PEERS

Memorandum

Date: January 30, 2020

To: Randy Breault and John Swiecki, City of Brisbane

From: Matt Goyne and Teresa Whinery, Fehr & Peers

Subject: Brisbane Baylands – Travel Demand Model Review and Selection

SF19-1036

This technical memorandum presents our findings from a review of the available travel demand models that could be used in assessing transportation impacts of the Brisbane Baylands project. Based on this review and discussions with the City of Brisbane staff, Fehr & Peers recommends that the City of Brisbane select the C/CAG Travel Demand Model for this study. The details of this review and additional recommendations and next steps are presented below.

Purpose and Background

This memorandum addresses the question of which travel demand model the City should use to develop travel forecasts and assess the requested performance metrics for the Baylands project. A subsequent memorandum will present the baseline VMT generation and the recommended VMT methodology and thresholds.

Travel forecasts are generated using various forms of models that range from simple spreadsheets based on historic traffic growth trends to complex computer models that account for numerous factors that influence travel demand. According to *Transportation and Land Development*, 2nd Edition, ITE, 2002, the appropriate model depends on the size of the development project and its ability to affect the surrounding area. As projects increase in size, the likelihood of needing a complex regional model increases because of the number of variables that influence travel demand and transportation network operations. The study area can also influence the type of model needed, especially in congested locations or areas with frequent transit service. Either of these conditions requires robust models that can account for the myriad of travel demand responses that can occur from land use or transportation network changes.

Because of the size of the proposed Baylands project, anticipated changes to the roadway network and transit service, and the congested conditions that currently exist in the San Francisco

Bay Area, a regional model is the most appropriate model to assess the potential impacts of the project. The available regional models for the City of Brisbane and the Baylands study area are described below.

Travel Demand Model Review

There are three travel demand models that may be appropriate for use in the City of Brisbane: Travel Model One, which is maintained by the Metropolitan Transportation Commission, and used to project regional growth and air quality conformance; the VTA-C/CAG Bi-County Travel Demand Model (C/CAG Model), which is maintained by the VTA on behalf of C/CAG for use in San Mateo County; and San Francisco Chained Activity Modeling Process (SF-CHAMP), which is maintained by the San Francisco County Transportation Authority (SFCTA). In the initial qualitative review of the available models, Fehr & Peers assessed the level of detail the model contained on local roadways and land use, the type of forecasting performed by each model, model availability to consultants, and accuracy in estimating traffic volumes under 2015 conditions. Fehr & Peers prepared a matrix summarizing this comparison, attached as **Appendix A**.

In general, all three models contain the basic information needed to model the effects of the Baylands project, although the C/CAG model has the highest level of local model detail and is available for consultant use.

Level of Model Detail

The C/CAG model contains the highest level of model detail for the City of Brisbane; it contains more roadways and uses more land use zones to represent the local context. Travel Model One and SF-CHAMP have similar levels of detail for Brisbane, each showing only major roadways (Bayshore Boulevard, US-101 ramp connections, etc) and including only one TAZ; however, SF-CHAMP contains additional model detail for all roadways within San Francisco, including Geneva Avenue and Bayshore Boulevard north of the county line.

Model Type

The C/CAG model is a trip-based model, while Travel Model One and SF-CHAMP are activity based. Both types of models are acceptable for use in evaluating VMT effects of projects; however, the choice of model type affects the format of the model results for VMT purposes. In short, trip-based models will produce average trip lengths and total VMT to and from a given location, while activity-based models will produce average trip lengths and total VMT related to a given household or worker, even if the travel occurs outside of the study location. The selection of the model will therefore influence the choice of VMT thresholds.

Model Availability and Logistics

Both the C/CAG model and Travel Model One are available for use by consultants under routine licensing agreements; however, SF-CHAMP requires coordination with the SFCTA, and consultants are not permitted to modify or run the model. All three models are large regional models and require substantial run-time, ranging from 12 hours for the C/CAG model to 48 hours for Travel Model One.

Available Horizon Years

All models have similar horizon years available, in five year increments, and include horizon years 2015, 2020, and 2040.

Other Considerations

None of the available travel demand models fully account for changes in transportation and land use patterns between 2015 and the present. As an example, they do not include Uber or Lyft services as a mode, nor do they account for newer modes such as electric scooters or bikeshare vehicles. All of the models used also assign vehicular volumes to the roadway network using "static" assignment, meaning that they may not fully reflect shifts in travel on local roadways due to congestion (e.g., cut-through traffic). Nonetheless, they are the best tools available to estimate travel behavior on a regional basis based on the applicable guidelines, as discussed below.

Model Testing and Validation

Model validation is the process of assessing how closely the model output matches actual counts of traffic data for a year that has both a forecast and available traffic counts. The *2017 RTP Guidelines* published by the California Transportation Commission references the following list of possible validation measures (as originally specified in the *Travel Forecasting Guidelines*, Caltrans, 1992):

- Volume-to-Count Ratio – divides the model volume by the traffic count for individual roadways within the sub-area of the model being validated.
- Percent of Links Within Caltrans Deviation Allowance – the difference between the model and actual traffic count divided by the actual traffic count. The result is evaluated against prescribed deviation thresholds.
- Correlation Coefficient – estimates the correlation (strength and direction of the linear relationship) between the actual traffic counts and the estimated volumes from the model.
- Percent Root Mean Square Error (%RMSE) – the square root of the model volume minus the actual count squared divided by the number of counts. The %RMSE is similar to standard deviation in that it assesses the accuracy of the model.

The other relevant national guidance on model applications and forecasting is the *NCHRP Report 765, Analytical Travel Forecasting Approaches for Project-Level Planning and Design*, Transportation Research Board, 2014. This is a detailed resource with many applicable sections. A few direct excerpts worth noting about forecasting expectations for models are listed below.

- *A travel forecasting model should be sensitive to those policies and project alternatives that the model is expected to help evaluate.*
- *A travel forecasting model should be capable of satisfying validation standards that are appropriate to the application.*
- *Project-level travel forecasts, to the extent that they follow a conventional travel model, should be validated following the guidelines of the Travel Model Validation and Reasonableness Checking Manual, Second Edition from FHWA. Similar guidelines are provided in NCHRP Report 716. This level of validation is necessary, but not sufficient, for project-level forecasts. Project-level forecasts often require better accuracy than can be obtained from a travel model alone.*
- *The model should be subject to frequent recalibrations to ensure that validation standards are continuously met.*

The following sections describe the static validation conducted for each model and the dynamic validation conducted for the C/CAG model.

Static Validation Results of All Models

Fehr & Peers performed static validation of all three travel demand models on a range of roadway network links from local connectors to mainline freeway segments. All three models deviated from observed traffic volumes[1]; however, the C/CAG model performed better than the other two models in static validation.

A comparison of total volumes across all validation links found that:

- The MTC model was 14 percent below observed volumes during both its 4-hour AM and PM peak periods, and 22 percent below observed daily volumes;
- The SF-CHAMP model was 27 and 15 percent below observed volumes during its 3-hour AM and PM peak periods, respectively, and 52 percent below observed daily volumes; and

[1] Traffic count data was collected for surface streets on a typical weekday in April 2016; these counts were the closest available in date to the 2015 model base year. Traffic count data for freeway segments and ramps was taken from Caltrans monitoring stations for the average weekday in August 2015.

- The C/CAG model was 3 and 7 percent above observed volumes during its 4-hour AM and PM peak periods, respectively, and 4 percent below observed daily volumes.

Similarly, the three models' percent root mean square error (lower is "better") varied from 1 percent (C/CAG model, freeway links, daily) to 29 percent (SF-CHAMP model, freeway links, daily).[2] All three models generally performed better for freeway links than non-freeway links. The C/CAG model outperformed the other two models, with percent root mean square error generally less than half the other models' values. See Appendix A for more details.

Link-level standards for "acceptable" divergence from observed volumes vary based on the observed volumes themselves. For all three models examined, the majority of individual links do not meet typical link-level static validation standards. However, the models performed better when considering the combined northbound/southbound traffic volumes on US-101 plus Bayshore Blvd.

Taken together, these static validation results suggest that the C/CAG model is the best calibrated of the three models for the study area. However, like the other two models, the C/CAG model is not very accurate at predicting local roadway traffic volumes in the study area. This suggests that the land uses and transportation inputs will need to be refined in the C/CAG model and a sub-area model that is more finely calibrated for local roadway demand patterns may be needed to analyze local land use variants and infrastructure design considerations. The summary of these findings is presented in Appendix A, while detailed tables showing projected and observed volumes by roadway segment for each model is included as Appendix B.

Based on the findings presented above and in Appendix A, the City of Brisbane decided to move forward with the C/CAG model to determine the models' response to changes in land uses and transportation infrastructure via a dynamic validation test. The methodology and findings for the static and dynamic validation tests are described in the following sub-sections.

Dynamic Validation Results of C/CAG Model

Fehr & Peers conducted dynamic validation tests for the C/CAG model for the City of Brisbane and the Baylands study area. Unlike static validation, dynamic validation tests change model inputs to assess whether those changes result in reasonable changes in model results. The goal of dynamic validation tests is to ascertain whether the model is sensitive to the types of changes to land use and transportation network that will be proposed by the Baylands project.

2 The Percent Root Mean Square Error (RMSE) between model volumes and traffic counts is a statistical measure of the spread of data points around a best fit line. The CHAMP model's poor freeway link static validation may indicate that that model apportions cross-county volumes more heavily to I-280 and/or local roadways than to US-101.

We identified several general categories of tests to assess the C/CAG model: changes to vehicle capacity, changes to land use, and changes to transit. The tests identified for each of these categories were:

- **Sensitivity to changes in vehicle capacity:** Add vehicle travel lanes on Bayshore Boulevard and US-101; add new "cut-through" link that extends Geneva Avenue through the Baylands site.
- **Sensitivity to changes in land use:** Add new residential and new office uses to the TAZ representing the Brisbane Baylands.
- **Potential model noise:** Move location of links that connect TAZ to roadway network, or change location of TAZ centroid.
- **Changes to transit:** Double frequency of Caltrain services in Brisbane.

These tests and their results are summarized in **Table 1** and shown in further detail in **Appendix C**.

Table 1: C/CAG Model Dynamic Testing Results

Change to Model Inputs	Expected Result	Test Result	Notes
Add a vehicle lane on Bayshore Blvd	Increased traffic volume on Bayshore Blvd, decreased traffic volume on US-101	Pass	Volumes increased on Bayshore Boulevard by around 800 vehicles in PM peak period.
Add a vehicle lane on US-101 through Brisbane	Increased traffic volume on US-101, decreased traffic volume on Bayshore Blvd	Pass	Volumes increased on US-101 by around 900 vehicles in 4-hour PM peak period.
Add 5,000 jobs to Brisbane TAZ	Proportionate increases on centroid connector and surrounding roadways	Pass	Adds around 3,600 new vehicle trips in 4-hour PM peak period.
Add 500 du to Brisbane TAZ	Proportionate increases on centroid connector and surrounding roadways	Pass	Adds around 1,200 new vehicle trips in 4-hour PM peak period.
Add or change centroid connection location	Circulation changes match addition or change	Pass	Results in appropriate shifts in traffic volumes; increases transit mode share for Brisbane TAZ.
Add new east-west link through Brisbane extending Geneva Avenue to US-101	Volumes shift to new link	Pass	New link attracts around 750 vehicle trips from other roadways in the 4-hour peak period
Increase transit frequency at Brisbane Caltrain	Transit ridership for Brisbane increases or decreases accordingly	**FAIL**	Has minimal effect on Citywide transit mode share; Baylands TAZ transit mode share is 0 percent.

As shown in **Table 1**, the C/CAG model showed sensitivity to each of the model changes except for the change in transit frequency. Shifting the location of the centroid connection (similar to moving a project driveway, for instance) resulted in a change in transit mode share for the Baylands TAZ, which indicates that the current model does not accurately reflect the stations accessibility to the rest of the transportation network. As such, calibration to transit service and validation to existing transit mode share will be required before the model is used for analysis.

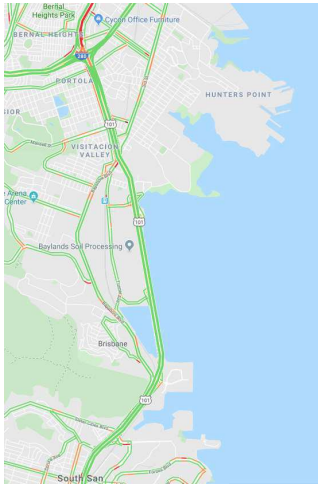
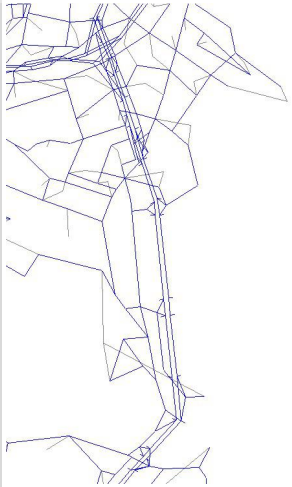
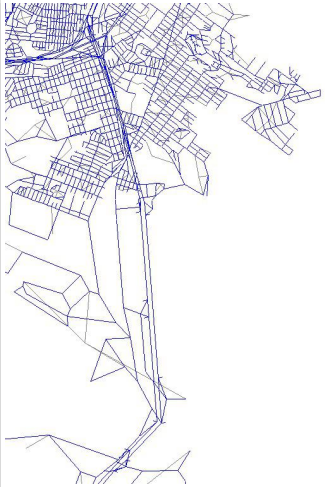
The tests above do not, however, show sensitivity to changes in land use on links other than US-101, Bayshore Boulevard, and streets within the Baylands (e.g., on streets such as Old County Road or Guadalupe Canyon Parkway). Additional model calibration and detail will need to be added to provide more accurate forecasts of vehicle traffic on Brisbane local and collector streets, for use in the local traffic analysis.

Next Steps

The C/CAG model is the most appropriate of the regional models to use for analyzing the effects of the Brisbane Baylands; however, we will need to improve the detail of the model to ensure that it accurately reflects the project's potential effects on local roadways and travel patterns. Fehr & Peers recommends that the model refinements occurs in two steps: (1) improve the C/CAG model to meet Caltrans requirements for a travel demand model and ensure the model matches the land use and transportation assumptions for the baseline and cumulative years, and (2) develop a sub-area model that better reflects how Brisbane residents use local roadways, includes additional connector links that will help model cut-through traffic, and allows the development of performance metrics such as roadway travel times. The next step will also include determining the VMT methods and thresholds for the Brisbane Baylands EIR based on the C/CAG model, pursuant to the guidance presented in the May 31, 2019 memorandum on implementing SB743, also prepared by Fehr & Peers.

Appendix A – Model Comparison Matrix

Appendix A: Comparison of Potential Models for use in Brisbane Baylands EIR

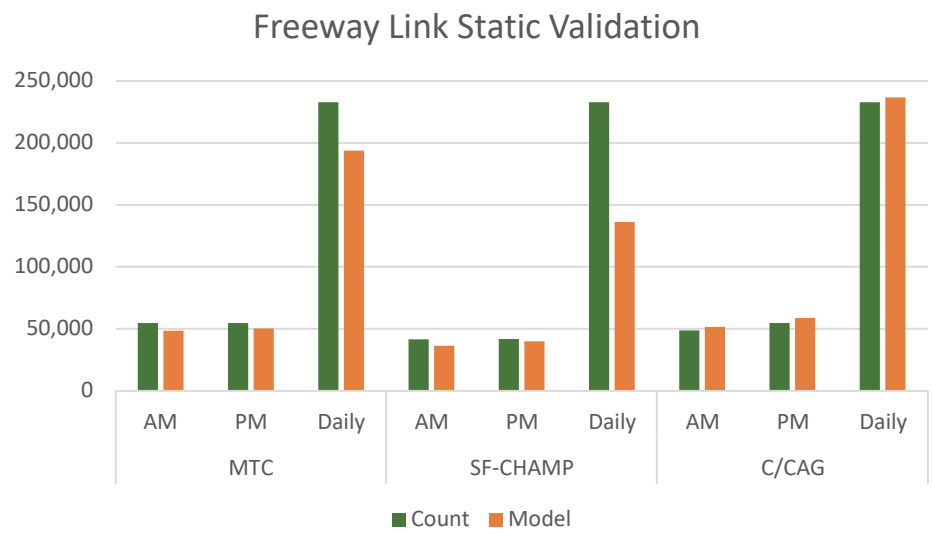
Validation Category	Observed Value	MTC	SF-CHAMP	CCAG/VTA
Level of Model Detail on Local Roadways	 Key Roadways: • US-101 • Bayshore Blvd • Tunnel Ave • Geneva Avenue • Guadalupe Canyon Parkway Arterials/Collectors: • Sierra Point Pkwy • San Bruno Ave • Old County Rd • Lagoon Rd • Harney Way • Visitacion Avenue • Mission Blue Dr • Valley Dr • ~~Carter Street~~ • Beatty Ave • Local SF Network • Local Brisbane Network	 Key Roadways: • US-101 • Bayshore Blvd • Tunnel Ave • Geneva Avenue • Guadalupe Canyon Parkway Arterials/Collectors: • Sierra Point Pkwy • San Bruno Ave • Old County Rd • Lagoon Rd • Harney Way • Visitacion Avenue • ~~Mission Blue Dr~~ • ~~Valley Dr~~ • ~~Carter Street~~ • Beatty Ave • ~~Local SF Network~~ • ~~Local Brisbane Network~~	 Key Roadways: • US-101 • Bayshore Blvd • Tunnel Ave • Geneva Avenue • Guadalupe Canyon Parkway Arterials/Collectors: • Sierra Point Pkwy • San Bruno Ave • Old County Rd • Lagoon Rd • Harney Way • Visitacion Avenue • Mission Blue Dr • Valley Dr • ~~Carter Street~~ • Beatty Ave • Local SF Network • ~~Local Brisbane Network~~	 Key Roadways: • US-101 • Bayshore Blvd • Tunnel Ave • Geneva Avenue • Guadalupe Canyon Parkway Arterials/Collectors: • Sierra Point Pkwy • San Bruno Ave • Old County Rd • Lagoon Rd • Harney Way • Visitacion Avenue • Mission Blue Dr • Valley Dr • ~~Carter Street~~ • Beatty Ave • Local SF Network • ~~Local Brisbane Network~~

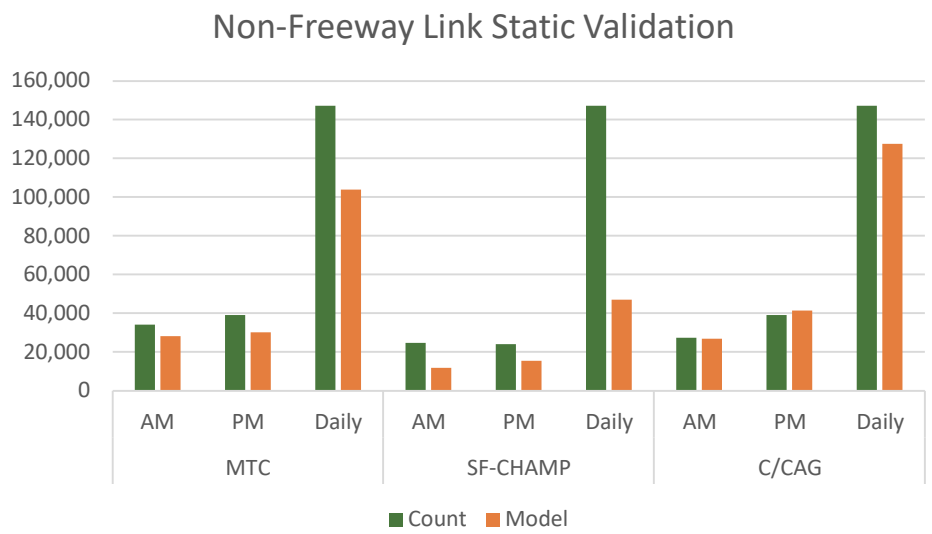
Validation Category	Observed Value	MTC	SF-CHAMP	CCAG/VTA
Level of Model Detail for Transit Network	  SFMTA: Lines K/T, 8, 8BX, 9, 9R, 56 Caltrain: Bayshore Stn Samtrans: 24, 29, 49, 397, 398 Commute.org: Brisbane-Bayshore route; Brisbane-Crocker Park Route	Includes SFMTA, SamTrans bus routes, Caltrain, and some shuttles. All routes require updating.	Includes SFMTA, SamTrans bus routes, Caltrain, and some shuttles. SamTrans routes require updating.	Includes SFMTA, SamTrans bus routes, Caltrain, and some shuttles. SFMTA routes and some SamTrans routes require updating.
Model Type		Activity-based	Activity-based	4-step Trip-based
Model Run Time		>24 hours	24 hours	12 hours
Agency Maintaining Model		MTC	SFCTA	VTA (with C/CAG support)
Can F&P License Model?		Yes	No	Yes
Model Calibration Year		2010	2015	2010
Model Base Year		2015	2015	2015

Validation Category	Observed Value	MTC	SF-CHAMP	CCAG/VTA
Number of TAZs/Connectors in Brisbane	Existing land uses concentrated west of Bayshore Boulevard, with some activity at office locations on Sierra Point Parkway.	• One TAZ (208) with three connectors: two west of Bayshore, one at SPP	• One TAZ (1208) with four connectors: three west of Bayshore, one at SPP	• Five TAZs west of Bayshore (1592, 1638, 1639, 1908, 1906), one TAZ representing the Baylands (1636), one TAZ for SPP (1637)
2015 Land Use in Brisbane	American Community Survey data indicate that in 2015, Brisbane had **1,967** households and Longitudinal Employer-Household Dynamics data shows that in 2016 Brisbane had **6,371** jobs.	HH: 2,085 EMP: 7,857	HH: 2,085 EMP: 7,857	HHPOP: 4,848 HH: 2,050 EMP: 7,116
2015 Land Use, San Mateo + San Francisco Counties	2015 ACS and LEHD: HH: 620,196 POP: 1,629,951 EMP: 1,088,548	HH: 625,728 POP: 1,579,424 EMP: 973,942	HH: 630,236 POP: 1,584,027 EMP: 973,441	HH: 629,593 POP: 1,583,983 EMP: 998,263
Static Validation Performance – Local links	Observed roadway counts were taken from a combination of Caltrans freeway and ramp sensors (The Caltrans Performance Measurement System (PeMS)) and turning movement counts taken in 2016 as part of the High Speed Rail Transportation Impact Analysis work performed by Fehr & Peers. These volumes were compared to model runs for 2015 conditions. See **Figure 1** and **Table 1** for detailed results.	**Generally underestimates traffic volumes** AM Peak: -14% PM Peak: -14% Daily: -22%	**Substantially underestimates traffic volumes** AM Peak: -27% PM Peak: -15% Daily: -52%	**Within 10% of counts** AM peak: +3% PM Peak: +7% Daily: -4%
Summary		Variance is within acceptable parameters for freeway links. Model is highly complex and difficult to work with. Model would require substantial local detail and sub-area calibration.	Variance is outside acceptable parameters, and Fehr & Peers is unable to directly license the model. The model would require substantial local detail and sub-area calibration.	Variance is within acceptable parameters when compared to Caltrans guidance, and has more detailed land use inputs in the Brisbane area. Requires some local detail and sub-area calibration.

Source: Fehr & Peers, 2019

Figure 1: Traffic Counts Compared to Model Volumes





Note: The MTC, SF-CHAMP, and C/CAG models all use different definitions of AM and PM peak periods. Therefore, each model's volumes must be compared to different count volumes.

Table 1: Variation Between Traffic Counts and Model Volumes (lower is better)

Roadway Facility Type	Model	AM Peak Period	PM Peak Period	Daily
Freeway Links	MTC	9%	6%	12%
	SF-CHAMP	13%	6%	29%
	C/CAG	**5%**	**5%**	**1%**
Non-Freeway Links	MTC	23%	19%	21%
	SF-CHAMP	24%	23%	26%
	C/CAG	**10%**	**12%**	**10%**

Notes: **Bolded** represents the closest association between traffic counts and model volumes.
The values shown in this table are the Percent Root Mean Square Error (RMSE) between model volumes and traffic counts.
RMSE is a statistical measure of the spread of data points around a best fit line.

Appendix B – Link-Level Static Validation

Daily

	MTC			SF-CHAMP			C/CAG		
Link	**Count**	**Model**	**% of Count**	**Count**	**Model**	**% of Count**	**Count**	**Model**	**% of Count**
Geneva Ave between Bayshore and Schwerin	20,858	18,774	90%	20,858	6,634	32%	20,858	15,017	72%
Bayshore Blvd between Geneva and Sunnydale	20,995	16,637	79%	20,995	16,495	79%	20,995	24,743	118%
Guadalupe Canyon Pkwy between Bayshore and N Hill	11,518	12,890	112%	11,518	12,541	109%	11,518	3,373	29%
Bayshore Blvd between Guadalupe Canyon and Valley	24,425	10,070	41%	24,425	2,488	10%	24,425	25,220	103%
Valley Dr between Bayshore and Park	9,689	0	0%	9,689	62	1%	9,689	1,396	14%
Old County Rd between Bayshore and Park	5,814	5,578	96%	5,814	101	2%	5,814	6,395	110%
Bayshore Blvd between Tunnel and San Bruno	27,322	4,241	16%	27,322	2,486	9%	27,322	21,753	80%
Beatty Ave between Alana and Tunnel	3,807	4,657	122%	3,807	1,767	46%	3,807	6,301	165%
Tunnel Ave between Lagoon and Beatty	2,773	0	0%	2,773	0	0%	2,773	2,353	85%
Tunnel Ave between Bayshore and Lagoon	6,149	5,578	91%	6,149	141	2%	6,149	5,241	85%
Lagoon Rd between Tunnel and Sierra Point	4,088	11,407	279%	4,088	141	3%	4,088	4,952	121%
101 NB between Sierra Point and Harney	114,869	97,868	85%	114,869	68,065	59%	114,869	117,852	103%
101 SB between Beatty and Sierra Point	117,868	96,076	82%	117,868	68,160	58%	117,868	118,739	101%
Harney Way between 101 ramps and Alana	6,293	13,999	222%	6,293	4,196	67%	6,293	7,600	121%
101 NB on-ramp at Sierra Point Pkwy	1,312	0	0%	1,312	15	1%	1,312	1,654	126%
101 NB off-ramp at Sierra Point Pkwy	2,180	0	0%	2,180	12	1%	2,180	1,534	70%

AM Peak Period

	MTC (6:00-10:00 AM)			SF-CHAMP (6:00-9:00 AM)			C/CAG (5:00-9:00 AM)		
Link	**Count**	**Model**	**% of Count**	**Count**	**Model**	**% of Count**	**Count**	**Model**	**% of Count**
Geneva Ave between Bayshore and Schwerin	4,483	4,987	111%	3,250	1,767	54%	3,601	3,545	98%
Bayshore Blvd between Geneva and Sunnydale	4,428	4,415	100%	3,210	3,842	120%	3,556	4,680	132%
Guadalupe Canyon Pkwy between Bayshore and N Hill	2,669	3,460	130%	1,935	2,955	153%	2,144	706	33%
Bayshore Blvd between Guadalupe Canyon and Valley	5,764	2,920	51%	4,178	827	20%	4,630	5,301	114%
Valley Dr between Bayshore and Park	2,331	0	0%	1,690	24	1%	1,872	299	16%
Old County Rd between Bayshore and Park	1,262	1,316	104%	915	82	9%	1,014	1,312	129%
Bayshore Blvd between Tunnel and San Bruno	6,256	656	10%	4,536	834	18%	5,025	4,662	93%
Beatty Ave between Alana and Tunnel	1,148	1,963	171%	833	135	16%	922	2,014	218%
Tunnel Ave between Lagoon and Beatty	727	0	0%	527	0	0%	584	507	87%
Tunnel Ave between Bayshore and Lagoon	1,324	1,316	99%	960	80	8%	1,063	1,009	95%
Lagoon Rd between Tunnel and Sierra Point	736	3,580	487%	533	80	15%	591	603	102%
101 NB between Sierra Point and Harney	25,984	24,250	93%	19,754	20,032	101%	23,203	23,722	102%
101 SB between Beatty and Sierra Point	28,711	24,039	84%	21,578	16,236	75%	25,420	27,667	109%
Harney Way between 101 ramps and Alana	1,757	3,484	198%	1,363	1,092	80%	1,500	1,661	111%
101 NB on-ramp at Sierra Point Pkwy	259	0	0%	197	0	0%	212	84	40%
101 NB off-ramp at Sierra Point Pkwy	917	0	0%	589	6	1%	641	402	63%

PM Peak Period

	MTC (3:00-7:00 PM)			SF-CHAMP (3:30-6:30 PM)			C/CAG (3:00-7:00 PM)		
Link	**Count**	**Model**	**% of Count**	**Count**	**Model**	**% of Count**	**Count**	**Model**	**% of Count**
Geneva Ave between Bayshore and Schwerin	5,882	5,601	95%	3,549	1,936	55%	5,882	5,292	90%
Bayshore Blvd between Geneva and Sunnydale	6,023	5,055	84%	3,634	5,014	138%	6,023	8,023	133%
Guadalupe Canyon Pkwy between Bayshore and N Hill	3,015	4,033	134%	1,819	4,133	227%	3,015	1,026	34%
Bayshore Blvd between Guadalupe Canyon and Valley	6,271	3,086	49%	3,783	1,209	32%	6,271	9,088	145%
Valley Dr between Bayshore and Park	2,434	0	0%	1,469	38	3%	2,434	407	17%
Old County Rd between Bayshore and Park	1,624	1,398	86%	980	19	2%	1,624	1,831	113%
Bayshore Blvd between Tunnel and San Bruno	7,244	1,863	26%	4,370	1,225	28%	7,244	8,205	113%
Beatty Ave between Alana and Tunnel	677	861	127%	408	565	138%	677	1,060	157%
Tunnel Ave between Lagoon and Beatty	625	0	0%	377	0	0%	625	758	121%
Tunnel Ave between Bayshore and Lagoon	1,731	1,398	81%	1,045	0	0%	1,731	1,225	71%
Lagoon Rd between Tunnel and Sierra Point	1,324	2,621	198%	799	0	0%	1,324	1,338	101%
101 NB between Sierra Point and Harney	27,738	26,042	94%	21,537	19,236	89%	27,738	30,019	108%
101 SB between Beatty and Sierra Point	26,950	24,212	90%	20,004	20,679	103%	26,950	28,811	107%
Harney Way between 101 ramps and Alana	1,430	4,244	297%	1,061	1,324	125%	1,430	2,176	152%
101 NB on-ramp at Sierra Point Pkwy	492	0	0%	414	15	4%	492	598	122%
101 NB off-ramp at Sierra Point Pkwy	313	0	0%	236	6	3%	313	376	120%

Appendix C – Dynamic Validation Summary

Test	Input Changes	Expected Output Changes	Validation Testing Results (Pass / Fail / Info)	Baylands Total VMT	Baylands (TAZ 1636) total VMT per service population	Regional total VMT per service population	Transit mode share for person-trips to/from Baylands (TAZ 1636)
dv0	No changes (copy of as-received base)	N/A	N/A	84,633	30.7	27.712	0.0%
dv1	Add a vehicle lane on Bayshore Blvd	Increased traffic volume on Bayshore Blvd, decreased traffic volume on US-101	**PASS**	84,453	30.6	27.720	0.0%
dv2	Add a vehicle lane on US-101 through Brisbane	Increased traffic volume on US-101, decreased traffic volume on Bayshore Blvd	**PASS**	84,523	30.6	27.712	0.0%
dv3	Add 5,000 jobs to Brisbane TAZ	Proportionate increases on centroid connector and surrounding roadways	**PASS**	238,722	30.8	27.692	0.0%
dv4	Add 500 du to Brisbane TAZ	Proportionate increases on centroid connector and surrounding roadways	**PASS**	122,460	29.5	27.718	0.0%
dv5	Add or change centroid connection location	Circulation changes match addition or change	**PASS**	80,873	29.3	27.686	3.3%
dv6	Add new link parallel to Bayshore and 101 (east of 101)	Volumes shift to new link	**PASS**	84,744	30.7	27.709	0.0%
dv7	Add new east-west link through Brisbane extending Geneva Avenue to US-101	Volumes shift to new link	**PASS**	82,034	29.7	27.679	0.0%
dv8	Increase transit frequency at Brisbane Caltrain	Transit ridership for Brisbane increases or decreases accordingly	**FAIL**	84,338	30.5	27.675	0.0%

Test	Input Changes	Transit mode share for City of Brisbane	Baylands (TAZ 1636) home-based residential VMT per capita	Brisbane City home-based VMT per capita	Brisbane City work-based VMT per employee	Traffic volume on Bayshore Blvd n/o Brisbane	Traffic volume on Bayshore Blvd s/o Brisbane
dv0	No changes (copy of as-received base)	1.500%	No residents in TAZ	14.0	14.2	11,062	9,506
dv1	Add a vehicle lane on Bayshore Blvd	1.503%	No residents in TAZ	14.0	14.2	11,906	10,330
dv2	Add a vehicle lane on US-101 through Brisbane	1.502%	No residents in TAZ	14.0	14.2	9,901	8,363
dv3	Add 5,000 jobs to Brisbane TAZ	1.103%	No residents in TAZ	13.8	14.2	11,310	9,885
dv4	Add 500 du to Brisbane TAZ	1.322%	13.7	13.9	14.7	11,047	9,527
dv5	Add or change centroid connection location	2.125%	No residents in TAZ	14.0	13.9	11,255	9,629
dv6	Add new link parallel to Bayshore and 101 (east of 101)	1.499%	No residents in TAZ	14.1	14.2	10,957	9,386
dv7	Add new east-west link through Brisbane extending Geneva Avenue to US-101	1.504%	No residents in TAZ	14.1	14.0	11,069	9,359
dv8	Increase transit frequency at Brisbane Caltrain	1.511%	No residents in TAZ	14.0	14.2		

Test	Input Changes	Traffic volume on US-101	Baylands (TAZ 1636) centroid connector volume	Traffic volume on Tunnel Ave n/o baylands	Traffic volume on Tunnel s/o Baylands	Traffic volume on new N/S link	Traffic volume on new E/W link
dv0	No changes (copy of as-received base)	58,772	2,041	1,407	764		
dv1	Add a vehicle lane on Bayshore Blvd	58,453	2,041	1,364	738		
dv2	Add a vehicle lane on US-101 through Brisbane	67,528	2,041	1,366	726		
dv3	Add 5,000 jobs to Brisbane TAZ		5,684	3,256	2,598		
dv4	Add 500 du to Brisbane TAZ		3,261	2,138	1,226		
dv5	Add or change centroid connection location	58,945	1,975	159	159		
dv6	Add new link parallel to Bayshore and 101 (east of 101)	58,183	2,041			1,027	
dv7	Add new east-west link through Brisbane extending Geneva Avenue to US-101	58,887	2,033	1,512	745		763
dv8	Increase transit frequency at Brisbane Caltrain						

Appendix B.3. Mid-Term and Cumulative Land Use and Transportation Changes

The analysis of mid-tern and cumulative conditions considers foreseeable changes to both land use development and the transportation network. **Table B-4** presents specific projects that are anticipated to be complete for each study scenario, with additional details in the supplemental tables in the following pages.

In addition to these specific projects, these future year scenarios account for regional growth associated with the buildout anticipated by 2040 of the General Plan's for San Francisco, Daly City, and South San Francisco, and the regional changes planned for in Plan Bay Area 2040. This growth includes site specific land use growth shown in the supplemental tables that would not have a substantial effect on traffic volumes through the study area and is counted towards the buildout of the respective cities general plans. Larger projects such as the Cow Palace that do not have a specific land use plan proposal, and thus may not be reasonably foreseeable, are also included within the background growth. The land use growth between C/CAG's base year model and 2040 model was prorated linearly to create 2035 conditions. Additional land use and transportation changes, such as those included in Plan Bay Area 2050, are not included within this cumulative year analysis because they would occur beyond the 2040 horizon year.

Table B-4: Future Year Land Use and Transportation Changes

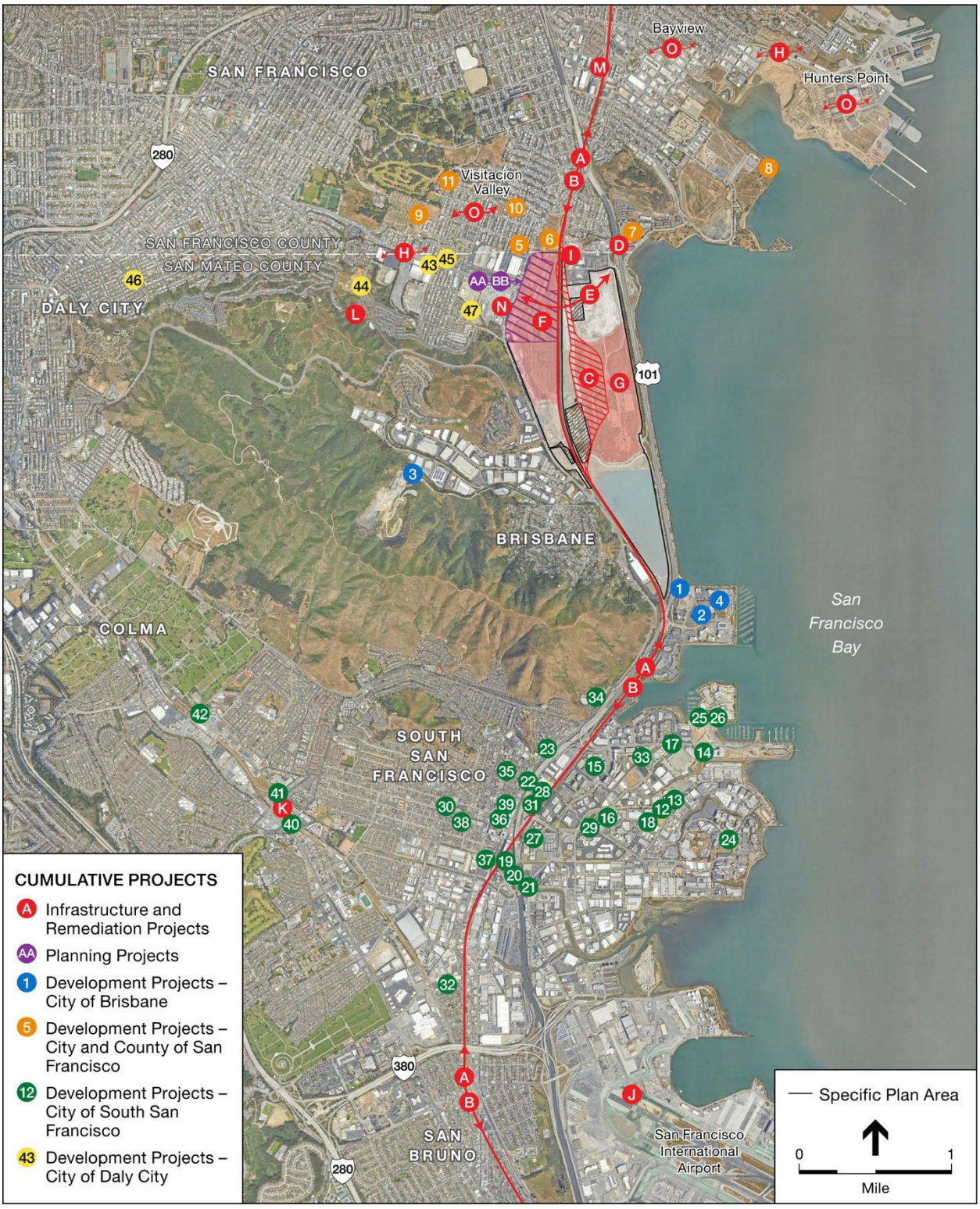
Transportation / Infrastructure[1]	Land Use[2]
Mid-Term 2035	
Caltrain Modernization Program	Local Housing Elements
Recology 501 Tunnel Avenue Facility Modernization Project	Prorated General Plan buildouts
Bayshore Multi-Modal Facility	Genesis Marina (3000-3500 Marina Blvd)
Visitacion Valley and Portola Community Based Transportation Plan	Sierra Point Towers
Southeast Muni Expansion	Guadalupe Quarry Project
Sierra Point Northbound U.S. 101 traffic signal	Sierra Point Hotel and Life Sciences Project
	Baylands North (Schlage Lock Redevelopment Plan)
	Executive Park Amended Subarea
	Hunters Point Shipyard-Candlestick Point
	Sunnydale HOPE SF Master Plan
Cumulative 2040	
U.S. 101/Candlestick Interchange Reconstruction[3]	General Plan Buildouts
Geneva-Harney Bus Rapid Transit[4]	
Other Regional Projects Considered but not Included within Cumulative Without Project conditions	
California High Speed Rail, San Francisco to San Jose Segment[5]	
California High Speed Rail Brisbane Light Maintenance Facility[5]	

Notes:

1. The only projects that would affect transportation infrastructure that would affect travel patterns through the study area are included here. The Geneva Avenue Extension is not listed in this table as is a proposed feature of the Project.
2. Other projects shown on the following pages in Daly City and South San Francisco are within their General Plan buildouts.
3. Included within the Cumulative Plus Project with Candlestick Interchange scenario only.
4. SFMTA's near-term plans for improving transit, bicycle, and pedestrian access along Harney Way and Alana Way, including new cycle tracks and traffic signals, are incorporated as a part of the Southeast Muni Expansion and Candlestick-Hunters Point projects (see https://www.sfmta.com/projects/harney-101-transit-crossing-project). The Geneva-Harney long-term BRT project is incorporated within the Cumulative Plus Project scenarios as the Geneva Avenue Extension proposed by the Project is required to connect this facility across the Caltrain tracks.
5. High-speed rail is assessed as an alternative to the Baylands Specific Plan project.

Source: Metis, Fehr & Peers, 2023.

Appendix B.4. Baylands EIR Master Cumulative List



Cumulative Projects

Cumulative Projects List

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
Infrastructure and Remediation Projects							
A	Caltrain Modernization Program	Peninsula Joint Powers Authority	Caltrain rail corridor from San Francisco through the Baylands to San Jose	NA	NA	NA	Electrification of the existing Caltrain corridor between San Francisco and San Jose; installation of a Communications Based Overlay Signal System Positive Train Control, which is an advanced signal system that includes federally mandated safety improvements; and the replacement of Caltrain's diesel trains with high-performance electric trains called Electric Multiple Units.
B	California High Speed Rail, San Francisco to San Jose Segment	California High Speed Rail Authority	Caltrain rail corridor from San Francisco through the Baylands to San Jose	NA	NA	NA	Planned 50-mile segment from San Francisco to San Jose passing through the Baylands would require four tracks in the Caltrain corridor and provide track improvements and grade separations that would allow for 22 trains to operate daily at speeds up to 110 mph. High speed rail stops, including station improvements are proposed in San Francisco, Millbrae, and San Jose. The existing Caltrain Bayshore Station will not be a stop for high-speed rail service along the corridor.
C	California High Speed Rail Brisbane Light Maintenance Facility	California High Speed Rail Authority	Area east of the Caltrain line within Baylands	NA	NA	NA	Approximately 121 acres of the Baylands primarily east of the Caltrain ROW have been identified as the proposed location for a high-speed rail light maintenance and storage facility, including construction of a southbound rail flyover for trains to access the maintenance facility.
D	US 101/Candlestick Interchange Reconstruction	Caltrans, San Francisco Transportation Agency, San Mateo Transportation Agency, City and County of San Francisco, City of Brisbane	Area approx. 700 feet northeast of Baylands Specific Plan Boundary.	NA	NA	NA	Reconstruction of the U.S. 101/Candlestick Interchange to a full all-directional interchange with a single-point cross-street connection, join an improved Harney Way to the east, and join the Geneva Avenue Extension to the west. The project includes two general purpose lanes and one transit-only lane in each direction between the Geneva Avenue Extension and Alana Way, and three general purpose travel lanes in each direction between Alana Way and Harney Way. Alana Way would become transit-only between Harney and Geneva.

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
E	Geneva Avenue Extension	San Francisco Transportation Agency, San Mateo Transportation Agency, City and County of San Francisco, City of Brisbane	Project is within the Baylands	NA	NA	NA	Extension of the existing Geneva Avenue east from its current terminus at Bayshore Boulevard, including a bridge over the Caltrain rail right-of-way. Geneva Avenue is planned as a 6-lane facility with two lanes for vehicles and one lane for bus rapid transit in each direction, sidewalks, and Class II bicycle facilities.
F	Site Remediation for Baylands Operable Units OU-SM, OU-2	California DTSC, RWQCB San Francisco Region	Projects are within the Baylands	NA	NA	NA	Remediation of existing soil and groundwater contamination within the former Southern Pacific Railyard in the western portion of the Baylands.
G	Title 27 Landfill Closure	RWQCB San Francisco Region, San Mateo County Environmental Health	Project is within the Baylands				Final landfill closure pursuant to the requirements of Title 27 within the former Brisbane Landfill in the eastern portion of the Baylands
H	Geneva-Harney Bus Rapid Transit	San Francisco, Brisbane		NA	NA	NA	Provision of exclusive bus lanes, transit signal priority, and stations along Geneva Avenue (from Santos Street to Executive Park Boulevard), Harney Way, and Crisp Avenue, and terminating at the Hunters Point Shipyard Center. Exclusive bus rapid transit lines to be provided along the Geneva Avenue extension from Bayshore Boulevard to the US 101 freeway,
I	Recology 501 Tunnel Avenue Facility Modernization Project	San Francisco, Brisbane	Adjacent to the Baylands, on the east side of Tunnel Avenue.	NA	NA	NA	Physical and operational modifications to Recology's 501 facility to consolidate operations, increase efficiency, and to support the San Francisco's Zero Waste program. The project would demolish or repurpose some existing structures, construct new buildings and parking areas, and reconfigure the campus layout. Recology's regional office, fleet maintenance, and fleet storage operations, currently at 250 Executive Park Boulevard and 900 7th Street, would be relocated to the 501 Tunnel site, which is within both San Francisco and Brisbane.

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
J	SFO Tomorrow Airport Development Plan	Unincorporated San Mateo County	Approx. 4 miles south of the Baylands along the east side of U.S 101.	NA	NA	NA	Taxiway and runway improvements; expansion and renovation of Terminal 3; internal improvements to other terminals; upgraded baggage handling system; roadway and parking improvements; new rental car center; air train expansion; and infrastructure improvements including new fuel tanks, substation improvements, and sea level rise protection.
K	Community Civic Campus	South San Francisco	Approx 2.8 miles southwest of the Baylands northeast of the intersection of Camino Real and Chestnut Avenue.	NA	NA	NA	Design and construction of a new police station, a new fire station, and a shared library and parks and recreation facility.
L	San Bruno Mountain State and County Park Fuel Reduction Project	San Mateo County	Closest improvement area located approx. 1 mile west of the Baylands, West of Carter Street in San Bruno Mountain State and County Park.	NA	NA	NA	Ongoing fuel reduction/habitat improvement
M	Egbert Switching Station (Martin Substation Extension)	San Francisco, Daly City, Brisbane	Approx. 1.2 miles north of the Baylands at 1755 Egbert Avenue.	NA	NA	NA	Construction of a new 230 kV switching station (Egbert Switching Station). The project would reroute two existing underground 230 kV transmission lines currently connected to the existing Martin Substation and connect them to the proposed Egbert Switching Station. The existing Martin-Embarcadero line would be looped into

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
							the proposed Egbert Switching Station, creating a Martin-Egbert line and an Egbert-Embarcadero line, and the existing Jefferson-Martin line would be rerouted and extended to the proposed Egbert Switching Station, creating a Jefferson-Egbert line
N	San Francisco Public Utilities Commission (SFPUC)–Pacific Gas and Electric Company (PG&E) Acquisition Project	Regional	Martin Substation is adjacent to the Baylands to the West of Bayshore Boulevard.	NA	NA	NA	Acquisition by SFPUC of a portion of the PG&E transmission system within the San Francisco city limits, including substations, interconnections, transformers, transmission and distribution lines, supporting equipment, operational facilities, relevant records, and other facilities (e.g., streetlights). The project would include physical separation of some assets from the remainder of PG&E's electricity grid, modification of existing infrastructure, and construction of new infrastructure. The portion of the project requiring new construction or modifications to existing facilities would primarily be in the southern portion of San Francisco and along the county border in the northern portions of Brisbane and Daly City. New equipment would be installed within the Martin, Potrero, Randolph, and Plymouth substations. Additional work would be performed in small, discontinuous areas generally located near the county border.
O	Southeast Muni Expansion	San Francisco Municipal Railway		NA	NA	NA	New Muni bus routes, bus route extensions and reroutes, and more frequent service on existing Muni bus routes in San Francisco's southeastern neighborhoods (Bayview, Hunters Point, and Visitacion Valley). Includes new service along Harney Way ultimately connecting to the existing Bayshore Caltrain station. Implementation of the initial bus service options is anticipated to begin along with the next major phases of the development projects, primarily at Candlestick Point-Hunters Point Shipyard.
Planning Projects							
AA	2023-2031 Housing Element	Brisbane	NA	NA	NA	NA	General Plan Housing Element to provide opportunities for the development of housing for all economic

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
							segments of the community between 2023 and 2031. The Housing Element identifies the following housing objectives based on the Regional Housing Needs Allocation prepared by ABAG: Very Low Income: 317 Low Income: 183 Moderate Income: 303 Above Moderate Income: 785 TOTAL: 1,588
BB	General Plan Buildout	Brisbane	NA	xxx	xxx	xxx	Buildout of the Brisbane General Plan other than Cumulative projects 2-4.
Development Projects – City of Brisbane							
1	Genesis Marina (3000-3500 Marina Blvd)	Brisbane	Approx 0.85 miles southeast of the Baylands on Sierra Point.	NA	422,000 s.f.	NA	Biotechnology campus of three buildings with office space above a two-level podium parking garage. 652 off-street parking spaces in parking podiums, 129 spaces in a surface parking lot, and 8 spaces for Bay Trail access.
2	Sierra Point Towers	Brisbane	Approx 1.1 miles southeast of the Baylands.	NA	853,220 s.f. 40,000 s.f. amenity building	NA	Demolition of an existing parking structure and surface parking lot to construct two new life sciences office towers, an amenity building, and an 11-story parking structure with 3,771 parking spaces (87 additional surface parking spaces). New open space, a transit hub, and pedestrian and vehicular circulation would be provided.
3	Guadalupe Quarry Project (1 Quarry Road)	Brisbane	Approx. 1 mile southwest of the Baylands.	NA	NA	Unknown	General Plan Amendment and pre-zoning of a portion of the Guadalupe Quarry to facilitate annexation and industrial development on approximately 50 acres of the quarry property.
4	Sierra Point Hotel and Life Sciences Project	Brisbane	Approx 1.1 miles southeast of the Baylands.	NA	657,620	608 hotel rooms and 20,000 s.f. event space	12-story hotel building and 11-story life sciences building with 1,200 onsite parking spaces in 2-story parking podiums.

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
Development Projects – City and County of San Francisco							
5	Visitacion Valley and Portola Proactive Traffic Calming Project	San Francisco	Portion of the Project Area is adjacent to the Baylands on the northwest side of Bayshore Boulevard.	NA	NA	NA	Safety project to reduce pedestrian injuries to seniors and people with disabilities, including installation of speed humps and other low-cost traffic calming measures.
6	Baylands North (Schlage Lock Redevelopment Plan)	San Francisco	Adjacent to the Baylands Specific Plan north of Sunnydale Avenue and east of Bayshore Boulevard.	1,679	47,000	15,000 s.f. institutional uses	Redevelopment of underutilized properties with residential; commercial; and cultural, institutional, or educational uses, including restoration and reuse of historic office building.
7	Executive Park Amended Subarea	San Francisco	Approx. 0.25 miles northeast of the Baylands, east of U.S 101 and north of Alana Way.	1,685	NA	NA	• Universal Paragon Corporation Development Project. • Ocean Landing (5 Thomas Mellon Circle), including demolition of an existing office building and surface parking lot for construction of five residential buildings, two below-grade parking structures, publicly accessible open spaces, new streets, alleyways, and pedestrian walkways.
8	Hunters Point Shipyard-Candlestick Point	San Francisco	Approx. 0.5 to 2.5 miles northeast of the Baylands.	9,000	2,000,000	8,000 seat arena	Various redevelopment plans, rezoning, site-specific development projects, and infrastructure for a 778-acre site encompassing Candlestick Point, Hunters Point Shipyard, and India Basin Shoreline.
9	Sunnydale HOPE SF Master Plan (Sunnydale Avenue)	San Francisco	Approx. 0.75 miles west of the Baylands.	1,700	16,000	66,000 educational facilities	Demolition of the existing Sunnydale public housing complexes (785 residential units) and construction of replacement and new market rate housing, retail uses, 50,000 square feet of recreation and education facilities,16,000 square feet of youth and senior services

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
							uses, 1,441 off-street parking spaces, and infrastructure including a new street network.
10	198 Leland Avenue	San Francisco	Approx 0.30 miles northwest of the Baylands	4	NA	NA	Demolition of an existing commercial building and construction of a three-story mixed-use building.
11	590 Leland Avenue	San Francisco	Approx. 0.75 miles northwest of the Baylands.	5	NA	NA	Demolition of an existing church for residential use.
Development Projects – City of South San Francisco							
12	494 Forbes Boulevard	San Francisco	Approx. 2.25 miles south of the Baylands.	NA	326,020		Two 4-5 Story Office/R&D buildings and a 3-level parking structure
13	499 Forbes Boulevard Office Project	South San Francisco	Approx. 2.2 miles southeast of the Baylands.	NA	128,737	NA	5 story office/R&D building with a 4-story parking garage.
14	101 Gull Drive	South San Francisco	Approx. 2 miles southeast of the Baylands.	NA	166,613	NA	7-story office/R&D building with a 4.5-level parking garage
15	751 Gateway Boulevard	South San Francisco	Approx. 2 miles south of the Baylands	NA	208,000	NA	7-story office/R&D building
16	328 Roebling Road	South San Francisco	Approx. 2.25 miles south of the Baylands	NA	130,000	NA	Office/R&D building with 3-level parking structure
17	476 Eccles Avenue	South San Francisco	Approx. 1.85 miles southeast of the Baylands.	NA	262,287	NA	Two 4-story Office/R&D buildings and a 5-level parking structure

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
18	465 Cabot Road	South San Francisco	Approx. 2.35 miles south of the Baylands.	NA	31,765	NA	Office and service center
10	40 Airport Boulevard	South San Francisco	Approx 2.5 miles southwest of the Baylands	292	NA	NA	Residential building
20	124 Airport Boulevard 100 Produce Avenue	South San Francisco	Approx 2.5 miles southwest of the Baylands.	310	NA	NA	Two 7-story residential buildings
21	200 Airport Boulevard	South San Francisco	Approx. 2.6 miles southwest of the Baylands.	94	3,650	NA	Seven-story mixed-use building with two levels of parking
22	701 Airport Boulevard	South San Francisco	Approx. 2 miles southwest of the Baylands.	NA	NA	131 rooms	Five-story hotel
23	915 Airport Boulevard	South San Francisco	Approx. 1.75 miles south of the Baylands.	NA	NA	115 rooms	Five-story hotel
24	Genentech Master Plan	South San Francisco	Approx. 2.5 miles southeast of the Baylands, south of Oyster Point and Forbes Blvd.	NA	4,300,000	NA	Expansion of building space within the existing Genentech Campus
25	379 Oyster Point Boulevard (Phase 2C)	South San Francisco	Approx. 1.7 miles southeast of the Baylands.	NA	Unknown	NA	Development of city-owned land managed by the Harbor District, including a new pump station, repairs to the landfill clay cap, improved parking areas and landscaping. To complement the planned

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
							improvements, a planning effort will take place to set a vision for new land uses in the marina area.
26	379 Oyster Point Boulevard (Phase 2C)	South San Francisco	Approx. 1.7 miles southeast of the Baylands.	NA	1,700,000	NA	Office/R&D buildings within the current Oyster Point Business Park.
27	100 East Grand Avenue	South San Francisco	Approx. 2.4 miles south of the Baylands.	NA	Unknown	NA	New R&D campus, consisting of one 10-story building, one 8-story building, and one 8-story parking garage.
28	121 East Grand Avenue	South San Francisco	Approx. 2.3 miles south of the Baylands.	NA	940,717	NA	17-story office/R&D building
29	200-219 East Grand Avenue	South San Francisco	Approx. 2.2 miles south of the Baylands.	46	6,000	NA	Five -story mixed-use development
30	455 Grand Avenue	South San Francisco	Approx. 2.3 miles southwest of the Baylands.	27	2,865	NA	Five-story mixed-use building
31	580 Dubuque Avenue	South San Francisco	Approx. 2.2 miles south of the Baylands.	NA	213,000	NA	6 story Office / R&D building with 4 levels of underground parking
32	Southline Development (30 Tanforan Avenue)	South San Francisco	Approx. 3.4 miles southwest of the Baylands.	NA	2,700,000	NA	Construction of six office / R&D buildings up to 7 stories in height, below-grade parking, site amenities, open space, and landscaping
33	Gateway Phase 4 (850-900 Gateway Boulevard)	South San Francisco	Approx. 1.9 miles south of the Baylands.	NA	182,000	NA	Two Office / R&D buildings with a 6-level parking garage
34	Genesis (One and Two Tower Place)	South San Francisco	Approx. 1.5 miles south of the Baylands.	NA	NA	110 rooms	Hotel

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
35	418 Linden Avenue	South San Francisco	Approx. 2 miles southwest of the Baylands.	38	NA	NA	Five-story residential development with mechanical parking lifts
36	Cadence Phase 2 (405 Cypress Avenue)	South San Francisco	Approx. 2.2 miles southwest of the Baylands.	195	NA	NA	Seven to eight-story building with residential and amenity uses.
37	7 South Linden Avenue	South San Francisco	Approx 2.6 miles southwest of the Baylands.	558	NA	NA	5-story residential building
38	428 Baden Avenue	South San Francisco	Approx 2.4 miles southwest of the Baylands.	36	NA	NA	Four-story residential building project
39	Bertolucci's Redevelopment (421 Cypress Avenue)	South San Francisco	Approx 2.2 miles southwest of the Baylands.	99	1,500	NA	Seven-story mixed-use building with housing, restaurant, corner plaza, ground-floor parking, and residential amenities
40	988 El Camino Real	South San Francisco	Approx 2.9 miles southwest of the Baylands.	172	12,000	NA	Six-story residential/retail mixed-use building with two levels of subterranean parking
41	South San Francisco Public Utilities Commission (PUC) Site Development	South San Francisco	Approx 2.8 miles southwest of the Baylands.	800	13,000	Childcare facility for up to 100 children	Proposed mixed-use development and public open space on a portion of the former South San Francisco Public Utilities Commission sites totaling approximately 5.9 acres in the El Camino/Chestnut Avenue Planning Area Of the proposed 800 dwelling units, 158 would be affordable for very low- and low-income households.
42	Mission Road and McClellan Drive	South San Francisco	Approx. 2.8 miles southwest of the Baylands.	20	6,000	NA	Mixed use residential/retail

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
Development Projects – City of Daly City							
43	Cow Palace, 2150 Geneva Avenue	Daly City	Approx. 0.53 miles west of the Baylands.	1,700	300,000	NA	This property is owned and operated by the State of California as an indoor arena. Daly City anticipates redevelopment of the Cow Palace and two adjacent properties to include high density residential and multi-story retail/office commercial in a multi-story.
44	Point Martin Phases 1 and 2 (Steve Courter Way and Martin Street)	Daly City	Approx. 1 mile west of the Baylands.	133	NA	NA	Single-family detached housing
45	Pacific Place Retail Conversion (2665 Geneva Avenue)	Daly City	Approx. 0.5 mile west of the Baylands.	7	Unknown	NA	Convert an existing 9,756 square foot retail space into one additional retail space and residential condominium units at the ground floor level along Geneva Avenue
46	Templeton Homes	Daly City	Approx. 2.5 miles west of the Baylands.	4	NA	NA	Detached three-story homes
47	Midway Village Redevelopment (45 Midway Drive)	Daly City	Approx. 0.25 miles west of the Baylands.	625	NA	NA	Mixed-use development consisting of seven apartment buildings, four walk-up flat buildings, and townhomes in a mix of stand-alone and connected buildings. The new development would also include a new child-care facility, 745 parking spaces, community center, office space for property management, and recreational facilities in a revised street system, together with relocation of David R. Rowe Park.
Cumulative Projects Total				**18,429**	**15,656,994**	**964 hotel rooms** **81,000 s.f. institutional/ educational uses** **8,000 seat arena** **20,000 s.f. event space**	

No.	Project Name	Jurisdiction	Distance from Baylands	Residential Units	Commercial/ Office Square Footage	Other	Description
Baylands Specific Plan				**2,200**	**6,500,000**	**500,000 s.f. hotel use**	
CUMULATIVE TOTAL				**20,629**	**22,156,994**	**964 hotel rooms + 500,000 s.f. hotel use** **81,000 s.f. institutional/ educational uses** **8,000 seat arena** **20,000 s.f. event space**	

Source: California High Speed Rail Authority; San Francisco Public Utilities Commission; City and County of San Francisco; cities of Brisbane, Daly City and South San Francisco, 2022.

Appendix B.5. Emerging Transportation Technology and Travel Options

Transportation and mobility are being transformed through several forces ranging from new technologies, different personal preferences, and the unique effects of the COVID-19 pandemic, the combination of which could alter traditional travel demand relationships in the near term and long term. These disruptive trends increase uncertainty in forecasting future travel conditions, especially considering that new technologies such as automated vehicles (AVs) may operate on future transportation networks once all phases of the project are complete and operational. Information about how technology is affecting and will affect travel is accumulating over time.

Furthermore, the COVID-19 pandemic and subsequent actions by federal, state, and local governments to curtail mobility and encourage physical distancing (i.e., limit in-person economic and social interactions) has temporarily but profoundly changed travel conditions. While travel activity will likely stabilize after the pandemic has subsided, it is possible that some of these temporary changes will influence people's travel choices into the future, including either accelerating or diminishing some of the emerging trends in transportation that were already underway prior to the pandemic. As the C/CAG model does not account for the operations of AV's or changes to travel patterns due to the COVID-19 pandemic given the inherent uncertainty of how these effects will continue into the future, the discussion and quantitative evaluation of trends presented below are intended to provide information about how this technology could affect the conclusions of this study. Some of the emergent changes already influencing travel behavior that could accelerate in the future include the following.

- Substituting internet shopping and home delivery for some shopping or meal-related travel.
- Substituting participating on social media platforms for social/recreational travel.
- Substituting telework for in-office work/commute travel.
- Substituting telemedicine appointments for eligible in-person medical appointments.
- Using new travel modes and choices. Transportation network companies such as Uber and Lyft, car sharing, bicycle/scooter sharing, and on-demand micro-transit services have increased the options available to travelers and have contributed to changes in traditional travel demand relationships. The C/CAG model was calibrated to 2019 conditions and may not fully capture all the factors influencing transit ridership declines today or in the future.
- Automation of vehicles. Both passenger vehicles and commercial vehicles and trucks are evolving to include more automation. Research, development, and deployment testing is proceeding on AVs; AVs do not require an operator and navigate roadways autonomously. Forecasts of how quickly research, development, and deployment testing will transition to full deployment and marketing of AVs vary widely both on the pace of the transition and the market acceptance of fully automated operation. More uncertainty exists around the behavioral response to AVs. In terms of VMT impacts on the transportation system and the environment, the worst-case scenario would be one in which AVs are privately owned, as they are now, but the automated function of AVs would cause them to be used more as described below.

- AVs could be repositioned to serve different members of a household (e.g., have an AV drop a worker at their workplace, then drive back home empty to serve another trip such as taking a student to school). The repositioning of AVs could add significantly to traffic volumes and VMT.
- AVs could reduce the value travelers place on time spent in a vehicle, resulting in an increase in willingness to make longer trips. For example, if a person could read or work in an AV instead of focusing on driving, they might be willing to commute longer distances to work. Conversely, a worker who would prefer to live in a rural area but is unwilling to drive far enough to act on that preference in a conventional vehicle may be willing to do so using an AV.
- AVs could increase willingness to drive more to avoid parking costs or tolls. For example, a person going to a sporting event in an area that charges for parking might use an AV to be dropped off at the venue, and then re-position and park the AV in an area that does not charge for parking.
- Connected vehicles can communicate wirelessly with their surroundings, including other vehicles, bicyclists, pedestrians, roadway infrastructure (i.e., traffic signals, toll facilities, and traffic management facilities), and the internet. The influence that connected vehicles may have is still speculative but includes potential for reductions in collisions and congestion and greater overall network performance optimization.

Fehr & Peers conducted a scenario planning exercise with Metis to evaluate how different COVID pandemic trends could affect VMT, trip generation, and transit ridership in the City of Brisbane. The purpose of this analysis was to account for potential travel demand changes associated with COVID that might affect the Baylands Specific Plan, such as changes to transit use and work from home activities. As documented in the October 2022 memorandum, *Baylands Specific Plan: COVID Scenario Planning Results* (Fehr & Peers) presented in **Appendix B.5**, the results of this exercise indicated that total vehicle travel would likely decrease by five to 10 percent due to the combination of these factors. Given that these factors would likely slightly decrease total vehicle travel, the trip generation and VMT estimates were not adjusted. This represents a conservatively high assessment of potential vehicle traffic for this transportation study. However, the City retains the discretion to account for these travel pattern changes to ensure decision makers are provided an accurate assessment of future travel patterns.

Appendix B.6. Baylands Specific Plan: COVID Scenario Planning Results

FEHR PEERS

Memorandum

Date: October 2022

To: Lloyd Zola, Metis Environmental Group

From: Matt Goyne, Drew Levitt, and Nina Price, Fehr & Peers

Subject: Baylands Specific Plan: COVID Scenario Planning Results

SF19-1036

Fehr & Peers conducted a scenario planning exercise with Metis to evaluate how different COVID pandemic trends could affect VMT and transit ridership in the City of Brisbane. The purpose of this analysis was to account for potential travel demand changes associated with COVID that might affect the Baylands Specific Plan, such as changes to transit use and work from home activities on vehicle miles traveled (VMT), transit ridership, and traffic volumes. This memorandum presents an assessment of four key economic, social, and technological trends based on a combination of national elasticities and local data.

The findings of the scenario planning analysis are summarized in **Table 1.** Using Spring 2019 conditions as the baseline, the forecasted changes in VMT and transit ridership are based on the latest post-COVID trends and an assessment of local data to understand how they may impact to travel in Brisbane. The results summarize the effects of the four forecasted trends, the combined influence of these trends, as well as adjusted results that consider the effects of induced vehicle travel.[1] The combination of the four trends is estimated to decrease VMT by approximately five percent per capita and transit ridership by approximately 19 percent per capita when accounting for induced VMT. The analysis approach and results are presented in the remainder of this memorandum.

Given these results, Fehr & Peers recommends using travel demand models and data calibrated to pre-pandemic conditions for the purposes of the Baylands Specific Plan EIR. The slight decrease in VMT of the combined trends indicates that these models may slightly overestimate

[1] Induced VMT considers that as trips decrease due to regional trends (e.g., telecommuting), a portion of eliminated trips are replaced by new, formerly suppressed demand, which limits the potential for decreased VMT per capita. Caltrans presents an explaination of Induced Demand here: https://dot.ca.gov/programs/sustainability/sb-743; Accessed by Fehr & Peers, October 4, 2022.

the VMT and vehicle trips generated by the Baylands Specific Plan and thus present a conservative assessment of the Specific Plan.

Table 1. Total Effects on VMT and Transit Ridership per Capita

	Reasonable Range	Estimated Value	Change in VMT Per Capita	Change in Transit Ridership Per Capita
Average Daily Telecommute Levels	20 to 31%	20%	-6.6%	-6.0%
Change in Transit Service Miles	-10 to 10%	10%	-0.2%	5.0%
Loss of Transit Ridership due to safety concerns	15 to 30%	15%	0.6%	-15.0%
Share of Online Shopping	12 to 30%	25%	-1.1%	-1.6%
Total Combined Effects			**-7.9%**	**-17.4%**
Total with Induced VMT			**-4.7%**	**-18.6%**

Analysis Approach

TrendLab+ is a tool for forecasting the effects of emerging trends in transportation on travel behavior based on the latest national research. In its standard form, TrendLab+ considers up to twelve different trend variables and projects the resulting changes on regional vehicle miles traveled (VMT) and transit ridership. Each trend variable considers how travelers respond to changes in transportation options and services based on the appropriate trip purposes and modes of travel. Fehr & Peers narrowed down the list of trends to those that that are relavent to the Baylands Specific Plan. Specifically, this memorandum describes the data sources and research used to assess the effects of the following trends:

- Telecommute Levels
- Transit Funding and Service Enhancements
- Safety and Health Concerns
- E-Commerce

For each of the identified trends, Fehr & Peers gathered applicable national and local data to determine how the trend would affect VMT and transit ridership in Brisbane.

Fehr & Peers and Metris also reviewed other trends that might be helpful for transit agencies to inform decisions and develop contingencies and determined that they are too speculative to include within a CEQA study for a land use project. This includes macro trends such as employment and income levels and land use migration patterns, changing preferences for non-auto modes, and the potential future market shares of ride-hailing, autonomous vehicles, and air taxis.

Analysis by Trend

The below sections describe the data and research used to forecast the effect of each trend on VMT and transit ridership within the Brisbane context. Fehr & Peers gathered relavent national or local data and combined this data with state of the practice elasticities to inform recommended changes to VMT and transit ridership. Sources for the data referenced are presented in footnotes while the elasticities are presented with the detailed trend analysis in **Appendix A**.

Telecommute Levels

As telecommute levels increase, the total number of people who drive or ride transit in a community goes down as fewer work trips are completed. VMT is also reduced when commute trip lengths are long, such as in San Mateo County due to the jobs and housing imbalance where many workers commute across county lines[2]. Research on telecommuting patterns indicates that income (share of workforce earning above $100,000/year) and type of work (share of workforce in essential work [e.g., health care, construction, grocery stores]) are important indicators of the amount of telecommuting in a community.

Telework rates before the pandemic were between 5 to 13 percent according to the US Census[3]. Studies from the US Census, the National Bureau of Economic Research[4], the McKinsey Global Institute[5], Deloitte[6], GitLab[7], and the US Bureau of Labor Statistics[8] indicate that due to the pandemic, telework levels have dramatically increased and that this trend will preserve into the future. The range for average daily workers who telecommute post-pandemic is projected to be 20 to 31 percent based on the findings of the sources above.

Local data were reviewed where available to determine how applicable the national data sources are to the Brisbane context. According to the US Census 2019 American Community Survey 5-year estimates, San Mateo County had a 5.3 percent telecommute rate before the pandemic. 35 percent of residents earn less than $100,000/ per year and between 20 to 30 percent of the

2 62% of San Mateo County commuters cross county lines, which is significantly higher than other nearby counties or the Bay Area as a whole (49%). Source: U.S. Census Bureau. 2014 LODES Data. Longitudinal-Employer Household Dynamics.

[3] US Census Bureau. (2021). Working From Home During the Pandemic (United States, Census Bureau). Retrieved from https://www.census.gov/library/stories/2021/03/working-from-home-during-the-pandemic.html

[4] National Bureau of Economic Research. (2020). How Many Jobs Can Be Done At Home?

[5] McKinsey Global Institute. (2021 & 2020). The future or work after COVID-19 & What's next for remote work: An analysis of 2,000 tasks, 800 jobs, and nine countries, Reports.

[6] Deloitte. (2021). Remote Work: The Road to the Future, Transformation of the Global Workforce.

[7] Gitlab. (2021). The Remote Work Report 2021.

[8] U.S. Bureau of Labor Statistics (2021). Projections overview and highlights, 2020–30. Monthly Labor Review.

workforce is employed in essential work[9]. The largest employment sectors include management occupations, office and administrative support, and technical occupations, which are all able and likely to shift to remote work, according to McKinsey. While these parameters indicate that Brisbane is likely to experience an on-going shift to telecommute that falls on the middle- to high-end of the range for national levels, Fehr & Peers recommends using the lower end of this range for the conservative purpose of estimating VMT rates. As shown in **Table 2**, a 15 percent increase in telecommute, bringing the telecommute share to 20 percent for the city, would reduce both VMT per capita and transit ridership by six to seven percent.

Table 2. Post-COVID Telecommute Levels

Reasonable Range for Telecommute Share	Recommended Telecommute Share	Change in VMT Per Capita	Change in Transit Ridership Per Capita
20-31%	20%	-6.6%	-6.0%

Transit Service Levels

Transit becomes a more convenient mode of travel as transit service levels increase, potentially leading to transit ridership increases, and decreases in levels of driving and VMT. In May 2022, Caltrain returned to pre-pandemic service levels. The on-going Caltrain electrification project that would increase service levels in the next two to three years would allow them to double service in the next 10 to 15 years[10]. BART has also committed to return to pre-pandemic levels. There are no current plans for BART service levels to change substantially in the next decade beyond 2019 levels[11]. SamTrans also plans to maintain their service miles, while improving on their efficiency and effectiveness[12]. MTC also outlines plans for transit investments over the next 30 years to increase service frequency and expand the system network[13]. Given these plans and forecasts, Fehr & Peers conservatively estimated a 10 percent increase in transit service miles to represent the planned increase in Caltrain service and maintenance of other transit services. As shown in **Table 3**, this transit service increase would slightly reduce VMT per capita while increasing transit ridership by five percent.

[9] American Community Survey (ACS), Census Bureau. (2019). 5-year estimates for San Mateo County.
[10] Caltrain Long Range Service Vision (2019).
[11] BART Metro: 2030 and Beyond (Updated 2022)
[12] Reimagine Sam Trans Final Report (March 2022)
[13] Plan Bay Area 2050 (October 2021). Transportation: Regional Transit Investments

Table 3. Transit Service Increases

Reasonable Range for Transit Service Changes	Recommended Change to Transit Service	Change in VMT Per Capita	Change in Transit Ridership Per Capita
-10 to 10%	10%	-0.2%	5.0%

Safety and Health Concerns

Surveys of transit riders who used transit prior to COVID-19 indicate that substantial reservations remain about riding transit in the future due to concerns about cleanliness, health risks, and personal security, especially while riding at night. To forecast the effects of this trend, Fehr & Peers focused on the percent of prior transit users who do not return to transit post-COVID. The local factors that are relevant to the influence of safety and health concerns on transit ridership are the following:

- Proximity to jobs and housing
- Feasibility of alternative transportation options
- Transit expansions that increase the ease or quality of the transit service

The effect of safety and health concerns on transit ridership and VMT is based on research from the National Academy of Sciences[14], TransLoc[15], University of Chicago[16], and rider survey results from U.S. transit agencies/jurisdictions (including Boston, Chicago, and Los Angeles). Findings from the University of Chicago, rider surveys, and National Academy of Sciences broadly confirm that former transit riders' concerns about COVID transmission and other safety issues will decrease transit ridership compared to pre-pandemic levels, however they are not directly proportional. Transloc surveys demonstrated that the likelihood of former transit riders transitioning to alternative modes is dependent on the proximity and convenience of transit services. The National Academy of Sciences indicates that the mode shift will be mostly to private cars due to widespread concerns about proximity to other people and interest in maintaining social distance. The percent of riders who are predicted not to return to transit post pandemic is between 15 and 30 percent, according to the sources above.

[14] Salon, D., Conway, M., Capasso de Silva, D., et al. The potential stickiness of pandemic-induced behavior changes in the United States. National Academy of Sciences of the United States of America.
[15] TransLoc Poll. Rider Expectations Pre and Post Pandemic. 2021.
[16] Barrero Jose Maria et al., "Why Working from Home Will Stick." University of Chicago. April 21, 2021.

In a Spring 2021 survey of Bay Area voters, 26 percent responded that they would feel very unsafe taking transit and 38 percent responded that they would feel somewhat unsafe[17]. Similarly, 46 percent of former Caltrain riders have substantial concerns about contracting COVID while riding Caltrain[18], and 37 percent of former BART riders listed cleanliness and personal safety as reasons they are riding less or not at all[19]. Brisbane has a relatively high income distribution, with a variety of transit options available, and the planned transit improvements noted above that will make it more convenient. Due to these factors, Fehr & Peers estimated that 15 percent of riders do not return post-COVID. As shown in **Table 4**, this correlates with a small increase in VMT of less that one percent, and a direct loss of 15 percent of transit ridership.

Table 4. Safety Concerns

Reasonable Range for Transit Riders who do not Return Post-COVID	Recommended Transit Rider Attrition	Change in VMT Per Capita	Change in Transit Ridership Per Capita
15-30%	15%	0.6%	-15.0%

Ecommerce

As the share of shopping that is conduced through online shopping and delivery services increases, the number of personal trips for shopping decreases. To forecast the impact of ecommerce on VMT and Transit, Fehr & Peers examined the national forecasts for ecommerce increases and adjusted the estimation based on the following local factors:

- Income distribution
- Density of and access to stores and goods

[17] Bay Area Council Poll. COVID-19 Impacts: Returning to Work and Transit. March 2021
[18] Clatrain Business Plan: Covid Recovery Planning. Fall 2021 Survey of Current/Former Riders.
[19] Cano, Ricardo. "Telework isn't the only hurdle for Bay Area Transit. It has to get past people's 'psychology of fear'." San Francisco Chronicle. February 10, 2022.

Research from Statista[20], UBS Global[21], Market Watch[22], the U.S. Department of Commerce[23], CBRE[24], McKinsey & Company[25], Deloitte[26] and ParcelHero[27] indicates that the percent of shopping trips conducted via ecommerce will continue to increase in the future. Research indicates that prior to the pandemic, ecommerce was growing rapidly and the pandemic further increased adoption of this trend. Research on this topic spanned industry reports (e.g., consumer surveys on online shopping and online sales data) to transportation studies on VMT due to deliveries. The decrease in VMT from fewer shopping trips is partially offset due to last-mile delivery services, so the increase in online shopping doesn't correlate to a proportional reduction in VMT. The research identified that people with higher incomes are more likely to shop online and households that need to travel further for shopping are more likely to shift to ecommerce.

As discussed in the telecommuting section, 65 percent of Brisbane residents earn above $100,000/year and the median household income is slightly above that of the greater Bay Area. Additionally, the current density of stores and access to goods in Brisbane is limited. The Baylands project allows ground floor retail spread throughout much of the specific plan area to provide convenient shopping opportunities for residents and employees, although the type of retail services and whether they would slow the uptick of online shopping is unknown. Based on these characteristics, Fehr & Peers recommends estimating a shift to online shopping near the upper limit for the national range of 25 percent. As shown in **Table 5**, this ecommerce adoption would reduce VMT per capita and transit ridership by one to two percent.

Table 5. Post-COVID Ecommerce Levels

Reasonable Range	Recommended Ecommerce Levels	Change in VMT Per Capita	Change in Transit Ridership Per Capita
12-30%	25%	-1.1%	-1.6%

[20] Statista. (2021). Retail e-commerce revenue in the United States from 2017 to 2025.
[21] UBS Wealth Management. (2021). E-commerce growth is here to stay.
[22] MarketWatch. (2021). Global E-commerce Market Growing By 13.5% Size, Future Trends, Current Growth 2021, Emerging Technologies, Global Regions with Industry Share Analysis, Gross Margin, Regional Demand and Forecast to 2030.
[23] US Department of Commerce. (2022). Quarterly Retail E-Commerce Sales.
[24] CBRE. (2022). How High Will E-Commerce Sales Go? The Definitive Guide to Omnichannel Real Estate.
[25] McKinsey & Company. (2021). How e-commerce share of retail soared across the globe: A look at eight countries.
[26] Deloitte. (2017). A brave new world: The Retail Profitability Challenge Report.
[27] Milt, D. (2021). 2030: The Death of the High Street: Why the rise in e-commerce means Britain's town centres will be unrecognizable within 15 years. Parcelhero.

Other Trends

Fehr & Peers reviewed other trends that may influence how people may travel in the future and determined that they would be too speculative for this analysis, as described below.

Labor Force Participation

No substantial evidence exists that labor force participation in and around Brisbane will change substantially, and new Baylands residents are anticipated to predominantly be employed given the cost of new market rate housing in San Mateo County.

Car Ownership

The rate of car ownership/household has remained constant in San Mateo County for the past 10 years and there are no indicators that it will significantly change in the future.

Social/Recreational Travel

There is no evidence that people's social and recreational travel post-pandemic would not return in a manner that is applicable or unique to the Brisbane context.

Migration and Land Use

While the Baylands project would include land uses that are denser and more urban than existing Brisbane land uses, they are similar to adjacent San Francisco land use patterns and thus do not represent a substantial change to the character of the surrounding area. No component of the Baylands project would change migration patterns.

Socio-Demographic Trends

Research has indicated that younger generations are likely to follow similar trends to prior generations as it relates to household size, children, and urbanization and the Baylands project would not have a substantial effect on these patterns.

EV Sales

The shift to electric vehicles is unlikely to impact VMT or transit ridership, although it will reduce transportation greenhouse gas emissions.

Autonomous Vehicles

There is a wide range of predictions for the impact of autonomous vehicles (AVs) on VMT and transit ridership. Forecasts for AVs are excluded to minimize speculation given that Baylands would not affect AV adoption rates for the surrounding region.

Electric Vertical-Take-off-and-Landing (eVTOL)

Electric Air Taxis also has a wide range of forecasts for implementation and impact on VMT and transit ridership. Forecasts for eVTOL are excluded to minimize speculation given that Baylands would not affect eVTOL adoption rates for the surrounding region.

Findings

Fehr & Peers evaluated the combined effects of the above trends to estimate an overall change in VMT and transit ridership for the future of Brisbane. The data uses Spring 2019 levels as the reference point. The data includes a simple combination of the effects of the four forecasted trends, as well as adjusted results that consider the effects of induced vehicle travel. Induced VMT considers that as trips decrease due to regional trends (e.g., telecommuting), some of the eliminated trips are replaced by new, formerly suppressed demand, which limits the potential for decreased VMT per capita.

Table 6. Total VMT and Transit Impacts

	Reasonable Range	Final Number	Change in VMT Per Capita	Change in Transit Ridership Per Capita
Average Daily Telecommute Levels	20-31%	20%	-6.62%	-5.98%
Change in Transit Service Miles	-10 – 10%	10%	-0.20%	5.00%
Loss of Transit Ridership due to safety concerns	15-30%	15%	0.60%	-15.00%
Share of Online Shopping	12-30%	25%	-1.14%	-1.63%
Total Combined Effects			**-7.9%**	**-17.4%**
Total with Induced VMT			**-4.7%**	**-18.6%**

For the purposes of the Baylands Specific Plan EIR, Fehr & Peers recommends using travel demand models and data calibrated to pre-pandemic conditions. The slight decrease in VMT of the combined trends indicates that these models may slightly overestimate the VMT and vehicle trips generated by the Baylands Specific Plan. However, this difference would represent a conservatively high estimate and is unlikely to be large enough to change the conclusions of the study.

Appendix

Elasticity Sources

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Cervero, Robert. Road Expansion, Urban Growth, and Induced Travel: A Pathway Analysis. Journal of the American Planning Association. Volume 69, No. 2. Spring 2003.

Cervero, Robert. Are Induced-Travel Studies Inducing Bad Investments? Access Journal. Number 22. Spring 2003.

Gao, Shengyi. 2018 SACOG Regional Household Travel Survey. Sacramento Area Council of Governments (SACOG).

Outwater, M., Sana, B., Ferdous, N., Woodford, B., & Lobb, J. (2014). Characteristics of premium transit services that affect choice of mode. *Transit Cooperative Research Program*. https://doi.org/10.17226/22401

Pratt, R. Park, G. (March, 2000). Traveler Response to Transportation System Changes Handbook. *Transit Cooperative Research Program.*

Berrebi, S., Diffee, C., Kiriazes, B., & Ederer, D. (2020). Analysis of recent public transit ridership trends. *Transit Cooperative Research Program*. https://doi.org/10.17226/25635

Scenario Planning Meeting Slides August 16, 2022



FEHR PEERS

Brisbane Trendlab+ VMT Forecasting

Agenda

1. Overview and Purpose
2. Review TrendLab+ factors
   - Key trends
   - Other trends
3. Review results with adjustments
4. Next steps

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Overview and Purpose

1. Outputs of exercise
    - VMT – Adjustments to C/CAG model for CEQA
    - Transit ridership – Adjustments to C/CAG model and MXD approach
    - Peak hour vehicle trips – For LOS and freeway ramp analysis, infrastructure sizing

2. Applications
    - Project travel demand
    - Baseline conditions
    - Cumulative conditions

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Overview and Purpose

Applications

Project travel demand

- VMT from calibrated C/CAG model (per capita, and cumulative project effect)
- MXD approach for peak hour trip generation
- Confirm whether ADT comes from model for consistency in air quality

Baseline conditions

- 2019 and 2022 counts collected (2019 slightly higher than 2022)
- C/CAG model base is 2015
- VISUM model calibrated to 2019 counts

Cumulative conditions

- Plan Bay Area 2040
- Sierra Point and Quarry cumulative conditions are close to complete
- No HSR

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Identified Trends

Telecommute Levels
Safety Concerns
Transit Service Level Changes
Online Shopping
Labor Force Participation
Car Ownership
Social and Recreational Travel
Migration and Land Use
Socio-Demographic Trends
EV Sales
Autonomous Vehicles
eVTOL

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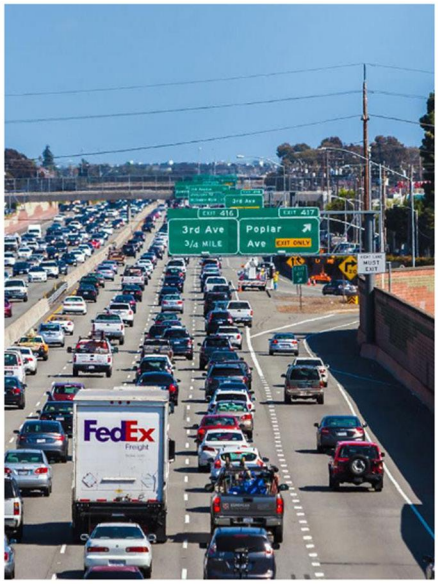

Key Trends

Telecommute Levels
Safety Concerns
Transit Service Level Changes
Online Shopping
Labor Force Participation
Car Ownership
Social and Recreational Travel
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Socio-Demographic Trends
EV Sales
Autonomous Vehicles
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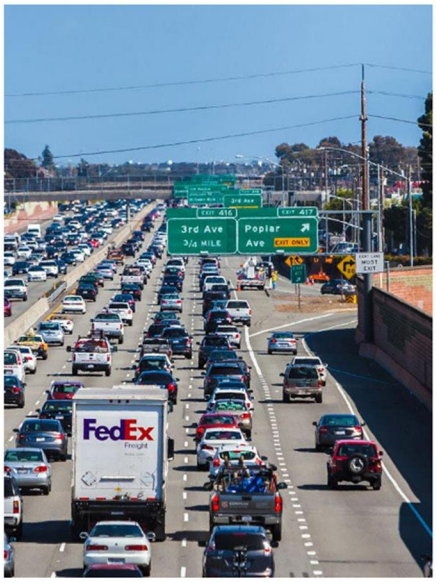
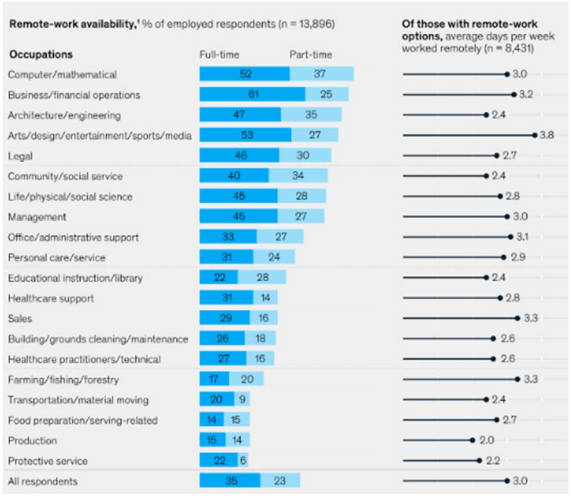


Telecommute Levels

Telecommuting trends post-pandemic will influence VMT

Projected that **20-31%** of the workforce will WFH, from 5-13% before the pandemic

VMT reduction associated with WFH is partially offset from the increase in non-work trips



McKinsey & Co, 2022 (Data from the American Opportunity Survey)

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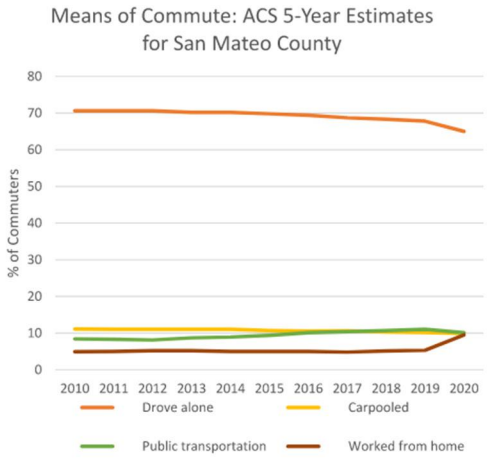
Telecommute Levels

Factors Influencing Regional Telecommute Rates

Associated variables:

- Essential vs. Non-essential work
- Income distribution

How do the demographics of Brisbane influence the rate of telecommuting and commute by transit?



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Telecommute Levels

Brisbane Demographics

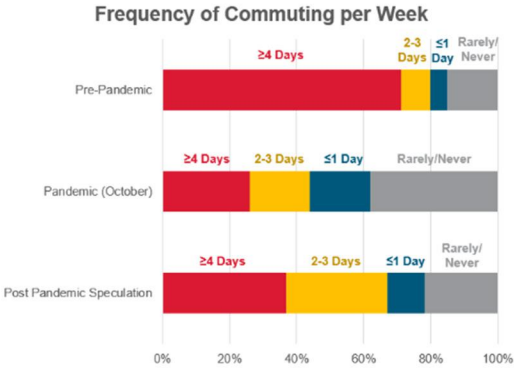
65% earn more than $100k/yr

20-30% are essential workers

2019 WFH rate: 5.3%

Commutes via Caltrain: ↓ 80%

➡ Take upper-bound for post-pandemic share of workforce who telecommutes



Fall 2021 Survey of Current/Former Caltrain Riders and General Public

FEHR PEERS

Transit Service Level Changes

Changes in transit service miles may decrease ridership

The Bay Area's transit agencies have committed to returning to pre-pandemic service levels.

Our scenario planning includes alternatives where service levels decrease by 10%

May 2022

Caltrain returned to pre-pandemic service levels

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Safety Concerns

"Aversion to Shared Modes"

Perception of safety will influence post-pandemic commute patterns

Estimated 15-30% reduction in the share of people who travel by transit as a result of safety concerns

Increased share of driving may increase VMT

37% of BART riders list **public safety** and **cleanliness** as reasons they ride less, or not at all.

January 2022 survey of current and former BART riders

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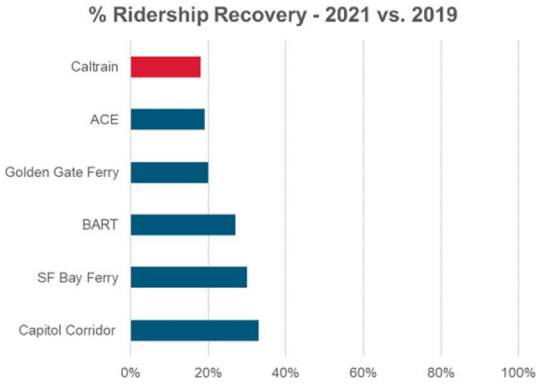
Safety Concerns

Return to transit is influenced by income

People with incomes below $50k/yr are more likely to return to transit despite safety concerns

→ Take middle- to upper-bounds for share of transit riders who do not return post-pandemic



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Other Transit Factors

Location of Baylands compared to jobs and housing

- Bay Bridge is back to pre-pandemic, 101 and 92 in San Mateo Co are not

Transit Operations

- Caltrain is mostly dependent on commute trips and is highly sensitive to changes in commute patterns

Transit expansion

- Caltrain and SamTrans service plans, including more service to Brisbane
- DTX anticipated to be complete by 2035
- Second Transbay tube (outside of 2040 horizon)

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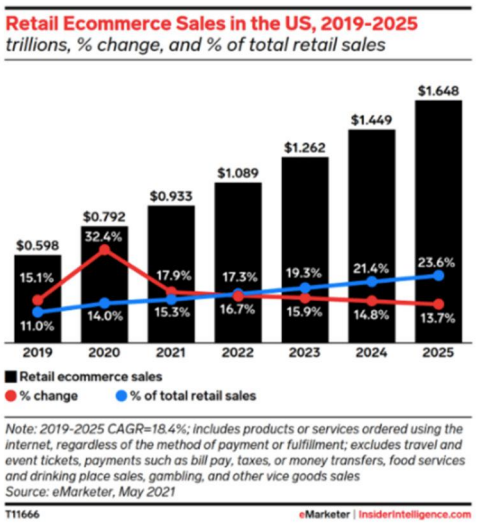
Online Shopping

The share of online shopping has increased post-pandemic

Estimated 12-30% increase in e-commerce and associated decrease in shopping trips

Decrease in VMT from fewer shopping trips is partially offset by last-mile deliveries



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Online Shopping

Factors influencing portion of trips replaced by online shopping

- Income
- Urban, Suburban, or rural

Based on these factors in Brisbane:

Take the upper bound for the portion of shopping trips that will shift to ecommerce

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Results

Transit Service Restored to Pre-Pandemic Levels

VMT: ↓10%
transit ridership: ↓28.37%

Including induced travel:
VMT: ↓6%
transit ridership: ↓17.02%

Transit Service Declines by 10% Post-Pandemic

VMT: ↓9.83%
transit ridership: ↓31.95%

Including induced travel:
VMT: ↓5.9%
transit ridership: ↓19.17%

Transit Service Increases by 10% Post-Pandemic

VMT: ↓10.19%
transit ridership: ↓24.79%

Including induced travel:
VMT: ↓6.11%
transit ridership: ↓14.87%

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Other Trends

Telecommute Levels
Safety Concerns
Transit Service Level Changes
Online Shopping
Labor Force Participation
Car Ownership
Social and Recreational Travel
Migration and Land Use
Socio-Demographic Trends
EV Sales
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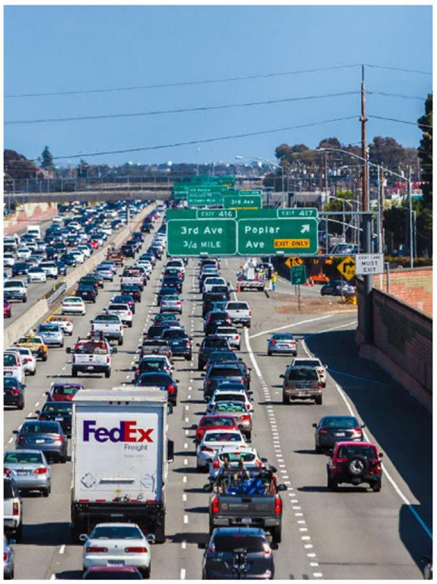


Appendix B.7. VMT Impact Analysis Limitations

The analysis concludes that the Project would have a less-than-significant impact on VMT under 2035 and 2040 conditions. This conclusion relies on land use and transportation network data reviewed and approved by the City of Brisbane and relies on the latest travel demand model consistent with CEQA Guidelines §15064.3(b)(4). It is important to note that there are inherent limitations to estimating future year scenarios, including future year traffic conditions and project-generated VMT, as explained below.

Cumulative Inputs and Emerging Trends

First, long-term land use developments and transportation infrastructure improvements that are planned to occur beyond the 20-year analysis period used for the 2040 scenario are not included in cumulative conditions. This analysis relies on the latest C/CAG travel demand model, which has a forecast year through the year 2040, as this is the most appropriate tool for this study, as documented in **Appendix B.1**. The continued densification of land uses in the region and inclusion of additional transportation programs aimed at reducing traffic generation and VMT envisioned by Plan Bay Area 2050 would further contribute to aligning regional travel with state environmental goals and requirements beyond what is projected for 2040 conditions within this study, although due to the longer timeframe, the uncertainty related to how travel patterns will operate in 2050 is greater. As noted in the study, the general land uses and transportation features proposed by the Project are consistent with Plan Bay Area 2050 and Recommendation 2 is provided to ensure inconsistencies with Plan Bay Area 2050 are addressed.

Second, C/CAG's travel demand model was developed based on land use growth trends and travel behavior survey data collected before the COVID-19 pandemic. While C/CAG's model was calibrated to replicate base year traffic conditions, travel behavior and the transportation systems are changing quickly in response to emerging trends and new technologies. As described above in the **Emerging Transportation Technology and Travel Options** section, this includes increased telecommuting, on-demand ride-hailing (e.g., Uber and Lyft) and micro-transit services, car-sharing, bicycle/scooter-sharing, and automation of vehicles. Additional land use trends that are evolving include the assumption that office and job growth will continue at or near pre-pandemic levels in San Francisco and San Mateo County when as of April 2023, the office vacancy in San Francisco remains at nearly 30 percent.[56] These changes combined with the current effects of the COVID-19 pandemic increase uncertainty about how VMT generation rates may change for land use projects over the time.

Historical VMT Trends

When making a final VMT impact determination, other available evidence related to VMT trends should be considered. This analysis identified the following relevant information.

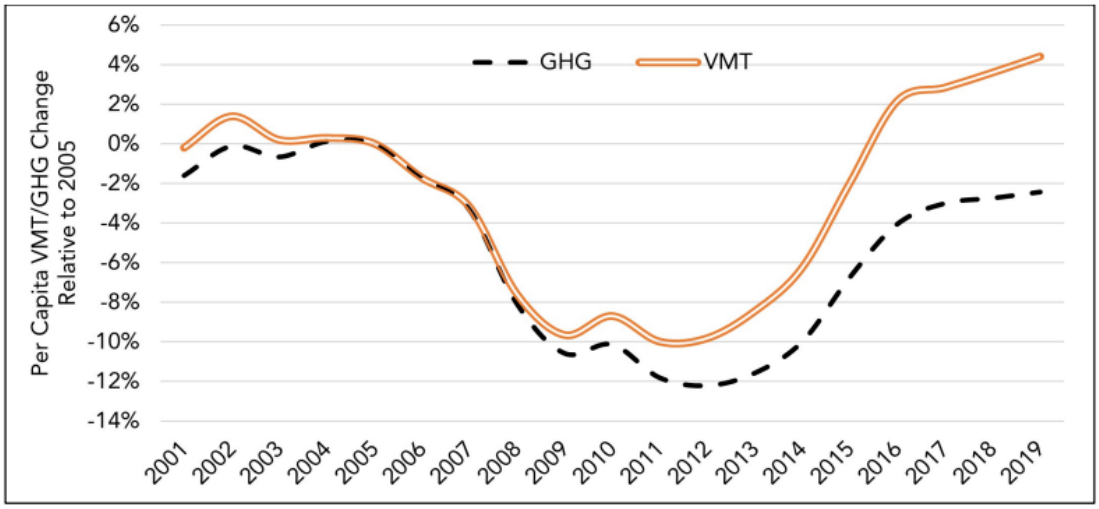
[56] https://www.bizjournals.com/sanfrancisco/news/2023/03/29/s-f-office-vacancy-increases-first-quarter.html; Accessed by Fehr & Peers on April 7, 2023.

- 2018 Progress Report, California's Sustainable Communities and Climate Protection Act (2018 Progress Report) (California Air Resources Board 2018).
- Draft 2022 Progress Report, California's Sustainable Communities and Climate Protection Act (2022 Progress Report) (California Air Resources Board 2022)
- California Air Resources Board Improved Program Measurement Would Help California Work More Strategically to Meet Its Climate Change Goals (Audit Report) (Auditor of the State of California 2021).
- Final 2022 Scoping Plan Update (Scoping Plan) (California Air Resources Board, 2022).

The 2018 and Draft 2022 Progress Reports measure the effect of SB 375, revealing that VMT and GHG per capita increased in California between 2010 and 2019 and are trending upward (Figure B-4).

Figure B-4. 2022 Progress Report VMT/Capita Trends

Figure 1. Light-Duty VMT and GHG Per Capita Relative to 2005 (California's 18 MPO Regions Aggregated)[33]



2019 data indicate that nearly all regions were far from achieving 2020 targets set by CARB.

Source: California Air Resources Board 2018

The Audit Report is a more recent assessment of CARB's GHG reduction programs, which also found that VMT and associated GHG emissions were trending upward through 2018. Per the audit, the state is not on track to achieve 2030 GHG reduction goals, and emissions from transportation have not been declining. The 2020 Mobile Source Strategy (California Air Resources Board 2021) also acknowledges the challenge of VMT reduction and states, "Without additional policy intervention, VMT may continue to rise."

The Scoping Plan reviews California's progress for meeting GHG reduction goals and sets forth strategies to achieve those goals based on past performance. The plan acknowledges that the state is not meeting its VMT reduction objectives and that VMT growth is returning after COVID-19 pandemic effects diminish.

> *After a significant pandemic-induced reduction in VMT during 2020, passenger VMT has steadily climbed back up and is now closing in on pre-pandemic levels. Driving alone with no passengers remains the primary mode of travel in California, amounting to 75 percent of the mode share for daily commute trips. Conversely, transit ridership, which was also heavily affected during the lockdown months, has not recovered at the same pace as VMT, and roughly averages two-thirds of pre-pandemic levels of ridership.*[57]

This evidence demonstrates the challenge of reducing VMT when background macro-level conditions are contributing to higher VMT generation rates.

The evidence above suggests greater action on the part of the state and local agencies may be needed to achieve the state's VMT and GHG reduction goals and to provide a high level of confidence that the Project's VMT impact findings will be realized in the future. The Project contributes to the basic objectives of SB 743 for local land projects such as adding development in a planned mixed-use growth area where shorter trip lengths to destinations allows more multimodal choices. The Project's development patterns (including the density, mix of land uses, transit-oriented location, limited parking, and other features) are also consistent with the types of land uses that align with the state's climate goals, according to CARB's 2022 Scoping Plan, Appendix D. While fully achieving the forecasted levels of VMT generation at the regional level may require state and local actions that discourage vehicle travel (i.e., increasing the cost of driving or making it less convenient) and reducing the barriers or constraints that prevent more efficient use of vehicles and greater use of transit, walking, and bicycling, such as through the Project's proposed parking and TDM strategies, the trends presented in the above **Emerging Transportation Technology and Travel Options** section indicate that the VMT estimates for the project may be overstated given the combination of trends coming out of the COVID-19 pandemic. Therefore, the VMT results presented in this report represent a reasonable assessment of the potential VMT impacts associated with the Project using the latest tools, data, and modeling approaches.

[57] https://ww2.arb.ca.gov/sites/default/files/2022-05/2022-draft-sp.pdf (page 155)

Appendix C: Project Travel Demand Supporting Materials

Appendix C includes the following subsections:

- Appendix C.1. ITE Trip Generation Methodology
- Appendix C.2. Mode Share Methodology
- Appendix C.3. Detailed Trip Generation Results
- Appendix C.4. TDM Effectiveness Calculations
- Appendix C-5. Travel Demand Comparisons
- Appendix C-6: MXD Methodology Supporting Documentation

Appendix C.1. ITE Trip Generation Methodology

Residential

Tables C-1 through **C-3** present the allocation of residential land uses to the attached single family (ITE land use code 215) and low-, medium-, and high-rise multifamily housing categories (ITE land use code 220 through 222). Guidance on Mid-Rise and High-Rise apartments indicates that mid-rise apartments have 4 to 10 floors of living space, and high-rise apartments have ten or more floors of living space. Due to inclusion of podium parking, we have allocated some high-density apartment development to the mid-rise apartment land use code, and some mid-density apartments to low-rise apartments. Lower density residential units have higher trip generation rates, so this may result in a slight overestimation of VMT and vehicle trips.

Table C-1. Allocation of Residential Building Types with ITE Land Use

Unit Types1	Unit Count	Allocation by ITE Land Use
Single-Family Home	368	Attached Single Family
Duplex	343	Attached Single Family
Townhouse/Rowhouse	448	Attached Single Family
Mid-Density Apartment / Condo	142	1/3 Low Rise Apartment (2 – 3 floors) 2/3 Mid-Rise Apartment (4 - 10 floors)
High Density Apartment / Condo	899	1/3 Mid-Rise Apartment (8 – 10 floors) 2/3 High-Rise Apartment (11+ floors)

Notes:
1. From Baylands Specific Plan and *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022).

Source: Fehr & Peers, 2023.

Table C-2. Percentage of Residential Land Use in Each Plan Area

Unit Type1	Bayshore	Roundhouse West	Roundhouse East
Attached Single Family	37%	24%	40%
Multifamily Housing Low Rise	100%	0%	0%
Multifamily Housing Mid Rise	29%	0%	71%
Multifamily Housing High Rise	18%	0%	82%

Notes:
1. From Baylands Specific Plan and *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022).

Source: Fehr & Peers, 2023.

Table C-3: Total Units by Type in Each Plan Area

Unit Type1	Total	Bayshore	Roundhouse West	Roundhouse East
Attached Single Family	**1,159**	426	273	460
Multifamily Housing Low Rise	**95**	95	0	0
Multifamily Housing Mid Rise	**347**	102	0	245
Multifamily Housing High Rise	**599**	110	0	489

Notes:
1. From Baylands Specific Plan and *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022).

Source: Fehr & Peers, 2023.

Commercial

Commercial trip generation used standard ITE rates. For office, biotech campus, low-density commercial, and the solar farm and utility scale battery land uses, trip generation is based on the total number of employees. For hotel land use, trip generation is based on the total number of rooms. For retail land use, trip generation is based on the total retail square footage within the plan area, and then allocated across the different districts.

Table C-4 presents the employee density for the office, biotech campus, low-density commercial, and the solar farm and utility scale battery land uses. These employee densities were used to calculate the number of employees in each district using the square footage presented in **Table C-5**; results are shown in **Table C-6**.

Table C-4. Employment Land Uses Trip Generation Approach

Land Use	ITE Land Use			Baylands Specific Plan		
	Code	Name	Unit	Square Feet	Density	Total
Office[1]	710	General Office[1]	Employees	525 KSF	310 square feet per employee	1,694 employees
Biotech Campus[1]	710	General Office[1]	Employees	3,372.8 KSF	350 square feet per employee	9,637 employees
Low-Density Commercial[1]	710	General Office[1]	Employees	2,500 KSF	350 square feet per employee	7,143 employees
Private Infrastructure (Land Area)[2]	710	General Office[1]	Employees	3,145 KSF	30 employees for entire Solar Farm / Utility Scale Battery	30 employees
Total Employees[3]						**18,503**

Notes: KSF = thousand square feet

1. Consistent with the *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022), the land zoned for office within the Bayshore district was evaluated as traditional office space while the office land use at Icehouse Hill and Campus East was evaluated as biotech, research and development (R&D), and low-density commercial. ITE land use code 710 General Office has the largest dataset for employment-based uses and is therefore appropriate to represent the trip generating characteristics of employees for a range of potential land uses.
2. Private Infrastructure includes the solar farm and utility scale battery employees were analyzed alongside office employees. Pre-existing industrial land uses were excluded from the analysis described below as the trips generated by these land uses are included within the existing conditions.
3. Employees for retail and hotel are not included in this table because the trip generation for these land uses is based on the square footage of the retail and number of hotel rooms as shown in **Table 16.**

Source: Fehr & Peers, 2023.

Table C-5: Baylands Employment Land Use by District (sq. ft.)

Planning Districts							
Land Use	**Bayshore**	**Main Street - West**	**Main Street - East**	**Icehouse Hill - Southeast (C5)**	**Icehouse Hill - Southwest (C4)**	**Campus East - North**	**Campus East - South**
Office	525,000						
Biotech Campus		717,000	654,000	1,070,000	931,800		
Low-Density Commercial						1,121,000	1,379,000
Private Infrastructure (Land Area)							3,145,000

Source: Fehr & Peers, 2023.

Table C-6: Baylands Employment by District

Planning Districts							
Land Use	**Bayshore**	**Main Street - West**	**Main Street - East**	**Icehouse Hill - Southeast (C5)**	**Icehouse Hill - Southwest (C4)**	**Campus East - North**	**Campus East - South**
Office	1,694						
Biotech Campus		2,049	1,869	3,057	2,662		
Low-Density Commercial						3,203	3,940
Private Infrastructure (Land Area)							30

Source: Fehr & Peers, 2023.

Table C-7 shows retail square footage, total retail trip generation, and how retail trips are distributed across districts. Retail was allocated to each zone based on whether ground floor retail was permitted in a given block, using retail total square footage presented in the *Fiscal Impact Analysis of the Baylands Specific Plan* (EPS, January 2022). Retail trip generation was calculated for the project as a whole using ITE Land Use 821 (Shopping Plaza, 40,000 to 150,000 square feet), and then allocated across the planning districts based on the share of total square footage in that district.

Table C-7. Retail Trip Generation Allocation

District	Retail Land Use (ksf)	% of Total	Daily Trips[1]	AM Peak Hour Trips[2]	PM Peak Hour Trips[3]
Baylands Total	**102.2**	**100%**	**9,278**	**361**	**903**
Bayshore	52	51%	4,721	184	459
Main Street West	8	8%	726	28	71
Main Street East	26.2	26%	2,379	92	231
Icehouse Hill Southeast	8	8%	726	28	71
Icehouse Hill Southwest	8	8%	726	28	71
Campus East North	0	0%	0	0	0
Campus East South	0	0%	0	0	0

1. Daily Trips = 76.96 x (ksf) + 1,412.79
2. AM Peak Hour Trips = 3.53 x (ksf)
3. PM Peak Hour Trips = 7.67 x (ksf) + 118.86
Source: Fehr & Peers, 2023.

Appendix C.2. Mode Share Methodology

Fehr & Peers compared mode share splits from a variety of sources to calibrate the mode share to the project context. Mode share data was collected for the area within one mile of the Project site and split into different trip types (i.e. home-based work or non-home-based work trips). Mode share sources and mode shares are summarized in **Table C-8** below.

Table C-8. Mode Share Comparisons

Source	Geographic Area	Trip Type	Transit Share	Walk/Bike Share	Total Non-Automotive Share
California Household Travel Survey (2012)	Within 1 mile of the project area	HBW	17%	5%	22%
		Non-HBW	3%	11%	14%
American Community Survey (5-year estimates, 2018)	Within 1 mile of project area	HBW	26%	1%	27%
2019 SF Travel Guidelines	Place Type 3	All	9%	19%	28%

Notes: HBW = Home-Based Work
Source: Fehr & Peers, 2023.

Raw, unadjusted trip generation results from MXD were then split into home-based work trips and non-home-based work trips. The ACS mode share of 27 percent was used for home-based-work trips (i.e., commute trips); the California Household Travel Survey (CHTS) mode share of 14 percent was used for all other trips. To account for future improvements to transit service that are fully funded, including Caltrain Electrification, the transit mode share from each source was increased by applying headway changes and transit elasticities to estimate how transit ridership would increase.[58] As presented in **Table C-9**, the mode share adjustments do not account for transit improvements that are currently unfunded, such as additional service envisioned by Caltrain or Muni, SamTrans, or bus rapid transit service along Geneva Avenue. The overall mode shares presented in **Table C-8** were calculated by taking an average of home-based work and non-home-based work mode shares weighted by the number of trips of each type in each quadrant.

While the MXD travel demand assessment accounts for the physical elements of this Project, such as the density and mix of land uses, intersection density, and near-term transit service changes, it does not

[58] Under 2019 conditions, combined rail service from Caltrain and the T-Third equated 11 trains per hour. Under the proposed Caltrain Electrification plan, and SFMTA planned increases in T-Third headways, rail transit service increases to 19 trains per hour, or a 72 percent increase. Using a transit ridership elasticity of 0.5 with respect to frequency, we expect an 36% increase in transit riders with expanded service, increasing transit mode share from 26% to 36% for work trips, and from 3% to 5% for all other trips.



quantitively account for the programmatic benefits required by the City's TDM ordinance, presented in Chapter 1. **Table C-9** presents the physical transportation features accounted within the trip generation analysis through the MXD method and the programmatic elements accounted for in the analysis of the TDM program. The effectiveness of the TDM measures are presented in Appendix C.4. Other background features that are not proposed by the project are also noted below.

Table C-9: Transportation Features included in Trip Generation Analysis

Features	Included in MXD Analysis	Included in Analysis of Required TDM Elements	Not Included in Travel Demand Estimates
Land Use	• Mix of land uses • Density of land uses • Residential household size • Transit-oriented location	• Affordability of housing that is designated as affordable	
Transit	• Existing bus and shuttle service • Caltrain Electrification	• Shuttle program • Transit incentives such as marketing or transit pass subsidies	• Additional Caltrain service envisioned by Caltrain Business Plan or High-Speed Rail • Additional Muni, SamTrans, or BRT transit service
Active Transportation	• Roadway design features such as intersection density	• Low-stress pedestrian and bicycle facilities • Bicycle parking	
Parking & TDM	• Project parking ratios	• Parking management strategies such as unbundled and priced parking • Other TDM engagement and marketing strategies required by the City of Brisbane	

Source: Fehr & Peers, 2023.

Appendix C.3. Detailed Trip Generation Results by Zone

Table C-10 through **Table C-16** present the number of new vehicle trips generated by each land use for the proposed Project on a daily basis and during the AM and PM peak hours, summarized by zone.

Table C-10. Bayshore Zone Trip Generation Results

Land Use Code	Land Use Type	Quantity	Units	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
215	Single Family Attached Housing	426	DUs	3,196	67	149	216	144	108	252
220	Multifamily Housing Low Rise	95	DUs	684	12	40	52	38	23	61
221	Multifamily Housing Mid Rise	102	DUs	440	8	25	33	24	16	40
222	Multifamily Housing High Rise	110	DUs	791	15	28	43	29	23	52
710	General Office	1,694	Employees	4,405	638	87	725	101	496	597
820	Retail	52	KSF	4,721	114	70	184	220	239	459
310	Hotel	800	Rooms	8,248	220	173	393	288	276	564
	Initial Estimated Vehicle Trips			22,485	1,074	572	1,646	844	1,181	2,025
	Internal Trip Capture			-1,430	-97	-51	-148	-79	-111	-190
	External Walk, Bike, and Transit Trips			-4,389	-234	-125	-358	-172	-240	-412
	Sub-Total Vehicle Trips			16,666	743	396	1,140	593	830	1,423
	Vehicle Trip Reductions Associated with TDM Plan (16.4% reduction per Table 19)		-2,733	-122	-65	-187	-97	-136	-233	
	Total Project Generated Vehicle Trips		**13,933**	**621**	**331**	**953**	**496**	**694**	**1,190**	

Source: Fehr & Peers, 2023.

Table C-11. Icehouse Hill Southeast Trip Generation Results

Land Use Code	Land Use Type	Quantity	Units	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
710	General Office	3,057	Employees	6,974	1,121	153	1,274	159	775	934
820	Retail	8	KSF	726	18	11	29	34	37	71
			Initial Estimated Vehicle Trips	7,700	1,139	164	1,303	193	812	1,005
			Internal Trip Capture	-116	-17	-3	-20	-2	-10	-12
			External Walk, Bike, and Transit Trips	-1,757	-263	-38	-301	-44	-186	-230
			Sub-Total Vehicle Trips	5,827	859	123	982	147	616	763
			Vehicle Trip Reductions Associated with TDM Plan (16.4% reduction per Table 19)	-956	-141	-20	-161	-24	-101	-125
			Total Project Generated Vehicle Trips	**4,871**	**718**	**103**	**821**	**123**	**515**	**638**

Source: Fehr & Peers, 2023.

Table C-12. Icehouse Hill Southwest Trip Generation Results

Land Use Code	Land Use Type	Quantity	Units	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
710	General Office	2,662	Employees	6,210	970	132	1,102	142	692	834
820	Retail	8	KSF	726	18	11	29	34	37	71
			Initial Estimated Vehicle Trips	6,936	988	143	1,131	176	729	905
			Internal Capture	-100	-14	-2	-16	-2	-10	-12
			External Walk, Bike, and Transit Trips	-1,582	-228	-33	-261	-40	-167	-207
			Sub-Total Vehicle Trips	5,254	746	108	854	134	552	686
			Vehicle Trip Reductions Associated with TDM Plan (16.4% reduction per Table 19)	-862	-122	-18	-140	-22	-91	-112
			Total Project Generated Vehicle Trips	**4,392**	**624**	**90**	**714**	**112**	**461**	**574**

Source: Fehr & Peers, 2023.

Table C-13. Main Street East Zone Trip Generation Results

Land Use Code	Land Use Type	Quantity	Units	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
215	Single Family Attached Housing	460	DUs	3,455	73	161	234	155	117	272
220	Multifamily Housing Low Rise	0	DUs	0	0	0	0	0	0	0
221	Multifamily Housing Mid Rise	245	DUs	1,122	22	74	96	59	37	96
222	Multifamily Housing High Rise	489	DUs	2,216	43	83	126	84	66	150
710	General Office	1,869	Employees	4,747	698	95	793	109	533	642
820	Retail	26	KSF	2,379	57	35	92	111	120	231
	Initial Estimated Vehicle Trips			13,919	893	448	1,341	518	873	1,391
	Internal Capture			-1110	-96	-48	-144	-47	-79	-126
	External Walk, Bike, and Transit Trips			-2,903	-210	-105	-316	-113	-191	-304
	Sub-Total Vehicle Trips			9,906	587	295	881	358	603	961
	Vehicle Trip Reductions Associated with TDM Plan (16.4% reduction per Table 19)		-1,625	-96	-48	-145	-59	-99	-158	
	Total Project Generated Vehicle Trips		**8,281**	**491**	**247**	**736**	**299**	**504**	**803**	

Source: Fehr & Peers, 2023.

Table C-14. Main Street West Zone Trip Generation Results

Land Use Code	Land Use Type	Quantity	Units	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
215	Single Family Attached Housing	273	DUs	2,030	42	94	136	91	69	160
710	General Office	2,049	Employees	5,090	759	104	863	117	570	687
820	Retail	8	KSF	726	18	11	28	34	37	71
	Initial Estimated Vehicle Trips			7,846	819	209	1,027	242	676	918
	Internal Trip Capture			-398	-49	-13	-62	-13	-35	-48
	External Walk, Bike, and Transit Trips			-1,636	-193	-49	-242	-53	-148	-201
	Sub-Total Vehicle Trips			5,812	577	147	723	176	493	669
	Vehicle Trip Reductions Associated with TDM Plan (16.4% reduction per Table 19)		-953	-95	-24	-119	-29	-81	-110	
	Total Project Generated Vehicle Trips		**4,859**	**482**	**123**	**604**	**147**	**412**	**559**	

Source: Fehr & Peers, 2023.

Table C-15. Campus East - North Trip Generation Results

Land Use Code	Land Use Type	Quantity	Units	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
710	General Office	3,203	Employees	7,148	1,155	158	1,313	163	793	956
	Initial Estimated Vehicle Trips			7,148	1,155	158	1,313	163	793	956
	Internal Trip Capture			-276	-40	-6	-46	-4	-20	-24
	External Walk, Bike, and Transit Trips			-1,491	-272	-37	-309	-36	-173	-209
	Sub-Total Vehicle Trips			5,381	843	115	958	123	600	723
	Vehicle Trip Reductions Associated with TDM Plan (16.4% reduction per Table 19)		-883	-138	-19	-157	-20	-98	-119	
	Total Project Generated Vehicle Trips		**4,498**	**705**	**96**	**801**	**103**	**502**	**604**	

Source: Fehr & Peers, 2023.

Table C-16. Campus East - South Trip Generation Results

Land Use Code	Land Use Type	Quantity	Units	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
710	General Office	3,940	Employees	8,367	1,409	192	1,601	190	925	1,115
			Initial Estimated Vehicle Trips	8,367	1,409	192	1,601	190	925	1,115
			Internal Trip Capture	-322	-49	-7	-56	-4	-22	-26
			External Walk, Bike, and Transit Trips	-1,745	-332	-45	-377	-42	-202	-244
			Sub-Total Vehicle Trips	6,300	1,028	140	1,168	144	701	845
			Vehicle Trip Reductions Associated with TDM Plan (16.4% reduction per Table 19)	-1,033	-169	-23	-192	-24	-115	-139
			Total Project Generated Vehicle Trips	**5,267**	**859**	**117**	**976**	**120**	**586**	**706**

Source: Fehr & Peers, 2023.

Appendix C.4. TDM Effectiveness Calculations

Fehr & Peers estimated the effectiveness of the Project's TDM program. The results are presented in the following attachment.

Table 1: Summary of TDM Measures and Effectiveness

CAPCOA Measure	TDM Plan Equivalent	% Reduction	Applies to
Increase Residential Density	Included in MXD Results	-	All Trips
Increase Job Density	Included in MXD Results	-	All Trips
Provide Transit-Oriented Development	Included in MXD Results	-	All Trips
Integrate Affordable and Below Market Rate Housing	Other Project Features	-5.7%	Home-based Trips
Implement Commute Trip Reduction Marketing	TDM Coordinator, Delivery Coordinator	-4.0%	Home-based Work Trips
Provide Ridesharing Program	TDM Coordinator, PUDO Zones	-4.0%	Home-based Work Trips
Implement Subsidized or Discounted Transit Program - All Trips	Subsidized Transit Passes	-0.4%	All Trips
Implement Subsidized or Discounted Transit Program - Work Trips Only	Subsidized Transit Passes	-5.5%	Home-based Work Trips
Provide End-of-Trip Bicycle Facilities	End of Trip Bicycle Facilities	-2.7%	Home-based Work Trips
Provide Employer-Sponsored Vanpool	Vanpool Program	-0.9%	Home-based Work Trips
Implement Employee Parking Cash-Out	Tiered/Priority Parking Zones Employee Parking Cashout	-2.4%	Home-based Work Trips
Limit Parking Supply	Limit Parking Supply	-0.4%	All Trips
Unbundle Residential Parking Costs from Property Cost	Unbundled Parking	-5.2%	Home-based Trips
Improve Street Connectivity	Included in MXD Results	-	All Trips
Provide Pedestrian Network Improvement	Multimodal Infrastructure	-0.5%	All Trips
Expand Bikeway Network	Multimodal Infrastructure	-0.1%	All Trips

CAPCOA Measure	TDM Plan Equivalent	% Reduction	Applies to
Implement Conventional Carshare Program	On-site Carshare Program	-0.04%	All Trips
Implement Electric Bikeshare Programs	Bikeshare / Micromobility	-0.1%	All Trips
Provide Community-Based Travel Planning	TDM Coordinator, Welcome Packet/Promotions	-2.3%	Home-based Trips
Extend Transit Network Coverage or Hours	Shuttle Service	-0.9%	All Trips
Increase Transit Service Frequency	Shuttle Service	-1.9%	All Trips
Provide Bus Rapid Transit	BRT	-0.3%	All Trips
Home-Based Residential VMT - Total Reduction		**16.6%**	*19% of all trips*
Home-Based Work VMT per Employee - Total Reduction		**21.1%**	*58% of all trips*
All Other VMT / Trips - Total Reduction		**4.4%**	*23% of all trips*
Project-Generated VMT / Vehicle Trips - Total Reduction		**16.4%**	*100% of all trips*

FEHR & PEERS

Land Use - T-4. Integrate Affordable and Below Market Rate Housing

Locational Context	**Urban, Suburban**
Scale of Application	**Project/Site**
Type of VMT affected:	**Project-generated trips**
Max VMT reduction:	**28.60%**

This measure requires below market rate (BMR) housing. BMR housing provides greater opportunity for lower income families to live closer to job centers and achieve a jobs/housing match near transit. It is also an important strategy to address the limited availability of affordable housing that might force residents to live far away from jobs or school, requiring longer commutes. The quantification method for this measure accounts for VMT reductions achieved for multifamily residential projects that are deed restricted or otherwise permanently dedicated as affordable housing.

Percent of multi-family units permanently dedicated as affordable	**20.0%**	**percent**	user input (default value = 0-0.286)
Percent reduction in VMT for qualified units compared to market rate units	**-28.6%**	**percent**	constant (default value = -0.286)
Change in VMT	**-5.72%**	**percent reduction**	

Formula: % Change in VMT = Percent of multi-family units permanently dedicated as affordable * Percent reduction in VMT for qualified units compared to market rate units

Sources:

(1) Institute of Transportation Engineers (ITE). 2021. Trip Generation Manual. 11th Edition. ITE 2021. Available: https://www.ite.org/technical-resources/topics/trip-and-parking-generation/

(2) National Center for Sustainable Transportation. Affordable Housing in Transit-Oriented Developments: Impacts on Driving and Policy Approaches. April 2017. Available: https://escholarship.org/uc/item/487994z4

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Trip Reduction Programs - T-7. Implement Commute Trip Reduction Marketing

Locational Context	**Urban, Suburban**
Scale of Application	**Project/Site**
Type of VMT affected:	**Employee commute trips**
Max VMT reduction:	**4.00%**

This measure will implement a marketing strategy to promote the project site employer's CTR program. Information sharing and marketing promote and educate employees about their travel choices to the employment location beyond driving such as carpooling, taking transit, walking, and biking, thereby reducing VMT and GHG emissions.

The following features (or similar alternatives) of the marketing strategy are essential for effectiveness.

- Onsite or online commuter information services.
- Employee transportation coordinators.
- Onsite or online transit pass sales.
- Guaranteed ride home service.

Percent of employees eligible for program	**100.0%**	**percent**	user input (default value = 0-1)
Percent reduction in employee commute vehicle trips	**-4.0%**	**percent**	constant (default value = -0.04)
Adjustment from vehicle trips to VMT	**1.000**	**unitless**	constant (default value = 1)
Change in VMT	**-4.00%**	**percent reduction**	

Formula: % Change in VMT = Percent of employees eligible for program * Percent reduction in employee commute vehicle trips

Sources:

(1) Transportation Research Board (TRB). 2010. Traveler Response to Transportation System Changes Handbook, Third Edition: Chapter 19, Employer and Institutional TDM Strategies. June. Available: http://www.trb.org/Publications/Blurbs/163781.aspx. Accessed: January 2021.

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Trip Reduction Programs - T-8. Provide Ridesharing Program

Locational Context	**Urban, Suburban**
Scale of Application	**Project/Site**
Type of VMT affected:	**Employee commute trips**
Max VMT reduction:	**8.00%**

This measure will implement a ridesharing program and establish a permanent transportation management association with funding requirements for employers. Ridesharing encourages carpooled vehicle trips in place of single-occupied vehicle trips, thereby reducing the number of trips, VMT, and GHG emissions.

Ridesharing must be promoted through a multi-faceted approach.
Examples include the following.

- Designating a certain percentage of desirable parking spaces for ridesharing vehicles.
- Designating adequate passenger loading and unloading and waiting areas for ridesharing vehicles.
- Providing an app or website for coordinating rides.

Select the Place Type for the project.	Suburban		Appendix C. T-8.1
Percent of employees eligible for program	**100.0%**	**percent**	user input (default value = 0-1)
Percent reduction in employee commute VMT	**-4.0%**	**percent**	constant (default value = -0.04--0.08)
Change in VMT	**-4.00%**	**percent reduction**	

Formula: % Change in VMT = Percent of employees eligible for program * Percent reduction in employee commute VMT

Sources:
(1) San Diego Association of Governments (SANDAG). 2019. Mobility Management VMT Reduction Calculator Tool–Design Document. June. Available: https://www.icommutesd.com/docs/defaultsource/planning/tool-design-document_final_7-17-19.pdf?sfvrsn=ec39eb3b_2. Accessed: January 2021.

FEHR & PEERS

Trip Reduction Programs - T-9-A. Implement Subsidized or Discounted Transit Program - All Trips

Locational Context **Urban, Suburban**
Scale of Application **Project/Site**
Type of VMT affected: **Project-generated trips**
Max VMT reduction: **5.50%**

This measure will provide subsidized or discounted, or free transit passes for employees and/or residents. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions. The project should be accessible either within 1 mile of high-quality transit service (rail or bus with headways of less than 15 minutes), 0.5 mile of local or less frequent transit service, or along a designated shuttle route providing last-mile connections to rail service. If a well-established bikeshare service (Measure T-22-A) is available, the site may be located up to 2 miles from a high-quality transit service.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-3.1
Average transit fare without subsidy	$100.00	**dollar**	user input (default value = 0-1000)
Subsidy amount	$20.00	**dollar**	user input (default value = 0-1000)
Percent of employees/residents eligible for subsidy	80.0%	**percent**	user input (default value = 0-1)
Percent of project-generated VMT from employees/residents	100.0%	**percent**	user input (default value = 0-1)
Transit mode share of all trips	11.4%	**percent**	optional (default value = 0.0137-0.1138)
Elasticity of transit boardings with respect to transit fare price	-0.430	**unitless**	constant (default value = -0.43)
Percent of transit trips that would otherwise be made in a vehicle	50.0%	**percent**	constant (default value = 0.5)
Conversion factor of vehicle trips to VMT	1.000	**unitless**	constant (default value = 1)
Change in VMT	-0.39%	**percent reduction**	

Formula: % Change in VMT = (Subsidy amount / Average transit fare without subsidy * Elasticity of transit boardings with respect to transit fare price) * Percent of employees/residents eligible for subsidy * Percent of project-generated VMT from employees/residents * Transit mode share of all trips * Percent of transit trips that would otherwise be made in a vehicle * Conversion factor of vehicle trips to VMT

Sources:

(1) Federal Highway Administration (FHWA). 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PMT by TRPTRANS by HH_CBSA, Workers by WRKTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(2) Handy, L., Boarnet, S. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. Available: http://www.arb.ca.gov/cc/sb375/policies/transitservice/transit_brief.pdf. Accessed: January 2021.

(3) Litman, T. 2020a. Transit Price Elasticities and Cross-elasticities. Victoria Transport Policy Institute. April. Available: https://www.vtpi.org/tranelas.pdf. Accessed: January 2021.

(4) Taylor, B., Miller, D., Iseki, H., & Fink, C. 2008. Nature and/or Nurture? Analyzing the Determinants of Transit Ridership Across US Urbanized Areas. Transportation Research Part A: Policy and Practice, 43(1), 60-77. Available: https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.367.5311&rep=rep1&type=pdf. Accessed: January 2021.

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Trip Reduction Programs - T-9-B. Implement Subsidized or Discounted Transit Program - Work Trips Only

Locational Context **Urban, Suburban**
Scale of Application **Project/Site**
Type of VMT affected: **Employee commute trips**
Max VMT reduction: **5.50%**

This measure will provide subsidized or discounted, or free transit passes for employees. Reducing the out-of-pocket cost for choosing transit improves the competitiveness of transit against driving, increasing the total number of transit trips and decreasing vehicle trips. This decrease in vehicle trips results in reduced VMT and thus a reduction in GHG emissions. The project should be accessible either within 1 mile of high-quality transit service (rail or bus with headways of less than 15 minutes), 0.5 mile of local or less frequent transit service, or along a designated shuttle route providing last-mile connections to rail service. If a well-established bikeshare service (Measure T-22-A) is available, the site may be located up to 2 miles from a high-quality transit service.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-9.1
Average transit fare without subsidy	$1.00	**dollar**	user input (default value = 0-1000)
Subsidy amount	$1.00	**dollar**	user input (default value = 0-1000)
Percent of employees/residents eligible for subsidy	100.0%	**percent**	user input (default value = 0-1)
Percent of project-generated VMT from employees/residents	100.0%	**percent**	user input (default value = 0-1)
Transit mode share of all work trips	25.6%	**percent**	optional (default value = 0.0112-0.256)
Elasticity of transit boardings with respect to transit fare price	-0.430	**unitless**	constant (default value = -0.43)
Percent of transit trips that would otherwise be made in a vehicle	50.0%	**percent**	constant (default value = 0.5)
Conversion factor of vehicle trips to VMT	1.000	**unitless**	constant (default value = 1)
Change in VMT	**-5.50%**	**percent reduction**	

Formula: % Change in VMT = (Subsidy amount / Average transit fare without subsidy * Elasticity of transit boardings with respect to transit fare price) * Percent of employees/residents eligible for subsidy * Percent of project-generated VMT from employees/residents * Transit mode share of all work trips * Percent of transit trips that would otherwise be made in a vehicle * Conversion factor of vehicle trips to VMT

Sources:

(1) Federal Highway Administration (FHWA). 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PMT by TRPTRANS by HH_CBSA, Workers by WRKTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(2) Handy, L., Boarnet, S. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. Available: http://www.arb.ca.gov/cc/sb375/policies/transitservice/transit_brief.pdf. Accessed: January 2021.

(3) Litman, T. 2020a. Transit Price Elasticities and Cross-elasticities. Victoria Transport Policy Institute. April. Available: https://www.vtpi.org/tranelas.pdf. Accessed: January 2021.

(4) Taylor, B., Miller, D., Iseki, H., & Fink, C. 2008. Nature and/or Nurture? Analyzing the Determinants of Transit Ridership Across US Urbanized Areas. Transportation Research Part A: Policy and Practice, 43(1), 60-77. Available: https://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.367.5311&rep=rep1&type=pdf. Accessed: January 2021.

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Trip Reduction Programs - T-10. Provide End-of-Trip Bicycle Facilities

Locational Context	**Urban, Suburban**
Scale of Application	**Project/Site**
Type of VMT affected:	**Employee commute trips**
Max VMT reduction:	**4.40%**

This measure will install and maintain end-of-trip facilities for employee use. End-of-trip facilities include bike parking, bike lockers, showers, and personal lockers. The provision and maintenance of secure bike parking and related facilities encourages commuting by bicycle, thereby reducing VMT and GHG emissions.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-10.1
Bike mode adjustment factor	4.860	**unitless**	constant (default value = 1.78-4.86)
Existing bicycle trip length for all trips in region	2.1	**mile**	optional (default value = 1.7-2.9)
Existing vehicle trip length for all trips in region	12.4	**mile**	optional (default value = 9.7-19.1)
Existing bicycle mode share for work trips in region	2.8%	**percent**	optional (default value = 0.004-0.041)
Existing vehicle mode share for work trips in region	67.1%	**percent**	optional (default value = 0.671-0.953)
Change in VMT	-2.73%	**percent reduction**	

Formula: % Change in VMT = (Existing bicycle trip length for all trips in region * (Existing bicycle mode share for work trips in region - (Bike mode adjustment factor * Existing bicycle mode share for work trips in region))) / (Existing vehicle trip length for all trips in region * Existing vehicle mode share for work trips in region)

Sources:

(1) Buehler, R. 2012. Determinants of bicycle commuting in the Washington, DC region: The role bicycle parking, cyclist showers, and free car parking at work. Transportation Research Part D, 17, 525– 531. Available: http://www.pedbikeinfo.org/cms/downloads/DeterminantsofBicycleCommuting.pdf. Accessed: January 2021.

(2) Federal Highway Administration (FHWA). 2017a. National Household Travel Survey – 2017 Table Designer. Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(3) Federal Highway Administration (FHWA). 2017b. National Household Travel Survey – 2017 Table Designer. Workers by WRKTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

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Trip Reduction Programs - T-11. Provide Employer-Sponsored Vanpool

Locational Context **Urban, Suburban, Rural**
Scale of Application **Project/Site**
Type of VMT affected: **Employee commute trips**
Max VMT reduction: **20.40%**

This measure will implement an employer-sponsored vanpool service. Vanpooling is a flexible form of public transportation that provides groups of 5 to 15 people with a cost-effective and convenient rideshare option for commuting. The mode shift from long-distance, single-occupied vehicles to shared vehicles reduces overall commute VMT, thereby reducing GHG emissions.

Use discretion when calculating reductions based on vanpool adoption. There is potential to overestimate reductions with this measure. The average vanpool trip length is based on a survey of existing SANDAG vanpool participants, and vanpool has traditionally been adopted by individuals with very long commutes. However, if adoption is higher than 1 – 3 percent, the average vanpool trip length should be decreased, gradually approaching the overall average trip length.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-11.1
Percent of employees that participate in vanpool program	**2.0%**	**percent**	user input (default value = 0-0.15)
Average length of one-way vehicle commute trip in region	**12.4**	**mile**	optional (default value = 12.44-18.62)
Average length of one-way vanpool commute trip	**42.0**	**mile**	optional (default value = 42)
Average vanpool occupancy (including driver)	**6.25**	**person**	optional (default value = 6.25)
Change in VMT	**-0.92%**	**percent reduction**	

Formula: % Change in VMT = ((((1 - Percent of employees that participate in vanpool program) * Average length of one-way vehicle commute trip in region) + (Percent of employees that participate in vanpool program * Average length of one-way vanpool commute trip / Average vanpool occupancy (including driver))) / Average length of one-way vehicle commute trip in region) - 1

Sources:
(1) California Air Resources Board (CARB). 2020. EMFAC2017 v1.0.3. August. Available: https://arb.ca.gov/emfac/emissions-inventory. Accessed: January 2021.

(2) Federal Highway Administration (FHWA). 2017. National Household Travel Survey–2017 Table Designer. Travel Day VT by HH_CBSA by TRPTRANS by TRIPPURP. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(3) Intergovernmental Panel on Climate Change (IPCC). 2007. Climate Change 2007: The Physical Science Basis. Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change [Solomon, S., D. Qin, M. Manning, Z. Chen, M. Marquis, K. B. Averyt, M. Tignor and H.L. Miller (eds.)]. Cambridge University Press, Cambridge, United Kingdom and New York, NY, USA, 996 pp. Available: https://www.ipcc.ch/report/ar4/wg1/. Accessed: January 2021. (4) San Diego Association of Governments (SANDAG). 2019. Mobility Management VMT Reduction Calculator Tool–Design Document. June. Available: https://www.icommutesd.com/docs/default-source/planning/tooldesign-document_final_7-17-19.pdf?sfvrsn=ec39eb3b_2. Accessed: January 2021.

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Trip Reduction Programs - T-13. Implement Employee Parking Cash-Out

Locational Context	**Urban, Suburban**
Scale of Application	**Project/Site**
Type of VMT affected:	**Employee commute trips**
Max VMT reduction:	**12.00%**

This measure will require project employers to offer employee parking cash-out. Cash-out is when employers provide employees with a choice of forgoing their current subsidized/free parking for a cash payment equivalent to or greater than the cost of the parking space. This encourages employees to use other modes of travel instead of single occupancy vehicles. This mode shift results in people driving less and thereby reduces VMT and GHG emissions.

Percentage of employees eligible	**20.0%**	**percent**	user input (default value = 0-1)
Percent reduction in commute VMT from implementation of measure	**-12.0%**	**percent**	constant (default value = -0.12)
Change in VMT	**-2.40%**	**percent reduction**	

Formula: % Change in VMT = Percentage of employees eligible * Percent reduction in commute VMT from implementation of measure

Sources:
(1) Shoup, D. 2005. Parking Cash Out. Planners Advisory Service, American Planning Association. Available: http://shoup.bol.ucla.edu/ParkingCashOut.pdf. Accessed: January 2021.

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Parking or Road Pricing/Management - T-15. Limit Residential Parking Supply

Locational Context	**Urban, Suburban**
Scale of Application	**Project/Site**
Type of VMT affected:	**Project-generated trips**
Max VMT reduction:	**13.70%**

This measure will reduce the total parking supply available at a residential project or site. Limiting the amount of parking available creates scarcity and adds additional time and inconvenience to trips made by private auto, thus disincentivizing driving as a mode of travel. Reducing the convenience of driving results in a shift to other modes and decreased VMT and thus a reduction in GHG emissions. Evidence of the effects of reduced parking supply is strongest for residential developments. This measure is ineffective in locations where unrestricted street parking or other offsite parking is available nearby and has adequate capacity to accommodate project-related vehicle parking demand.

Residential parking demand	**1.0**	**parking space**	user input (default value = 0-9999)
Project residential parking supply	**0.8**	**parking space**	user input (default value = 0-9999)
Percentage of project VMT generated by residents	**15.0%**	**percent**	user input (default value = 0-1)
Percent of household VMT that is commute based	**37.0%**	**percent**	optional (default value = 0.37)
Percent reduction in commute mode share by driving among households in areas with scarce parking	**37.0%**	**percent**	constant (default value = 0.37)
Change in VMT	**-0.41%**	**percent reduction**	

Formula: % Change in VMT = - ((Residential parking demand - Project residential parking supply) / Residential parking demand) * Percentage of project VMT generated by residents * Percent of household VMT that is commute based * Percent reduction in commute mode share by driving among households in areas with scarce parking

Sources:
(1) California Department of Transportation (Caltrans). 2012. California Household Travel Survey (CHTS). Available: https://www.nrel.gov/transportation/secure-transportation-data/tsdc-california-travelsurvey.html. Accessed: January 2021.

(2) Chatman, D. 2013. Does TOD need the T? On the importance of factors other than rail access. Journal of the American Planning Association 79(1). Available: https://trid.trb.org/view/1243004 . Accessed: January 2021.

(3) Institute of Transportation Engineers (ITE). 2019. Parking Generation Manual. 5th Edition. February. Available: https://ecommerce.ite.org/IMIS/ItemDetail?iProductCode=PG5-ALL. Accessed: May 2021.

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Parking or Road Pricing/Management - T-16. Unbundle Residential Parking Costs from Property Cost

Locational Context	**Urban, Suburban**
Scale of Application	**Project/Site**
Type of VMT affected:	**Project-generated trips**
Max VMT reduction:	**15.70%**

This measure will unbundle, or separate, a residential project's parking costs from property costs, requiring those who wish to purchase parking spaces to do so at an additional cost. On the assumption that parking costs are passed through to the vehicle owners/drivers utilizing the parking spaces, this measure results in decreased vehicle ownership and, therefore, a reduction in VMT and GHG emissions. Unbundling may not be available to all residential developments, depending on funding sources. Parking costs must be passed through to the vehicle owners/drivers utilizing the parking spaces for this measure to result in decreased vehicle ownership.

Annual parking cost per space	**$1,200.00**	**dollar**	user input (default value = 0-3600)
Average annual vehicle cost	**$9,282.00**	**dollar**	constant (default value = 9282)
Elasticity of vehicle ownership with respect to total vehicle cost	**-0.400**	**unitless**	constant (default value = -0.4)
Adjustment factor from vehicle ownership to VMT	**1.010**	**unitless**	constant (default value = 1.01)
Change in VMT	**-5.22%**	**percent reduction**	

Formula: % Change in VMT = (Annual parking cost per space / Average annual vehicle cost) * Elasticity of vehicle ownership with respect to total vehicle cost * Adjustment factor from vehicle ownership to VMT

Sources:
(1) AAA. 2019. Your Driving Costs. September. Available: https://exchange.aaa.com/wpcontent/uploads/2019/09/AAA-Your-Driving-Costs-2019.pdf. Accessed: January 2021.

(2) Federal Highway Administration (FHWA). 2017. National Household Travel Survey – 2017 Table Designer. Annual VMT / Vehicle by Count of Household Vehicles in California. Available: https://nhts.ornl.gov/. Accessed: March 2021.

(3) Litman, T. 2020. Parking Requirement Impacts on Housing Affordability. June. Available: https://www.vtpi.org/park-hou.pdf. Accessed: January 2021.

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Neighborhood Design - T-18. Provide Pedestrian Network Improvement

Locational Context	**Urban, Suburban, Rural**
Scale of Application	**Plan/Community**
Type of VMT affected:	**Household trips**
Max VMT reduction:	**6.40%**

This measure will increase the sidewalk coverage to improve pedestrian access. Providing sidewalks and an enhanced pedestrian network encourages people to walk instead of drive. This mode shift results in a reduction in VMT and GHG emissions. The 'study area' should be based on a 1 KM buffer around the area where the pedestrian network is being improved. The VMT reduction is limited to household VMT.

Existing sidewalk length in study area	1.0	**mile**	user input (default value = 0-9999)
Sidewalk length in study area with measure	1.1	**mile**	user input (default value = 0-9999)
Elasticity of VMT with respect to the ratio of sidewalks-to-streets	-0.050	**unitless**	constant (default value = -0.05)
Change in VMT	**-0.50%**	**percent reduction**	

Formula: % Change in VMT = ((Sidewalk length in study area with measure / Existing sidewalk length in study area) - 1) * Elasticity of VMT with respect to the ratio of sidewalks-to-streets

Sources:

(1) Federal Highway Administration (FHWA). 2019. 2017 National Household Travel Survey Popular Vehicle Trip Statistics. Available: https://nhts.ornl.gov/vehicle-trips. Accessed: January 2021.

(2) Frank, L., M. Greenwald, S. Kavage, and A. Devlin. 2011. An Assessment of Urban Form and Pedestrian and Transit Improvements as an Integrated GHG Reduction Strategy. WSDOT Research Report WA-RD 765.1, Washington State Department of Transportation. April. Available: www.wsdot.wa.gov/research/reports/fullreports/765.1.pdf. Accessed: January 2021.

(3) Handy, S., S. Glan-Claudia, and M. Boarnet. 2014. Impacts of Pedestrian Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions: Policy Brief. September. Available: https://ww2.arb.ca.gov/sites/default/files/2020- 06/Impacts_of_Pedestrian_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

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Neighborhood Design - T-20. Expand Bikeway Network

Locational Context **Urban, Suburban**
Scale of Application **Plan/Community**
Type of VMT affected: **Employee commute trips**
Max VMT reduction: **0.50%**

This measure will increase the length of a city or community bikeway network. A bicycle network is an interconnected system of bike lanes, bike paths, bike routes, and cycle tracks. Providing bicycle infrastructure with markings and signage on appropriately sized roads with vehicle traffic traveling at safe speeds helps to improve biking conditions (e.g., safety and convenience). In addition, expanded bikeway networks can increase access to and from transit hubs, thereby expanding the "catchment area" of the transit stop or station and increasing ridership. This encourages a mode shift from vehicles to bicycles, displacing VMT and thus reducing GHG emissions. When expanding a bicycle network, a best practice is to consider bike lane width standards from local agencies, state agencies, or the National Association of City Transportation Officials' Urban Bikeway Design Guide. The bikeway network must consist of either Class I, II, or IV infrastructure.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-20.1
Existing bikeway miles in plan/community	5.0	mile	user input (default value = 0-9999)
Bikeway miles in plan/community with measure	7.0	mile	user input (default value = 0-9999)
Bicycle mode share in plan/community	0.5%	percent	optional (default value = 0.0006-0.0079)
Vehicle mode share in plan/community	11.4%	percent	optional (default value = 0.8696-0.9688)
Average one-way bicycle trip length in plan/community	2.1	mile	optional (default value = 1.7-2.9)
Average one-way vehicle trip length in plan/community	12.4	mile	optional (default value = 9.7-19.1)
Elasticity of bike commuters with respect to bikeway miles per 10,000 population	0.250	unitless	constant (default value = 0.25)
Change in VMT	-0.07%	percent reduction	

Formula: % Change in VMT = -1 * ((((Bikeway miles in plan/community with measure - Existing bikeway miles in plan/community) / Existing bikeway miles in plan/community) * Bicycle mode share in plan/community * Average one-way bicycle trip length in plan/community * Elasticity of bike commuters with respect to bikeway miles per 10,000 population) / (Vehicle mode share in plan/community * Average one-way vehicle trip length in plan/community))

Sources:
(1) Federal Highway Administration (FHWA). 2017. National Household Travel Survey – 2017 Table Designer. Travel Day PMT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(2) Pucher, J., Buehler, R. 2011. Analysis of Bicycling Trends and Policies in Large North American Cities: Lessons for New York. March. Available: http://www.utrc2.org/sites/default/files/pubs/analysis-bike-final_0.pdf. Accessed: January 2021.

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Neighborhood Design - T-21-A. Implement Conventional Carshare Program

Locational Context	**Urban, Suburban**
Scale of Application	**Plan/Community**
Type of VMT affected:	**All neighborhood/city trips**
Max VMT reduction:	**0.15%**

This measure will increase carshare access in the user's community by deploying conventional carshare vehicles. Carsharing offers people convenient access to a vehicle for personal or commuting purposes. This helps encourage transportation alternatives and reduces vehicle ownership, thereby avoiding VMT and associated GHG emissions. A variation of this measure, electric carsharing, is described in Measure T-21-B, Implement Electric Carshare Program.

Number of vehicles deployed in plan/community	5	**integer**	user input (default value = 0-9999)
VMT in plan/community without measure	500000.0	**VMT**	user input (default value = 0-999)
Conventional VMT avoided with measure	68.2	**VMT**	constant (default value = 68.2)
Conventional VMT added with measure	24.4	**VMT**	constant (default value = 24.4)
Change in VMT	**-0.04%**	**percent reduction**	

Formula: % Change in VMT = (Number of vehicles deployed in plan/community * (Conventional VMT added with measure - Conventional VMT avoided with measure)) / VMT in plan/community without measure

Sources:

(1) Martin, E. and S. Shaheen. 2016. The Impacts of Car2go on Vehicle Ownership, Modal Shift, Vehicle Miles Traveled, and Greenhouse Gas Emissions: An Analysis of Five North American Cities. July. Available: https://tsrc.berkeley.edu/publications/impacts-car2go-vehicle-ownership-modal-shiftvehicle-miles-traveled-and-greenhouse-gas. Accessed: March 2021.

(2) San Diego Association of Governments (SANDAG). 2019. Mobility Management VMT Reduction Calculator Tool – Design Document. June. Available: https://www.icommutesd.com/docs/defaultsource/planning/tool-design-document_final_7-17-19.pdf?sfvrsn=ec39eb3b_2. Accessed: January 2021.

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Neighborhood Design - T-22-B. Implement Electric Bikeshare Programs

Locational Context	**Urban, Suburban**
Scale of Application	**Plan/Community**
Type of VMT affected:	**All neighborhood/city trips**
Max VMT reduction:	**0.06%**

This measure will establish an electric bikeshare program. Electric bikeshare programs provide users with on-demand access to electric pedal assist bikes for short-term rentals. This encourages a mode shift from vehicles to electric bicycles, displacing VMT and reducing GHG emissions. Variations of this measure are described in Measure T-22-A, Implement Pedal (Non-Electric) Bikeshare Program, and Measure T-22-C, Implement Scootershare Program. Access to electric bikesharing is measured as the percent of residences in the plan/community within 0.25-mile of an electric bikeshare station. For dockless bikes, assume that all residences within 0.25 mile of the designated dockless service area would have access.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-10.1
Percent of residences in plan/community with access to electric bikeshare system without measure	0.0%	**percent**	user input (default value = 0-1)
Percent of residences in plan/community with access to electric bikeshare system with measure	100.0%	**percent**	user input (default value = 0-1)
Daily electric bikeshare trips per person	0.021	**trip**	constant (default value = 0.021)
Vehicle to electric bikeshare substitution rate	35.0%	**percent**	constant (default value = 0.35)
Electric bikeshare average one-way trip length	2.1	**mile**	optional (default value = 2.1)
Daily vehicle trips per person	2.700	**trip**	constant (default value = 2.7)
Regional average one-way vehicle trip length	12.4	**mile**	optional (default value = 9.7-19.1)
Change in VMT	**-0.05%**	**percent reduction**	

Formula: % Change in VMT = -1 * (((Percent of residences in plan/community with access to electric bikeshare system with measure - Percent of residences in plan/community with access to electric bikeshare system without measure) * Daily electric bikeshare trips per person * Vehicle to electric bikeshare substitution rate * Electric bikeshare average one-way trip length) / (Daily vehicle trips per person * Regional average one-way vehicle trip length))

Sources:

(1) Federal Highway Administration (FHWA). 2017. National Household Travel Survey–2017 Table Designer. Travel Day PT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(2) Federal Highway Administration (FHWA). 2018. Summary of Travel Trends 2017–National Household Travel Survey. July. Available: https://www.fhwa.dot.gov/policyinformation/documents/2017_nhts_summary_travel_trends.pdf. Accessed: January 2021.

(3) Fitch, D., H. Mohiuddin, and S. Handy. 2021. Examining the Effects of the Sacramento Dockless E-Bike Share on Bicycling and Driving. MDPI: Sustainability. January. Available: https://www.mdpi.com/2071-1050/13/1/368. Accessed: March 2021.

(4) Metropolitan Transportation Commission (MTC). 2017. Plan Bay Area 2040 Final Supplemental Report–Travel Modeling Report. July. Available: http://2040.planbayarea.org/files/2020-02/Travel_Modeling_PBA2040_Supplemental%20Report_7-2017.pdf. Accessed: January 2021.

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Trip Reduction Programs - T-23. Provide Community-Based Travel Planning

Locational Context	**Urban, Suburban**
Scale of Application	**Plan/Community**
Type of VMT affected:	**Household trips**
Max VMT reduction:	**2.30%**

This measure will target residences in the plan/community with community-based travel planning (CBTP). CBTP is a residential-based approach to outreach that provides households with customized information, incentives, and support to encourage the use of transportation alternatives in place of single occupancy vehicles, thereby reducing household VMT and associated GHG emissions.

Residences in plan/community	**100**	**residence**	user input (default value = 0-99999)
Residences in plan/community targeted with CBTP	**100**	**residence**	user input (default value = 0-99999)
Percent of targeted residences that participate	**19.0%**	**percent**	constant (default value = 0.19)
Percent vehicle trip reduction by participating residences	**12.0%**	**percent**	constant (default value = 0.12)
Adjustment factor from vehicle trips to VMT	**1.000**	**unitless**	constant (default value = 1)
Change in VMT	**-2.28%**	**percent reduction**	

Formula: % Change in VMT = - (Residences in plan/community targeted with CBTP / Residences in plan/community) * Percent of targeted residences that participate * Percent vehicle trip reduction by participating residences * Adjustment factor from vehicle trips to VMT

Sources:

(1) Metropolitan Transportation Commission (MTC). 2021. Plan Bay Area 2050, Supplemental Report. (forthcoming)

FEHR & PEERS

Transit - T-25. Extend Transit Network Coverage or Hours

Locational Context **Urban, Suburban**
Scale of Application **Plan/Community**
Type of VMT affected: **All neighborhood/city trips**
Max VMT reduction: **4.60%**

This measure will expand the local transit network by either adding or modifying existing transit service or extending the operation hours to enhance the service near the project site. Starting services earlier in the morning and/or extending services to late-night hours can accommodate the commuting times of alternative-shift workers. This will encourage the use of transit and therefore reduce VMT and associated GHG emissions.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-3.1
Total transit service miles or service hours in plan/community before expansion	5.0	**mile**	user input (default value = 0-9999)
Total transit service miles or service hours in plan/community after expansion	6.0	**mile**	user input (default value = 0-9999)
Transit mode share in plan/community	11.3%	**percent**	optional (default value = 0.0137-0.1138)
Elasticity of transit demand with respect to service miles or service hours	0.700	**unitless**	constant (default value = 0.7)
Statewide mode shift factor	57.8%	**percent**	constant (default value = 0.578)
Ratio of vehicle trip reduction to VMT	1.000	**unitless**	constant (default value = 1)
Change in VMT	**-0.91%**	**percent reduction**	

Formula: % Change in VMT = -1 * ((Total transit service miles or service hours in plan/community after expansion - Total transit service miles or service hours in plan/community before expansion) / Total transit service miles or service hours in plan/community before expansion) * Transit mode share in plan/community * Elasticity of transit demand with respect to service miles or service hours * Statewide mode shift factor * Ratio of vehicle trip reduction to VMT

Sources:
(1) Handy, S., Lovejoy, K., Boarnet, M., Spears, S. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: https://ww2.arb.ca.gov/sites/default/files/2020- 06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emi ssions_Policy_Brief.pdf. Accessed: January 2021.

(2) Federal Highway Administration (FHWA). 2017. National Household Travel Survey – 2017 Table Designer. Average Vehicle Occupancy by HHSTFIPS. Available: https://nhts.ornl.gov/. Accessed: January 2021.

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Transit - T-26. Increase Transit Service Frequency

Locational Context	**Urban, Suburban**
Scale of Application	**Plan/Community**
Type of VMT affected:	**All neighborhood/city trips**
Max VMT reduction:	**11.30%**

This measure will increase transit frequency on one or more transit lines serving the plan/community. Increased transit frequency reduces waiting and overall travel times, which improves the user experience and increases the attractiveness of transit service. This results in a mode shift from single occupancy vehicles to transit, which reduces VMT and associated GHG emissions.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-3.1
Percent increase in transit frequency	**50.0%**	**percent**	user input (default value = 0-3)
Level of implementation	**100.0%**	**percent**	user input (default value = 0-1)
Elasticity of transit ridership with respect to frequency of service	**0.500**	**unitless**	constant (default value = 0.5)
Transit mode share in plan/community	**11.3%**	**percent**	optional (default value = 0.0137-0.1138)
Vehicle mode share in plan/community	**87.0%**	**percent**	optional (default value = 0.8696-0.9688)
Statewide mode shift factor	**57.8%**	**percent**	constant (default value = 0.578)
Change in VMT	**-1.88%**	**percent reduction**	

Formula: % Change in VMT = -Level of implementation * ((Percent increase in transit frequency * Transit mode share in plan/community * Elasticity of transit ridership with respect to frequency of service * Statewide mode shift factor) / Vehicle mode share in plan/community)

Sources:
(1) Federal Highway Administration (FHWA). 2017a. National Household Travel Survey–2017 Table Designer. Travel Day PMT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(2) Federal Highway Administration (FHWA). 2017b. National Household Travel Survey–2017 Table Designer. Average Vehicle Occupancy by HHSTFIPS. Available: https://nhts.ornl.gov/. Accessed: January 2021. T-25. Increase Transit Service Frequency TRANSPORTATION | 178

(3) Handy, S., K. Lovejoy, M. Boarnet, S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: https://ww2.arb.ca.gov/sites/default/files/2020- 06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Poli cy_Brief.pdf. Accessed: January 2021.

(4) San Diego Association of Governments (SANDAG). 2019. Mobility Management VMT Reduction Calculator Tool– Design Document. June. Available: https://www.icommutesd.com/docs/default-source/planning/tool-designdocument_final_7-17-19.pdf?sfvrsn=ec39eb3b_2. Accessed: January 2021.

FEHR PEERS

Transit - T-28. Provide Bus Rapid Transit

Locational Context **Urban, Suburban**
Scale of Application **Plan/Community**
Type of VMT affected: **All neighborhood/city trips**
Max VMT reduction: **13.80%**

This measure will convert an existing bus route to a bus rapid transit (BRT) system. BRT includes the following additional components, compared to traditional bus service: exclusive right-of-way (e.g., busways, queue jumping lanes) at congested intersections, increased limited-stop service (e.g., express service), intelligent transportation technology (e.g., transit signal priority, automatic vehicle location systems), advanced technology vehicles (e.g., articulated buses, low-floor buses), enhanced station design, efficient fare-payment smart cards or smartphone apps, branding of the system, and use of vehicle guidance systems. BRT can increase the transit mode share in a community due to improved travel times, service frequencies, and the unique components of the BRT system. This mode shift reduces VMT and the associated GHG emissions.

Select the Core-Based Statistical Area for the project.	San Francisco-Oakland-Hayward		Appendix C. T-3.1
Percent increase in transit frequency due to BRT	10.0%	percent	user input (default value = 0-3)
Level of implementation	10.0%	percent	user input (default value = 0-1)
Transit mode share in plan/community	11.38%	percent	optional (default value = 0.0137-0.1138)
Vehicle mode share in plan/community	86.96%	percent	optional (default value = 0.8696-0.9688)
Statewide mode shift factor	57.8%	percent	constant (default value = 0.578)
Percent change in transit ridership due to BRT	25.0%	percent	constant (default value = 0.25)
Percent change in transit travel time due to BRT	-10.0%	percent	optional (default value = -0.1)
Elasticity of transit ridership with respect to frequency of service	0.500	unitless	constant (default value = 0.5)
Elasticity of transit ridership with respect to transit travel time	-0.400	unitless	constant (default value = -0.4)
Change in VMT	**-0.26%**	**percent reduction**	

Formula: % Change in VMT = -Level of implementation * ((Transit mode share in plan/community * Statewide mode shift factor * ((Percent increase in transit frequency due to BRT * Elasticity of transit ridership with respect to frequency of service) + (Percent change in transit travel time due to BRT * J) + Percent change in transit ridership due to BRT)) / Vehicle mode share in plan/community)

Sources:

(1) Federal Highway Administration (FHWA). 2017a. National Household Travel Survey–2017 Table Designer. Travel Day PMT by TRPTRANS by HH_CBSA. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(2) Federal Highway Administration (FHWA). 2017b. National Household Travel Survey–2017 Table Designer. Average Vehicle Occupancy by HHSTFIPS. Available: https://nhts.ornl.gov/. Accessed: January 2021.

(3) Handy, S., K. Lovejoy, M. Boarnet, and S. Spears. 2013. Impacts of Transit Service Strategies on Passenger Vehicle Use and Greenhouse Gas Emissions. October. Available: https://ww2.arb.ca.gov/sites/default/files/2020-06/Impacts_of_Transit_Service_Strategies_on_Passenger_Vehicle_Use_and_Greenhouse_Gas_Emissions_Policy_Brief.pdf. Accessed: January 2021.

(4) San Diego Association of Governments (SANDAG). 2019. Mobility Management VMT Reduction Calculator Tool–Design Document. June. Available: https://www.icommutesd.com/docs/default-source/planning/tool-design-document_final_7-17-19.pdf?sfvrsn=ec39eb3b_2. Accessed: January 2021.

(5) Transportation Research Board (TRB). 2007. Transit Cooperative Research Program Report 118: Bus Rapid Transit Practitioner's Guide. Available: https://nacto.org/docs/usdg/tcrp118brt_practitioners_kittleson.pdf. Accessed: January 2021.

Appendix C.5. Travel Demand Comparisons

Fehr & Peers compared the Project's trip generation results to those presented in the Brisbane Baylands Environmental Impact Report (EIR) published in 2013 ("2013 EIR") for earlier project variants to demonstrate how changes to the project description and trip generation methodologies would affect the traffic generated on the surrounding roadway network. In addition, Fehr & Peers compared the trip generation results to San Francisco's trip generation methodologies and to those that come directly from the C/CAG travel demand forecasting model.

Previous EIR

The 2013 EIR focused on analyzing two scenarios: one in which the project included residential uses and a second that did not. The first, the Developer-Sponsored Plan (DSP), consisted of 4,434 residential units and approximately 7 million square feet of office, research and development, retail, industrial, and institutional uses. The second, the Community Proposed Plan (CPP), consisted of approximately 7.7 million square feet of office, research and development, industrial, commercial, and institutional uses. Land use inputs are summarized in **Table C-17**.

Table C-17. Previous EIR Land Use Comparisons

Land Use	Units	DSP Size	CPP Size	Project Size
Residential	Dwelling Units	4,434	0	2,200
School	Students	1,300	0	0
Hotel	Rooms	369	1,990	800
Other Non-Residential	KSF	6,963	6,651	6,500

Source: Fehr & Peers, 2022.

State of the practice trip generation methodologies have evolved since the completion of the 2013 EIR to account for more recent data on travel patterns. First, the 2013 EIR relied on the ITE's 8th Edition Trip Generation Manual, published in 2008, while the current study relies on ITE's 11th Edition Trip Generation Manual, published in 2021. The 11th Edition includes more recent travel data from after 2008 and better reflects the differences of urban, suburban, and rural settings. Second, the MXD trip generation methodology was revalidated in the Fall 2019 to account for recent changes to the trip generation manual. In combination, these changes allow the methodology to reflect recent changes to travel patterns such as increased e-commerce activity, the introduction of ride-hailing (e.g., Uber and Lyft), and commute patterns within Brisbane and nearby communities. Finally, the 2013 DEIR relied on a synthesized approach of these methodologies and the 2002 San Francisco Guidelines travel demand approach, which was based on travel behavior from San Francisco from the 1990's. Rather than synthesize these different methodologies, this EIR relies on the ITE and MXD approach. The trip generation results from San Francisco's 2019 Transportation Impact Study Guidelines, which account for recent travel behavior changes, are presented in the following section as a point of comparison.

Trip generation results from the proposed Project, the DSP, and CPP are displayed in **Table C-18**. As a result of the project description and methodological changes described above, the Project is expected to generate more up to 10 percent more trips than the DSP scenario presented in the 2013 EIR. The Project is expected to generate fewer daily and peak hour vehicle trips compared to the CPP scenario as the large retail component of the CPP plan would generate more daily traffic than office or residential land uses.

Table C-18. Comparison to 2013 EIR

Project	Daily	AM In	AM Out	AM Total	PM In	PM Out	PM Total
Proposed Project Vehicle Trips	**46,103**	4,501	1,107	**5,607**	1,401	3,674	**5,075**
DSP[1] Vehicle Trips	**42,528**	3,848	1,504	**5,351**	1,411	3,535	**4,946**
CPP[2] Vehicle Trips	**79,514**	3,898	1,937	**5,835**	2,533	3,647	**6,180**

Notes:

1. DSP = Developer-Sponsored Plan, which included 570ksf retail, 2.7 msf office, 3.3 msf R&D/warehouse, 370 hotel rooms, 50 msf of civic/entertainment uses, schools, and 4,400 residential units. The 2013 EIR did not account for the effects of a TDM plan in the trip generation estimates, although Mitigation Measure 4.N-13 required compliance with C/CAG's TDM requirements in effect at the time.
2. CPP = Community Proposed Plan, which included 2.2 msf retail, 1 msf office, 2 msf R&D, 370 ksf of industrial/warehouse, 2K hotel rooms, and 1.7msf of civic/entertainment uses. See above note about inclusion of TDM.

Source: Fehr & Peers, 2023.

SF Travel Guidelines

To provide a point of comparison for the results presented above, the Project trip generation was calculated using the San Francisco Planning Department's *Transportation Impact Analysis Guidelines for Environmental Review (2019 SF Guidelines)*. In 2019, the City of San Francisco released city-specific trip generation rates based on observations of sites within the City of San Francisco. These trip generation rates are inclusive of different modes of transportation and can be used to calculate Project person trips and vehicle trips. Additionally, San Francisco created different trip generation rates by urban context (i.e., "place type"). Place Type 3 matches the existing low density and automobile-oriented context of the Project site (e.g., "urban low density"), although as Caltrain, SFMTA, and SamTrans implement planned transit service increases and nearby land uses build out, the characteristics of the neighborhood may start to reflect Place Type 2 (e.g., "urban medium density") similar to Mission Bay, Dogpatch, and Showplace Square. This shift to a Place Type 2 would be consistent with the Project's goal to create a mixed-use community with transit, bicycle, and pedestrian travel patterns similar to those of San Francisco's urban medium density neighborhoods.

PM peak hour person and vehicle trips calculated using the SF Guidelines for Place Type 2 and 3 are presented in **Table C-19**. The focus for this comparison is on the PM peak hour to focus on the most critical time period and the SF Guidelines does not include AM peak hour information. New vehicle project trips and the automobile mode share for the two SF Guidelines methodologies and the proposed Project are compared in **Table C-20**. Overall, the trip generation estimates for the proposed Project are



similar to those estimated for Place Type 2 while SF Travel Guidelines methodology for Place Type 3 would generate 30 percent more PM vehicle trips (approximately 2,000 more) than the proposed Project. This indicates that with proposed Project's urban design characteristics of the project (e.g., mix of land uses, walkable blocks, other factors described earlier in Appendix C) as well as the required TDM elements would result in travel behavior more similar to land uses in San Francisco's Place Type 2 than those of Place Type 3, which are less dense and more automobile oriented than those proposed by the Project. The auto mode share under Place Type 2 is consistent with other goal-based vehicle trip limits on the Peninsula, such as the Mountain View's North Bayshore Plan[59] and many of the tech company campuses such as Facebook's in Menlo Park.

Table C-19. 2019 SF Guidelines PM Trip Generation by Place Type

Trip Mode	Existing Conditions *(Place Type 3)*	Visionary Goal *(Place Type 2)*
Person Trips		
Auto	8,575	4,862
Taxi / TNC	311	1,173
Public Transit	1,100	2,390
Walk	2,153	3,943
Bike	152	393
Total Person Trips	**12,290**	**12,760**
Vehicle Trips		
Auto	6,873	3,912
Taxi / TNC	236	978
Total Vehicle Trips	**7,110**	**4,890**

Source: Fehr & Peers, 2023.

[59] https://www.mountainview.gov/depts/comdev/planning/activeprojects/northbayshore_/default.asp

Table C-20. Project Comparison to SF Travel Guidelines

Trip Mode	PM Auto Mode Share	PM Vehicle Trips
New Vehicle Project Trips	--[1]	5,075
SF Travel Guidelines: Existing (Place Type 3)	72%	7,110
SF Travel Guidelines: Visionary (Place Type 2)	47%	4,890

Notes:

1. Automobile mode share is not an explicit output of the MXD trip generation approach, while it is an output of the SF Travel Guidelines. Therefore, the SF Travel Guidelines information is presented for comparison between the Place Type 2 and 3 versus the goal based trip limits on the peninsula described above in the text.

Source: Fehr & Peers, 2023.

C/CAG Travel Demand Model

As noted in **Chapters 4** and 5, the MXD trip generation methodology was used to estimate vehicle trips, roadway and intersection volumes, while the C/CAG travel demand model was used to estimate project generated VMT (on both a per capita and total VMT basis). The C/CAG model is required to estimate VMT as the C/CAG model is also the source of the regional VMT estimates that serve as the baseline for comparison. All models are representative simulations of real life and all models have confounding factors. For CEQA purposes, project-generated VMT and the regional baseline must be derived from the same model to produce comparable results. The MXD method allows for a greater level of detail for assessing trips generated by individual land uses or by district within the Project, which is required for the assignment of traffic volumes to the roadway network through individual project driveways while the C/CAG model does not allow to user to disaggregate trips by land use and location. As shown in **Table C-21**, the trip generation results from the MXD method and the C/CAG model are very similar, with the MXD method resulting in eight percent higher daily trips. For purposes of assessing traffic operations, air quality, and noise, the MXD approach is used to represent the most conservative / "worst case" scenario; while for VMT purposes, the C/CAG model outputs are used to reflect an appropriate comparison to regional conditions.

Table C-21. Comparison to C/CAG Model Estimates

Project	Daily Trip Generation
Proposed Project Vehicle Trips – MXD Method	**55,147**[1]
Project Vehicle Trips – C/CAG Model (Cumulative + Project Scenario)	**50,903**
Percent Difference from C/CAG Model	**+8%**

Notes:

1. Daily trip generation results are presented without the effects of the required TDM plan. While the C/CAG model accounts for the land use factors such as density of the project, diversity of land uses, and distance to transit that are accounted for in the MXD methodology, it does not account for the TDM measures. Therefore, the effect of the required TDM measures (16.4% reduction in VMT as presented in Chapter 5) is presented separately.

Source: Fehr & Peers, 2023.



Appendix C.6. MXD Methodology Supporting Documentation

Trip Generation Methodology

Current accepted methodologies, such as the Institute of Transportation Engineers (ITE) T*rip Generation* methodology, are primarily based on data collected at suburban, single-use, freestanding sites. These defining characteristics limit their applicability to mixed-use or multi-use development projects, such as the proposed project. The land use mix, design features, and setting of the proposed project would include characteristics that influence travel behavior differently from typical single-use suburban developments. Thus, traditional data and methodologies, such as ITE, would not accurately estimate the project vehicle trip generation.

In response to the limitations in the ITE methodology, and to provide a straightforward and empirically validated method of estimating vehicle trip generation at mixed-use developments, the US Environmental Protection Agency (EPA) sponsored a national study of the trip generation characteristics of multi-use sites. Travel survey data was gathered from 239 mixed-use developments (MXDs) in six major metropolitan regions and correlated with the characteristics of the sites and their surroundings. The findings indicate that the amount of external traffic generated is affected by a wide variety of factors including the mix of employment and residents, the overall size and density of the development, the internal connectivity for walking or driving among land uses, the availability of transit service, and the surrounding trip destinations within the immediate area outside the Project site.

These characteristics were related statistically to trip behavior observed at the study development sites using statistical techniques. These statistical relationships produced equations, known as the EPA MXD model, that allow predicting external vehicle trip reduction as a function of the MXD characteristics. Applying the external vehicle trip reduction percentage to "raw trips", as predicted by ITE, produces an estimate for the number of vehicle trips traveling in or out of the site.

The MXD model has been approved for use by the EPA[60]. It has also been peer-reviewed in the ASCE Journal of Urban Planning and Development[61], peer-reviewed in a 2012 TRB paper evaluating various smart growth trip generation methodologies[62], recommended by SANDAG for use on mixed-use smart growth developments[63], promoted in an American Planning Association (APA) Planning Advisory Service

[60] Trip Generation Tool for Mixed-Use Developments (2012). https://www.epa.gov/smartgrowth/mixed-use-trip-generation-model

[61] "Traffic Generated by Mixed-Use Developments—Six-Region Study Using Consistent Built Environmental Measures." Journal of Urban Planning and Development, 137(3), 248–261.

[62] Shafizadeh, Kevan et al. "Evaluation of the Operation and Accuracy of Available Smart Growth Trip Generation Methodologies for Use in California". Presented at 91st Annual Meeting of the Transportation Research Board, Washington, D.C., 2012.

[63] SANDAG Smart Growth Trip Generation and Parking Study. http://www.sandag.org/index.asp?projectid=378&fuseaction=projects.detail

(PAS)[64] which recommended it for evaluating traffic generation of mixed-use and other forms of smart growth, including in-fill and transit oriented development, It has also been used successfully in multiple certified EIRs in California.

Additional information and discussion are presented in the attached report: *Getting Trip Generation Right: Eliminating the Bias Against Mixed-Use Development.*

[64] Walters, Jerry et al. "Getting Trip Generation Right – Eliminating the Bias Against Mixed Use Development". American Planning Association. May 2013.









GETTING TRIP GENERATION RIGHT

Eliminating the Bias Against Mixed Use Development

By Jerry Walters, Brian Bochner, and Reid Ewing

American Planning Association

Making Great Communities Happen

Originally published as a PAS Memo by the American Planning Association (APA) in May 2013. PAS Memo is a bimonthly online publication of APA's Planning Advisory Service, a subscription service providing its members with the latest planning resources and customized research assistance. Learn more at ***www.planning.org/pas/about/.***

Photos in document courtesy of Fehr & Peers.

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When planners, developers, or traffic engineers conduct traffic impact analyses for proposed developments, they typically use the trip-generation data and analysis methods published by the Institute of Transportation Engineers (ITE) in its *Trip Generation* report and *Trip Generation Handbook*. However, standard traffic engineering practice does not account for project characteristics such as the mix and balance of land uses, compactness of design, neighborhood connectivity and walkability, infill versus remote location, and the variety of transportation choices offered. This can have significant implications when the project in question is a mixed use development.

The conventional methods used by traffic engineers throughout the U.S. to evaluate traffic impacts fail to account for the benefits of mixed use and other forms of lower-impact development. They exaggerate estimates of impacts and result in excessive development costs, skewed public perceptions, and decision maker resistance. These techniques overlook the full potential for internalizing trips through interaction among on-site activities and the extent to which development with a variety of nearby complementary destinations and high-quality transit access will produce less traffic. These effects can reduce the number of vehicle trips generated to a far greater degree than recognized in standard traffic engineering practice.

The ITE trip-generation data and analysis methods apply primarily to single-use and freestanding sites, which limits their applicability to compact, mixed-use, transit oriented developments (ITE 2004, 2012). The *Handbook* does include an approach based on limited data on mixed use developments, but only from six sites in Florida, not nearly enough to cover today's diverse mixed use developments across the United States.

It is important that planners and developers recognize the implications of using standard ITE trip generation data and methodologies for mixed use developments and use methods that more accurately estimate traffic generated by these projects. Commonly used methods unjustifiably favor types of development that consume greater resources and generate greater impacts, shifting our attention away from development forms and locations that stimulate higher levels of social interaction and benefit to established communities.

Researchers have attempted to analyze how a mix of uses in a compact, walkable project design affects trip generation and on-the-ground traffic impacts. In 2011, two major studies introduced methodologies for predicting traffic generation from mixed use development. The researchers on those studies have now collaborated to combine the advantages of both and provide, in this *PAS Memo*, an even more complete and reliable approach to measuring the benefits of such forms of development. Using this new approach, planners conducting trip-generation analysis for mixed use development projects will produce more accurate forecasts of traffic generation, which will allow more appropriate on-site design features and off-site mitigation measures.

The Problem with Conventional Traffic Impact Analysis

Traffic analysis is intended to inform planners, community members, and public officials of the most suitable planning features and infrastructure elements needed to support new development. However, the conventional methods were developed during an era when most new development was single use, stand alone, highway oriented, and suburban. Standard practices ascribe similar levels of impact to mixed-use, integrated, transit-oriented, and infill development, and consequently overlook the benefits of — and impose unreasonable obstacles to — appropriate planning and approval of such "smart growth" forms.

The standard analytic process used for planning, design, and impact analysis does not account for the degree to which well-designed mixed use development places shops, restaurants, offices, and residences in close proximity to one another, shortening internal trips between them and making more trips conducive to walking, biking, or riding transit. Such reductions in traffic and vehicle miles traveled reduce fuel consumption, greenhouse-gas and other emissions, and exposure of residents to passing traffic and the related threats to comfort, health, and safety. Reduced vehicular travel can also lessen the need to construct new or wider streets and highways, allowing communities to economize on infrastructure. Mixed use developments (MXD) also create opportunities for shared parking, which can reduce the number of spaces needed in parking lot and garage construction.

Traffic-Reducing Attributes of Mixed Use Development

Many of the attributes of lower-impact development can reduce traffic generation compared with conventional single-use suburban development forms:

Diverse land uses and activities can fill basic needs nearby, thereby reducing automobile travel. They allow for linkage of trips in multipurpose trip chains, with a single auto trip to an activity center followed by several short trips on foot. Mixed use sites also create the opportunity for shared parking, which in turn encourages multipurpose trips and reduces the tendency to make separate automobile trips from one destination to the next.

Higher densities and intensities of development provide opportunities for residents, employees, and visitors to circulate among larger numbers of businesses and activities by walking, bicycling, or making short trips by automobile. Higher concentrations of land use also support higher quality and higher-frequency transit service, offering tenants and visitors a viable alternative to driving. High land values and cost to provide parking also leads to higher parking prices, a disincentive to driving versus other available modes of travel.

Walkable urban design and interconnected streets generally reduce the perceived and real separation among destinations, encourage walking and cycling, and reduce the circuitousness and length of each trip.

Short distances to transit help make transit a viable alternative to the automobile and can create activity centers with sufficient street life, amenities, and walking connections where needs and entertainment can be accomplished without independent car trips.

Accessibility to complementary destinations outside the development reduces distances between jobs and housing, services and entertainment, and recreation, often making automobile travel unnecessary. Placed at infill locations, complementary new development that satisfies local needs can also reduce trip making by residents, employees, and shoppers in the surrounding community.

Socio-demographic compatibility can further reduce auto traffic to the extent that developments are designed to attract and accommodate residents with low auto ownership (through, for example, parking supply limits), low travel needs (based on, for example, family size,



fewer employed residents, lower income, or age range), or close affiliation with other project elements or surrounding land uses (linked, or simply compatible, jobs and residents).

Scale of development affects feasibility for communities and employers to provide travel demand options and management services that can shift traveler modes from the auto to alternative modes of travel. Residents and businesses that self-select into such sites and settings are also often more amenable to travelling less or using alternatives to the automobile. Transportation demand management (TDM) programs are both more likely to be available and more likely to be successful in compact, central, transit-supported settings.

The danger of using traditional traffic-generation data based on single-use facilities is that it misrepresents the true traffic generation impacts of mixed use development. The consequences of miscalculating the benefits of mixed-use development may include unreasonable development cost, exaggerated impacts and mitigation responsibilities, skewed public perceptions, and decision maker resistance. This penalizes mixed use development proposals, often tipping the balance in favor of projects that offer fewer benefits and ultimately generate higher impacts. Denying "smart" forms of development does not reduce the overall market demand for housing and business, so the building disallowed ends up in other locations within the region, often in less accessible locations, at lower densities, and in less-mixed use configurations. The end result can be more traffic and higher regional vehicle-miles traveled than had the smart-growth development been approved.

Understandably, communities and public reviewers want to minimize the risk of unmitigated impacts. However, doing so through the application of overly conservative project evaluation criteria undermines the pursuit of other community values, such as vibrant neighborhoods with integrated development and activities that minimize the need to travel and the impacts produced by excessive unnecessary use of the automobile.

Conservative traffic-generation estimates have supply-side impacts, affecting design and cost of streets and parking. Within constrained sites, over design of traffic elements can limit the space available for revenue-producing land uses and increase other development costs. Development fee programs also rely heavily on traffic-generation estimates from the ITE *Trip Generation Manual*; this can lead to setting excessively high fee rates on mixed use development. Unquestioning use of the ITE data can unreasonably jeopardize a MXD project's approval, financial feasibility, and design quality.



Mixed use sites can take many forms, but all offer a diversity of uses in walkable settings. Oakland City Center BART (left); RiverPlace, Portland, Oregon (opposite page).



New Research Evidence for Mixed Use Development Trip Generation

Several hundred studies over the past 20 years have confirmed that the built environment affects travel generation (Ewing and Cervero 2010). Development features associated with reduced trip rates include a series of "D" variables: density, diversity of uses, design of urban environment, distance from transit, destination accessibility, development scale, demographics of inhabitants, and demand management. In the past three years, research has examined more directly the relative influence of each factor and their interactions and has sought to corroborate the research results through field verification. Organizations such as the U.S. Environmental Protection Agency and the National Academy of Sciences Transportation Research Board have sponsored several of the more reputable studies on the subject.

The Eight "D" Variables

The most advanced research has confirmed that trip rate reductions are quantifiably associated with the attributes of mixed use development, defined in terms of these characteristics of urban development patterns:

Density: dwellings, jobs per acre. Higher densities shorten trip lengths, allow for more walking and biking, and support quality transit.

Diversity: mix of housing, jobs, retail. A diverse neighborhood allows for easier trip linking and shortens distances between trips. It also promotes higher levels of walking and biking and allows for shared parking.

Design: connectivity, walkability. Good design improves connectivity, encourages walking and biking, and reduces travel distance.

Destinations: regional accessibility. Destination accessibility links travel purposes, shortens trips, and offers transportation options.

Distance to Transit: rail proximity. Close proximity to transit encourages its use, along with trip-linking and walking, and often creates accessible walking environments.

Development Scale: residents, jobs. Appropriate development scale provides critical mass, increases local opportunities, and supports transit investment.

Demographics: household size, income. Mixed use development allows self-selection by households into settings with their preferred activities and travel modes, allows businesses to locate convenient to clients, and supports a socioeconomic "fit" among residents, businesses, and activities.

Demand Management: pricing, incentives. Demand management ties incentives to the urban environment and allows alignment of auto disincentives with available alternate modes. It takes advantage of critical mass of travel resulting from density, diversity, and design.

A growing body of evidence indicates that these factors, individually or together, quantifiably explain the number of vehicle trips and vehicle-miles traveled for a development project and for a region as a whole. Each of the D factors influences traffic generation through a variety of mechanisms. There are also important interactions, both synergistic and mutually dampening, among the D factors that call for sophisticated techniques when quantifying the travel generation effects of different combinations proposed in any project or plan.



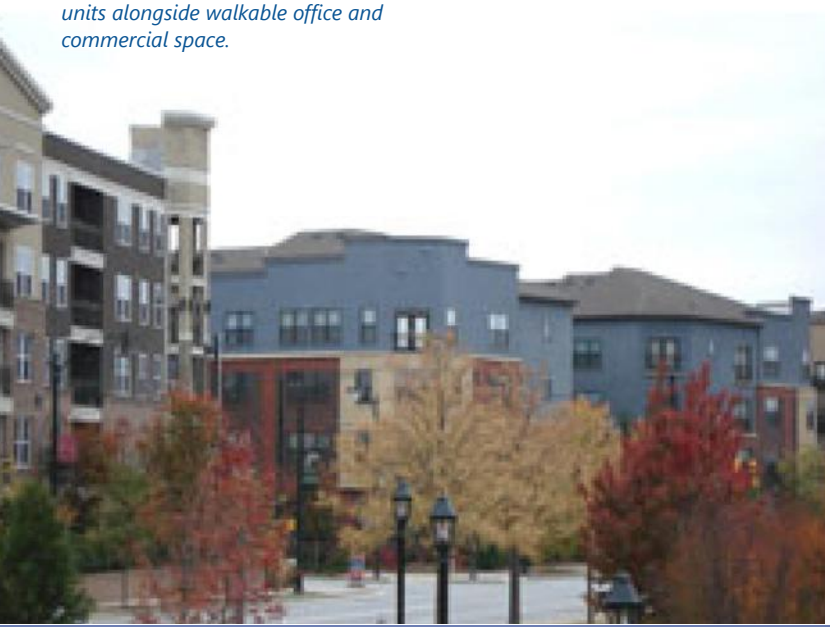
The Evidence that Conventional Methods Overstate MXD Impacts

Empirical evidence and research provides evidence that mixed-use, infill, and transit-oriented developments generate fewer external vehicle trips than equivalent stand-alone uses. A nationwide study sponsored by the U.S. EPA (Ewing et al. 2011) found statistical correlation between the D factors and increased trip internalization and increased walking and transit use. It further demonstrated, for 27 mixed-use development sites across the U.S., that:

1. On average, the sites' land uses would generate 49 percent more traffic if they were distributed among single-use sites in suburban settings, the situations to which the ITE *Trip Generation Manual* would apply.

2. The ITE *Handbook*, the current state-of-practice resource for estimating mixed use trip generation, would overestimate peak hour traffic by an average of 35 percent.

Atlantic Station offers residential units alongside walkable office and commercial space.



The following examples from recent studies demonstrate the degree by which such developments reduce traffic generation relative to what would be presumed under conventional traffic analysis methods.

Atlantic Station in Atlanta is a major mixed-use infill development located on a 138-acre former brownfield site in midtown Atlanta, connected by nonstop shuttle service to a MARTA metro rail station about a half-mile away. At the time it was studied, the development included 798 mid- and high-rise residential units, 550,600 square feet of office space, 434,500 square feet of retail space, a 101-room hotel, a restaurant, and a cinema.

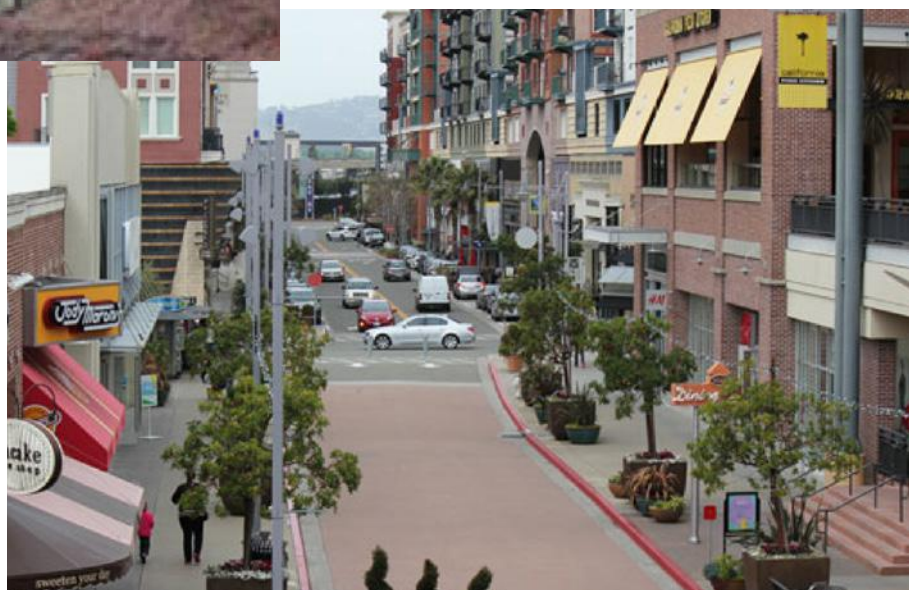
For Atlantic Station, the "internal capture rate" (proportion of generated trips that remain internal to the site) is 15 percent in the morning peak hour and about 40 percent of evening peak-hour. Of the trips entering and leaving the site, between 5 and 7 percent use transit and another 5 to 7 percent walk or bicycle.

According to standard ITE trip-generation rates, were the Atlantic Station development elements located at single-use suburban sites, they would generate 37 percent more weekday traffic and 69 percent more PM peak traffic than actually counted at the centrally located, mixed use site.

RiverPlace in Portland is an award-winning mixed use waterfront development on a former brownfield within easy walking distance of downtown Portland, Oregon. Adjacent to the Tom McCall Waterfront Park, the site contains 700 residential units (condominiums and apartments), 40,000 square feet of office space, 26,500 square feet of small retail shops and restaurants, a 300-room hotel, and a marina, cinema, and athletic club. The waterfront walking environment conveniently links all of the activities within the development site and connects the site to the Portland central business district. Transit is also available at the site; the Portland Streetcar connects RiverPlace to downtown Portland and the greater Portland area.



RiverPlace (left) offers a mix of residential, office, and commercial uses on Portland's waterfront. Photo courtesy Fehr & Peers. Bay Street's walkable urban village (below) is designed on a Main Street theme.



RiverPlace's internal capture rate is 36 percent. For internal and external trips combined, 40 percent are by walking and 5 percent by transit. These statistics are significantly higher than the regional averages of 15 percent of trips taken by walking and 2 percent by transit.

Bay Street in Emeryville is a vibrant, thriving recent redevelopment project in Emeryville, California, just outside San Francisco. The previously heavy-industrial area within and around Bay Street has undergone dramatic revitalization in the past two decades, and it now includes the headquarters of Pixar Studios and other businesses. Bay Street itself is a one-million-square-foot walkable urban village designed on a Main Street theme. It contains a major theater complex, hotel, and 382,000 square feet of fashionable retail shops (including an Apple Store) with 381 apartment units and offices above. The site is within walking distance of a Capitol Corridor commuter rail station and within a shuttle bus ride of BART metro rail.

Bay Street's daily traffic generation is about 41 percent less than the combined total that would be generated by similarly sized suburban shopping centers, theater complexes, residential uses, and office developments based on standard ITE trip rates for stand-alone land uses. It also generates 36 percent less daily traffic than would be estimated by traffic engineers applying the ITE *Handbook* and conventional analysis methods. In the PM peak hour, Bay Street traffic generation is 46 percent lower than would be generated by the same land uses scattered on individual suburban sites, and 41 percent lower than would be estimated by standard ITE traffic analysis.

New Models for Mixed Use Development Traffic Analysis

To address the shortcomings in conventional analysis methods, the National Cooperative Highway Research Program (NCHRP) and the U.S. EPA recently conducted significant research studies to improve quantification of the trip-reducing effects of mixed use development. Each study took a different approach: NCHRP undertook extensive visitor surveys and traffic counts at Atlantic Station and two mixed-use developments in Texas (Bochner et al. 2011), while EPA sponsored a nationwide study of more than 260 mixed use developments across the U.S. using regional travel survey data and verification traffic counts at a subset of the sites (Ewing et al. 2011). Using different analysis methods, each study developed a recommended approach to discounting traffic generation estimates to account for the mix of uses and other development characteristics. Each study represents a major advancement over conventional analysis methods.



NCHRP Report 684

National Cooperative Highway Research Program (NCHRP) Report 684, "Enhancing Internal Trip Capture Estimation for Mixed-Use Developments," analyzed internal-capture relationships of MXD sites and examined the travel interactions among six individual types of land uses: office, retail, restaurant, residential, cinema, and hotel. The study looked at three master-planned developments: Mockingbird Station, a single-block TOD in Dallas; Legacy Town C enter, a multiblock district in suburban Plano, Texas, containing fully integrated and adjacent complementary uses; and Atlantic Station (see above). It compared the survey results to those found in prior ITE studies at three Florida sites, Boca del Mar, Country Isles, and Village Commons, all containing a variety of land uses, though in single-use pods.

Based on traveler and vehicle counts and interviews, the study ascertained interactions among the six land-use types of interest and compared them with site characteristics. It then examined the percentage of visitors to each land-use type who also visited each of the other uses during the same trip. The study considered site context factors and described percentage reductions in sitewide traffic generation that might result from the availability of transit service and other factors.

Researchers then performed verification tests by comparing the analysis results to those available from ITE for three earlier studies at Florida mixed use sites. The validation confirmed that the estimated values were a reasonable match for actual counted traffic. The product of the study is a series of tables and spreadsheets that balance and apply the discovered use-to-use visitation percentages to the land uses within the project site under study. The interaction percentages are then used to discount ITE trip-generation rates and to reduce what would otherwise represent the number of trips entering and leaving the entire site.

EPA MXD

The U.S. EPA–sponsored 2011 report, "Traffic Generated by Mixed-Use Developments — A Six-Region Study Using Consistent Built Environmental Measures," investigated trip generation, mode choice, and trip length for trips produced and attracted by mixed use developments. Researchers selected six regions — Atlanta, Boston, Houston, Portland, Sacramento, and Seattle — to represent a wide range of urban scale, form, and climatic conditions. Regional travel survey data with geographic coordinates and parcel-level detail available for these areas allowed researchers to isolate trips to, from, and within MXDs and relate travel choices to fine-grained characteristics of these developments.

In each region, researchers worked with local planners and traffic engineers to identify a total of 239 MXDs that met the ITE definition of multi-use development. The MXDs ranged from compact infill sites near regional cores to low-rise freeway-oriented developments. They varied in size, population and employment densities, mixes of jobs and housing, presence or absence of transit, and locations within their regions. In total, the MXD sample for the six regions provided survey data on almost 36,000 trips.

The analysis found that one or more variables in each of seven D categories (see above) were statistically significant predictors of internal capture, external walking, external transit use, and external private vehicle trip length. Specifically, an MXD's external traffic generation was related to population and employment within the site (density); the relative balance of jobs and housing within the site and the amount of employment within 1 mile of the site (diversity); the density of intersections within the site as a measure of street connectivity (design); the presence of bus stops within a quarter mile or the presence of a rail station (distance from transit); employment within a mile of site boundaries and percentage of regional employment within 20 minutes by car, 30 minutes by car, and 30 minutes by transit (destination accessibility); the gross acreage of the development (development scale); and the average number of household members as well as

household vehicle ownership per capita(demographics). The accuracy of the EPA MXD method was verified through traffic generation comparisons at 27 mixed-use sites across the U.S.

The EPA MXD product is a series of equations and instructions captured in a spreadsheet workbook. The methodology calculates the percentage reductions in ITE trip generation resulting from the national statistical analysis of seven D effects on internal trip capture, walking, and transit use. The spreadsheets produce reduced estimates of traffic generation on a daily basis and for peak traffic hours.

Combining the Approaches

The NCHRP 684 method and EPA MXD method each derive from different research approaches and produce different methods of analyzing trip generation at mixed use developments. They focus on overlapping but not identical aspects of mixed-use development sites and their contexts and offer respective strengths and weaknesses in terms of factors considered and ease of application. Selecting which method to employ under different circumstances requires both a comparison of their capabilities as well as professional judgment of their respective strengths and weaknesses.

Report 684 includes a refined assessment of on-site land-use categories, specifically recognizing the roles of restaurants, theaters, and hotels within the site land-use mix, along with an adjustment to account for the spatial separations among individual land uses within the development site. It is directly useful for the evaluation of proposed development sites that are similar to the one or more of the three surveyed in Atlanta and Texas for the report. However, it is not responsive to factors such as regional location, transit availability, density of development, walkability factors, and the socio-demographic profile of site residents and businesses.

In contrast, the EPA MXD method accounts directly and quantitatively for these factors. However, while it accounts for the balances of retail, office, and residential development, it does not explicitly differentiate subcategories such as restaurants, theaters, and hotels. Furthermore, it requires the analyst to account for off-site development, including employment within a one-mile radius of the MXD and the number of jobs available within 30 minutes of the site.

To develop a method that captures the best of both sets of research findings, the authors of the two original studies decided to collaborate on an integrated method that recognizes the full array of on-site and context characteristics that contribute to traffic reduction and, through a focus on empirical verification, achieves greater accuracy than either method individually.

In developing the integrated approach, we compared the performances of the methods to actual traffic counts at a diverse group of mixed use developments in a variety of settings. The 27 verification sites were successful mixed-use development, exhibiting moderate to high levels of activity in terms of business sales, occupied residential units, property value, and household income, with average or above-average person trips, at the time of the survey. They included those studied for NCHRP 684, the sites used as the basis for the ITE *Trip Generation Handbook*, and others surveyed by Fehr & Peers, transportation consultants. Six of the 27 sites were located in Florida, and three were located in Atlanta and Texas. Three of these nine were nationally known examples of smart growth or transit-oriented development: Atlantic Station, Mockingbird Station, and Celebration, Florida. Six sites were located in San Diego County and were designated by local planners and traffic engineers in 2009 as representing a wide range of examples of smart growth trip generators in that region. The 12 remaining sites were MXD developments located elsewhere in California and in Utah, ranging from TOD sites (commuter rail and ferry) to conventional suburban freeway-oriented mixed use sites.



A New Approach: The MXD+ Method

The new analytical approach, the MXD+ method, combines the strengths of NCHRP 684 and EPA MXD. The authors sought to (1) address the fact that each method has strengths relative to the other, (2) create a method that is more accurate than either of the individual methods alone, and (3) reduce confusion among practitioners on which is the most appropriate method.

The proposed MXD+ method incorporates the underlying data sources and logic that the two methods share. It offers the ability to assess the effects of spatial separation of uses and recognition of more specific land-use categories and to consider the dynamic influences of local development context, regional accessibility, transit availability, development density and walkability factors, and the characteristics of residents.

To develop the preferred method, the authors experimented with different methods of integrating the two methods and arrived at a direct calibration approach. The appropriate combination of the results of the two individual methods was determined through regression analysis to identify the proportions that provided the best correlation with the traffic counted at the 27 validation sites. Table 1 presents results from the regression analysis, listing the proportions of the two methods found most effective at matching the traffic generation at the diverse set of mixed use validation sites. Weighting the results of the two individual analyses by the percentages in Table 1 and combining the results produces more accurate estimates of traffic generation and captures the effects of all of the site description variables included in the NCHRP and EPA methods.

TABLE 1 **OPTIMAL BLEND OF NCHRP 684 AND EPA MXD METHODS**

	AM PEAK TRAFFIC	PM PEAK TRAFFIC	AVERAGE DAILY TRAFFIC
NCHRP 684	10.1%	36.5%	n/a
EPA MXD	89.9%	63.5%	100%

The step-by-step method is as follows:

1. Apply the full EPA MXD methodology to predict external traffic generation as influenced by site development scale, density, accessibility, walkability and transit availability, resident demographics, and general mix of uses.

2. Apply the full NCHRP 684 method to capture the effects of detailed land-use categories, including hotel, theater, and restaurant, and the spatial separation of uses within small and medium sites.

3. Combine the results of the two methods in terms of percentages of trips remaining internal to the development site, using proportioning factors presented in the table above.

4. Apply adjustments to account for off-site walking and transit travel using the EPA MXD method.

5. Discount standard ITE traffic-generation rates by the percentages of internalization produced in step 3 and the percentage of walk and transit travel in step 4 to obtain the estimate of site- generated traffic.

TABLE 2 **COMPARISON OF THREE PRINCIPAL METHODS IN TERMS OF PROJECT CHARACTERISTICS CONSIDERED**

	EPA MXD METHOD	NCHRP 684 METHOD	MXD+ METHOD
Project Characteristics Considered			
Density of Development	♦		♦
Diversity of Uses: Jobs/Housing	♦	♦	♦
Diversity of Uses: Housing/Retail		♦	♦
Diversity of Uses: Jobs/Services		♦	♦
Diversity of Uses: Entertainment, Hotel		♦	♦
Design: Connectivity, Walkability	♦	♦	♦
Design: Separation Among Uses		♦	♦
Destination Accessibility by Transit	♦		♦
Destination Accessibility by Walk/Bike	♦		♦
Distance from Transit Stop	♦		♦
Development Scale	♦		♦
Distance from Transit Stop	♦		♦
Development Scale	♦		♦
Demographic Profile	♦		♦
Data Needs (beyond Project Site Plan)			
Average Residents per Dwelling Unit	♦		♦
Average Autos Owned per Dwelling Unit	♦		♦
Nearby (1/4 mi) Bus Stops and Rail Stations	♦		♦
Jobs Within 1 Mile of Site	♦		♦
Jobs Within 30-Minute Transit Trip	♦		♦
Regional Employment	♦		♦
Located in CBD or TOD?	♦		♦
Site Development by Classification		♦	♦
Vehicle Occupancy Estimate		♦	
Mode Split Estimate		♦	

As Table 2 indicates, the MXD+ method improves traffic generation estimates by considering the full array of 12 site development and context characteristics shown to influence internal capture and mode share, while the individual methods consider only 5 to 8 factors each. Effects considered in MXD+ that are not included in the NCHRP 684 method include household size and auto ownership, site proximity to bus and rail stops, and accessibility to local and regional jobs. Effects considered in the NCHRP 684 method that do not appear in the EPA MXD method include specific land uses and proximity of interacting land uses to each other.



Table 3 presents the statistical performance of the MXD+ integrated method with the individual performance of the individual NCHRP 684 and EPA MXD methods. We compared the ability of each of the available methods to replicate the amount of traffic generated at the 27 validation sites in terms of statistical measures including percent root mean squared error, a metric used in the transportation field to evaluate model accuracy, and the coefficient of determination (or "R-squared"), which measures the ability of the analysis method to account for the variations in traffic generation among the 27 survey sites. For daily traffic generation, MXD+ is equivalent to the EPA MXD method, as the NCHRP 684 method does not address daily analysis. For peak hour traffic generation, MXD+ performs notably better than either of the individual methods.

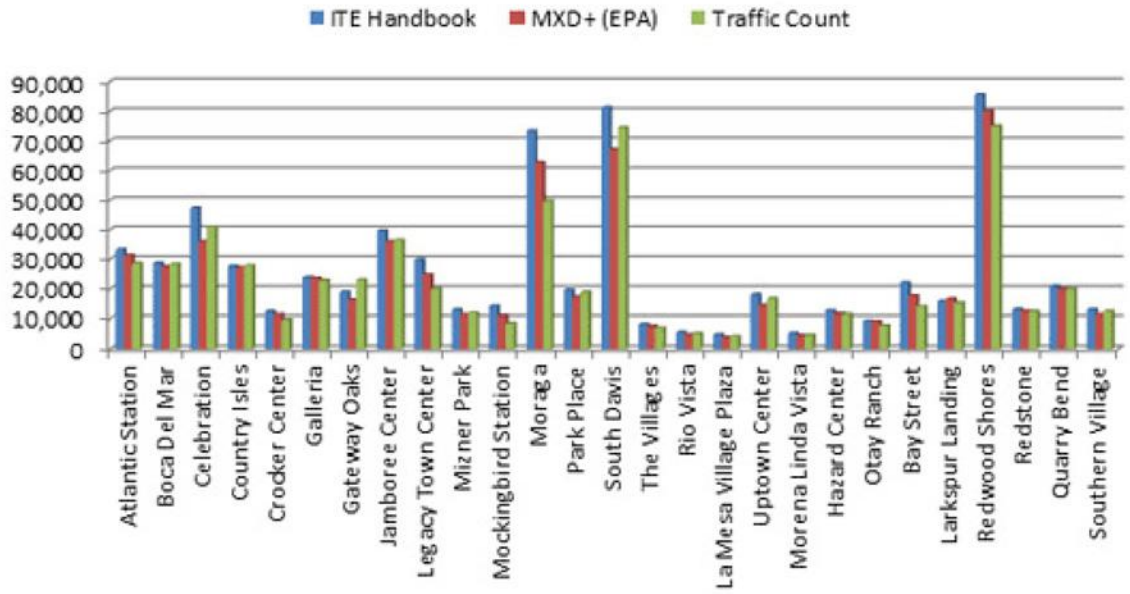
TABLE 3 **COMPARISON OF THREE PRINCIPAL METHODS IN TERMS OF PERFORMANCE AT VALIDATION SITES**

	EPA MXD METHOD	NCHRP 684 METHOD	MXD+ METHOD
Daily Traffic Generation			
R-squared	96%	89%*	**96%**
Average Error	2%	16%*	**2%**
Root Mean Square Error	17%	27%	**17%**
AM Peak Traffic Generation			
R-squared	97%	93%*	**97%**
Average Error	12%	30%	**12%**
Root Mean Square Error	21%	33%	**21%**
PM Peak Traffic Generation			
R-squared	95%	81%	**97%**
Average Error	8%	18%	**4%**
Root Mean Square Error	18%	36%	**15%**

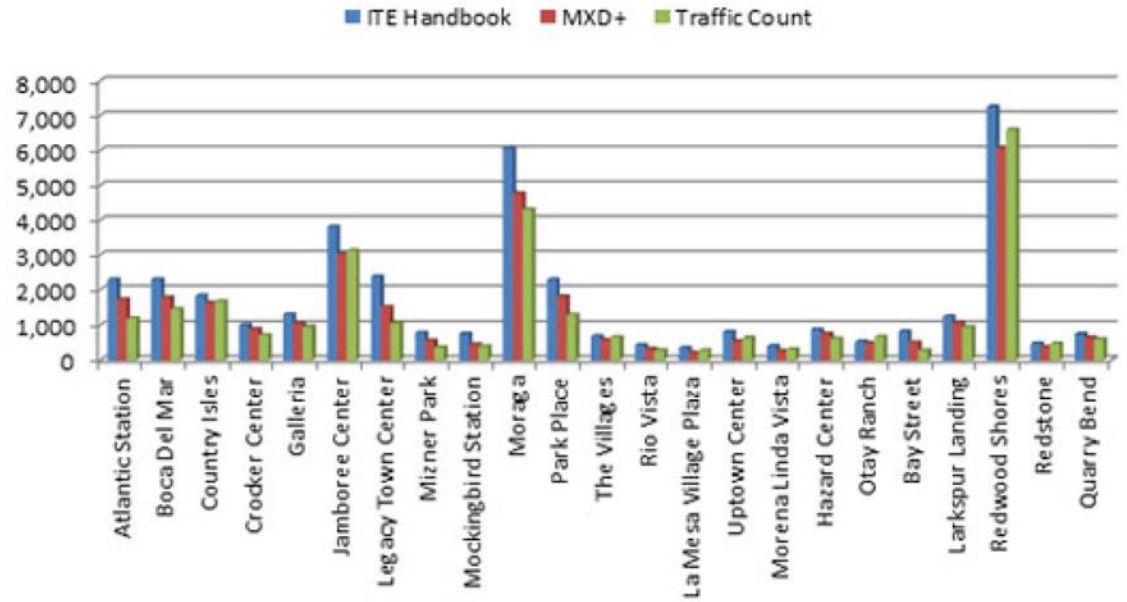
** ITE Handbook internalization statistics (NCHRP 684 method does not address daily trip generation)*

The graphs on the following page compare the performance of the MXD+ method to the ITE *Handbook* method at replicating traffic generation at the diverse group of mixed-use validation sites. Compared with the ITE *Handbook*, MXD+ method more accurately matches the amount of daily traffic actually counted at 20 of the 27 survey sites. In the AM peak hour, it is more accurate than the ITE Handbook at 21 of the 24 sites for which counts were available, and in the PM peak hour, MXD+ is more accurate than the ITE *Handbook* method at 23 of 25 sites.

DAILY TRAFFIC GENERATION COMPARISON OF ITE HANDBOOK & MXD+ METHODS

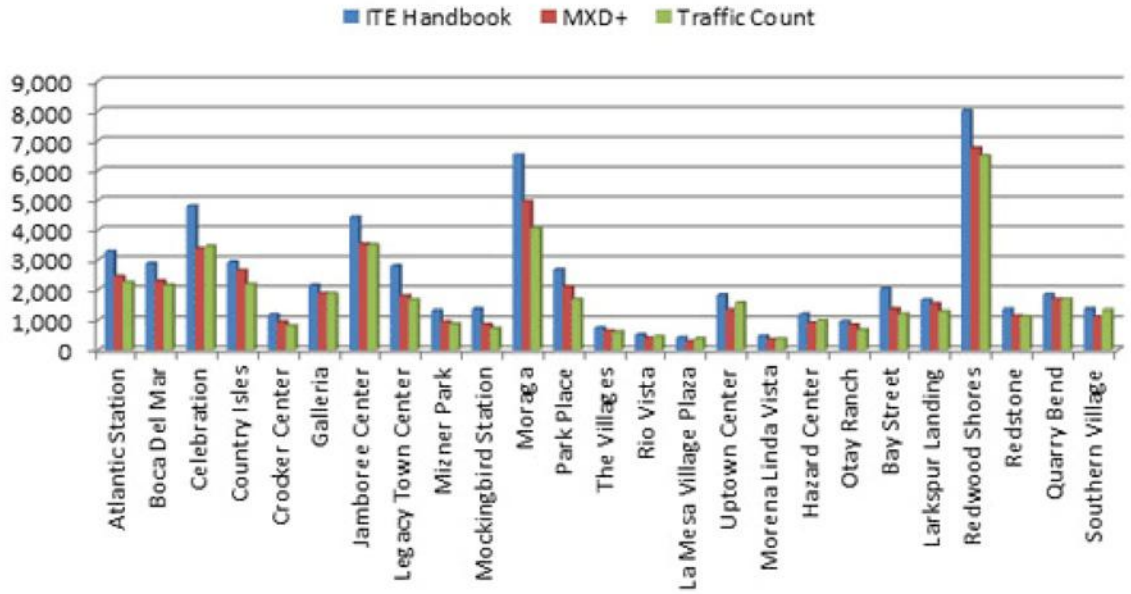


AM PEAK HOUR TRAFFIC GENERATION COMPARISON OF ITE HANDBOOK & MXD+ METHODS





PM PEAK HOUR TRAFFIC GENERATION COMPARISON OF ITE HANDBOOK & MXD+ METHODS



The MXD+ method explains 97 percent of the variation in trip generation among mixed-use developments, compared with 65 percent for the ITE *Handbook* method. On average, the *Handbook* overestimates AM peak traffic generation by 49 percent, compared with 12 percent for MXD+. For the PM peak hour, the ITE *Handbook* overestimates actual traffic by 35 percent. The MXD+ method reduces this to 4 percent, remaining slightly conservative and unlikely to understate impacts.

By combining and refining the two most advanced methodologies for estimating traffic generation for mixed-use development, the MXD+ method provides transportation planners and engineers a more accurate single approach that accounts for the most important factors that distinguish lower impact development from other forms. Doing so advances development planning and impact assessment beyond the practices that have, to date, unreasonably discouraged mixed-use development.

Recommendations for Planners

We recommend that planners adopt the latest methods for evaluating traffic generation of mixed use and other forms of smart growth, including infill and transit-oriented development. The MXD methods developed under the U.S. EPA multiregional study and the NCHRP 684 study on enhancing trip-capture estimation each represent substantial advances to the conventional practices previously available through ITE. Combining the two new methods, as described above, improves upon both individual methods. Tools for all three approaches are available for use through the references and resources listed below.

Traffic engineers are beginning to take notice of the new methods, but we expect that natural sluggishness in adopting new practices will continue to impose unfair penalties on mixed use and other forms of lower-impact development. We recommend activism on the part of all planners, development reviewers, and impact analysts on behalf of the more accurate MXD methods.

Immediate adoption of the improved methods will allow planners to account for a project's regional location, transit availability, density of development, walkability factors, and the characteristics of residents and businesses and on-site adjacencies of land uses including residential, office, retail, restaurants, theaters, and hotels. Accounting for these factors through the MXD+ method will achieve the highest levels of accuracy possible in estimating traffic impacts of mixed use development.

We recommend applying and promoting the MXD+ method for day-to-day project planning and performance-based site-plan refinement, impact analysis, and discretionary review. Doing so will eliminate what is presently a systematic bias in traffic analysis that favors single-use, isolated, suburban-style development.

Conclusion

Standard traffic engineering practices are blind to the primary benefits of smart growth. A plan's development density, scale, design, accessibility, transit proximity, demographics, and mix of uses all affect traffic generation in ways unseen to prescribed methods. The Institute of Transportation Engineers (ITE) *Trip Generation Manual* and *Handbook* overestimate peak traffic generation for mixed-use development by an average of 35 percent. For conventional suburban stand-alone development, ITE rates portray the average for such sites; so hedging mixed-use analysis toward more conservative assumptions creates a systematic bias in favor of single-use suburban development.

ITE overestimation of traffic impacts reduces the likelihood of approval of mixed use and related forms of smart growth such as infill, compact, and transit-oriented development. Such overestimation escalates development costs, skews public perception, heightens community resistance, and favors isolated single-use development.

The methods of evaluating mixed use development described in this report represent a substantial improvement over conventional traffic-estimation methods. They improve accuracy and virtually eliminate overestimation bias, and they are supported by the substantial evidence of surveys and traffic counts at 266 mixed use sites across the U.S. The MXD+ analysis method explains 97 percent of the variation in trip generation among mixed use sites and all but eliminates the ITE systematic overestimation of traffic. We hope planners and other professionals will take advantage of the available spreadsheet tools listed below to help even the playing field between conventional development patterns and more sustainable, walkable, livable places.

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Additional Resources

Description, documentation, and spreadsheet tools for the NCHRP 684 method, Enhancing Internal Trip Capture Estimation for Mixed-Use Developments may be found at www.trb.org/Main/Blurbs/165014.aspx.

Description, documentation, and spreadsheet tools for the EPA MXD Trip Generation Tool for Mixed-Use Developments may be found at www.epa.gov/smartgrowth/mxd_tripgeneration.html.

Quick-response analysis tools for applying the EPA MXD method, the combined EPA /NCHRP method MXD+, and MXD in conjunction with analysis of vehicle-miles traveled, GHG emissions, and shared parking, Plan+, may be found at http://asap.fehrandpeers.com/tools/.

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Appendix D: Traffic Volumes and Operations Results

The following pages present the peak hour roadway volumes and intersection turning movement volumes for all scenarios from the City's sub-area Visum model. The results of the VISUM and VISSIM analyses at ramp terminals intersections are presented for the below analysis scenarios in Appendix D. The existing conditions VISUM and VISSIM analysis results are presented in Appendix A.

D.1. Mid-term Without Project – AM Peak Hour

D.2. Mid-term Without Project –PM Peak Hour

D.3. Mid-Term Plus Phase 1 – AM Peak Hour

D.4. Mid-Term Plus Phase 1 – PM Peak Hour

D.5 Mid-Term Plus Phase 1 with Recommended Improvements – AM Peak Hour

D.6 Mid Term Plus Phase 1 with Recommended Improvements – PM Peak Hour

D.7. Cumulative Without Project – AM Peak Hour

D.8. Cumulative Without Project – PM Peak Hour

D.9. Cumulative Plus Project – AM Peak Hour

D.10. Cumulative Plus Project – PM Peak Hour

D.11. Cumulative Plus Project with Candlestick Interchange – AM Peak Hour

D.12. Cumulative Plus Project with Candlestick Interchange – PM Peak Hour

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements – AM Peak Hour

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements – PM Peak Hour

Table D-1: Study Area Roadways Traffic Volumes

Street Name[1]	Study Location	Existing Conditions		Mid-term Without Project		Cumulative Without Project	
		AM	PM	AM	PM	AM	PM
Bayshore Boulevard	North of Geneva Avenue	1,143	1,401	2,830	2,880	3,040	3,020
	South of Main Street	1,372	1,528	2,650	2,710	2,830	2,940
	South of Old County Road / Tunnel Avenue	1,743	1,953	2,770	2,780	2,990	2,990
Geneva Avenue (Daly City)	West of Bayshore Boulevard	1,230	1,501	1,630	1,840	1,610	1,880
Guadalupe Canyon Parkway	West of Bayshore Boulevard	762	761	1,430	1,540	1,750	1,710
Tunnel Avenue	South of Lagoon Road	454	357	1,170	1,360	1,490	1,540
	North of Beatty Avenue	388	322	820	820	1,010	960
Beatty Avenue	East of Tunnel Avenue	332	167	570	470	680	540
Harney Way	East of Thomas Mellon Circle	228	171	1,920	1,960	2,270	2,370
Lagoon Road	East of Tunnel Avenue	314	247	630	820	700	870
Sierra Point Parkway	South of Lagoon Road	345	411	1,400	1,790	1,480	1,870
Old County Road	West of Bayshore Boulevard	477	487	810	890	850	900
San Bruno Avenue	West of Bayshore Boulevard	290	309	320	420	330	450
Main Street	West of Bayshore Boulevard	159	177	130	170	140	190
Visitacion Avenue (SF)	West of Bayshore Boulevard	204	211	310	240	300	250
Sunnydale Avenue (SF)	West of Bayshore Boulevard	272	318	460	580	520	600
Blanken Avenue (SF)	Between Tunnel Ave and Bayshore Boulevard	334	486	720	680	850	730
Blanken Avenue / Executive Park Boulevard (SF)	Under US-101	249	207	720	760	880	800

Notes:

1. Street segments that are not located in Brisbane are indicated in parentheses.

Source: Fehr & Peers, 2023.

Table D-2: Study Area Roadways Traffic Volumes – Mid-Term Conditions

Street Name[1]	Study Location	Existing Conditions		Mid-term Without Project		Mid-term Plus Phase 1	
		AM	PM	AM	PM	AM	PM
Bayshore Boulevard	North of Geneva Avenue	1,143	1,401	2,830	2,880	2,880	2,800
	South of Main Street	1,372	1,528	2,650	2,710	3,030	3,290
	South of Old County Road / Tunnel Avenue	1,743	1,953	2,770	2,780	3,340	3,170
Geneva Avenue (Daly City)	West of Bayshore Boulevard	1,230	1,501	1,630	1,840	1,850	2,070
Guadalupe Canyon Parkway	West of Bayshore Boulevard	762	761	1,430	1,540	1,900	2,040
Tunnel Avenue	South of Lagoon Road	454	357	1,170	1,360	1,580	1,750
	North of Beatty Avenue	388	322	820	820	1,080	970
Beatty Avenue	East of Tunnel Avenue	332	167	570	470	690	660
Harney Way	East of Thomas Mellon Circle	228	171	1,920	1,960	2,690	2,960
Lagoon Road	East of Tunnel Avenue	314	247	630	820	800	1,050
Sierra Point Parkway	South of Lagoon Road	345	411	1,400	1,790	1,470	1,810
Old County Road	West of Bayshore Boulevard	477	487	810	890	880	920
San Bruno Avenue	West of Bayshore Boulevard	290	309	320	420	330	460
Main Street	West of Bayshore Boulevard	159	177	130	170	200	230
Visitacion Avenue (SF)	West of Bayshore Boulevard	204	211	310	240	290	330
Sunnydale Avenue (SF)	West of Bayshore Boulevard	272	318	460	580	480	530
Blanken Avenue (SF)	Between Tunnel Ave and Bayshore Boulevard	334	486	720	680	860	920
Blanken Avenue / Executive Park Boulevard (SF)	Under US-101	249	207	720	760	810	940

Notes:

1. Street segments that are not located in Brisbane are indicated in parentheses.

Source: Fehr & Peers, 2023.



Table D-3: Study Area Roadways Traffic Volumes – Cumulative Conditions

Street Name[1]	Study Location	Existing Conditions		Cumulative Without Project		Cumulative Plus Project		Cumulative Plus Project with Candlestick Interchange	
		AM	PM	AM	PM	AM	PM	AM	PM
Bayshore Boulevard	North of Geneva Avenue	1,143	1,401	3,040	3,020	2,790	2,560	2,680	2,540
	South of Main Street	1,372	1,528	2,830	2,940	3,360	3,430	3,460	3,520
	South of Old County Road / Tunnel Avenue	1,743	1,953	2,990	2,990	3,530	3,450	3,760	3,600
Geneva Avenue	West of Bayshore Boulevard (Daly City)	1,230	1,501	1,610	1,880	2,570	2,960	2,550	2,930
	West of Alana Way[2]	--	--	--	--	2,160	2,570	2,880	3,410
Guadalupe Canyon Parkway	West of Bayshore Boulevard	762	761	1,750	1,710	2,270	2,170	2,240	2,190
Tunnel Avenue	South of Lagoon Road	454	357	1,490	1,540	1,460	1,680	1,520	1,800
	North of Beatty Avenue	388	322	1,010	960	1,230	1,350	1,380	1,370
Beatty Avenue	East of Tunnel Avenue[2]	332	167	680	540	480	570	280	210
Harney Way	East of Thomas Mellon Circle	228	171	2,270	2,370	3,260	3,580	3,430	3,590
Lagoon Road	East of Tunnel Avenue	314	247	700	870	750	920	750	1,030
Sierra Point Parkway	South of Lagoon Road	345	411	1,480	1,870	1,940	2,300	1,990	2,350
	North of Lagoon Road	--	--	--	--	780	780	850	820
Old County Road	West of Bayshore Boulevard	477	487	850	900	880	930	840	940
San Bruno Avenue	West of Bayshore Boulevard	290	309	330	450	360	450	390	450
Main Street	West of Bayshore Boulevard	159	177	140	190	220	220	210	450
Visitacion Avenue (SF)	West of Bayshore Boulevard	204	211	300	250	290	250	290	250
Sunnydale Avenue (SF)	West of Bayshore Boulevard	272	318	520	600	2,790	2,560	2,680	2,540

Street Name[1]	Study Location	Existing Conditions		Cumulative Without Project		Cumulative Plus Project		Cumulative Plus Project with Candlestick Interchange	
		AM	PM	AM	PM	AM	PM	AM	PM
Blanken Avenue (SF)	Between Tunnel Ave and Bayshore Boulevard	334	486	850	730	670	650	680	670
Blanken Avenue / Executive Park Boulevard (SF)	Under US-101	249	207	880	800	720	860	630	670

Notes

1. Street segments that are not located in Brisbane are indicated in parentheses.
2. The Geneva Avenue Extension replaces the Beatty Avenue study segment with the full Geneva Avenue Extension under cumulative plus project conditions.

Source: Fehr & Peers, 2023.

Appendix D.1. Mid-Term Without Project Conditions – AM Peak Hour

D.1. Mid-term Without Project Conditions – AM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way	1	32	5	570	7	220	175	144	5	39	77	280
3	Harney Way / Alana Way / Thomas Mellon Dr	135	130	678		241	126	159	181	228	319	669	51
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	86	209			849	62	222		254			
6	Sierra Point Pkwy / US-101 northbound ramps	1		1,038					1,104			294	323

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
D.1. Mid-Term Without Project Conditions - AM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	155.31
	Average LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	871.12	63.91	89.88	230.31	222.87	256.65
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	871.12	63.91	89.88	230.31	222.87	256.65
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	871.12	63.91	89.88	230.31	222.87	256.65
Left Turn Flow Rate	0.00	0.00	89.88	0.00	222.87	0.00
Right Turn Flow Rate	0.00	63.91	0.00	0.00	0.00	256.65
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	871.12	63.91	89.88	230.31	222.87	256.65
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.77	0.06	0.08	0.20	0.20	0.23
hd, iteration 1	5.50	4.79	6.42	5.92	6.83	5.63
Difference, iteration 1	2.30	1.59	3.22	2.72	3.63	2.43
hd, iteration 2	6.38	5.67	7.26	6.76	7.45	6.27
Difference, iteration 2	0.89	0.88	0.84	0.85	0.62	0.63
hd, iteration 3	6.58	5.86	7.40	6.90	7.53	6.35
Difference, iteration 3	0.19	0.19	0.14	0.14	0.08	0.08
hd, iteration 4	6.60	5.89	7.42	6.92	7.55	6.36
Difference, iteration 4	0.03	0.03	0.02	0.02	0.01	0.01
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	6.60	5.89	7.42	6.92	7.55	6.36
x final, Degree of Utilization	1.60	0.10	0.19	0.44	0.47	0.45

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	871.12	63.91	89.88	230.31	222.87	256.65
hd, Departure Headway	6.60	5.89	7.42	6.92	7.55	6.36
x, Degree of Utilization	1.60	0.10	0.19	0.44	0.47	0.45
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	4.30	3.59	5.12	4.62	5.25	4.06
Capacity	871.12	610.61	484.97	519.78	476.86	565.68
Delay	294.95	9.28	11.80	15.01	16.69	14.22
LOS	F	A	B	C	C	B
Q95, 95% Queue Length	47.60	0.35	0.67	2.25	2.44	2.35
Approach Delay	275.43		14.11		15.37	
Approach LOS	F		B		C	
Intersection Delay	155.31					
Intersection LOS	F					

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Intersection No. 6 Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.1. Mid-Term Without Project Conditions - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	51.93
Average LOS	D
V/C	0.92
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E			S		W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		319	356	1	0	1085	0	1128
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		80	89	0	0	266	0	282
Adjusted Volume		319	356	1	0	1065	0	1128

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		42065	42066	42069	42070	42067	42068
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		319	356	533	533	0	1128
PLT, Proportion Left Turns		0.00	0.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	1.00	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		42065	42066	42069	42070	42067	42068
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.850	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		42065	42066	42069	42070	42067	42068
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		318.83	356.48	533.11	533.11	0	1127.77
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900
c, Capacity		1003	853	556	520	0	1098
g/C, Green / Cycle		0.53	0.53	0.32	0.32	0	0.58
X, Volume / Capacity		0.32	0.42	0.96	1.03	0	1.03
d1, Uniform Delay		13.38	14.29	34.29	33.80	0.00	21.10
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay		0.83	1.51	29.15	46.02	0.00	34.24
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.53	0.53	0.32	0.32	0.00	0.58
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		14.22	15.80	63.44	79.82	0.00	55.34
LOS		B	B	E	F	A	F
dA, Approach Delay	0.00	15.05		71.68		55.34	
Approach LOS	A	B		E		E	
dI, Intersection Delay				51.93			
Intersection LOS				D			

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		42065	42066	42069	42070	42067	42068
g/C, Green / Cycle		0.53	0.53	0.32	0.32	0.00	0.58
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		3.66	4.37	12.51	12.06	0.00	21.23
Q2, Second-term Queued		0.23	0.36	4.50	6.65	0.00	10.44
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		3.89	4.72	17.01	18.71	0.00	31.67
fB%, % Factor		1.80	1.75	1.40	1.40	1.00	1.32
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		7.00	8.29	23.78	26.23	0.00	41.84

Signal Timing Information

Approach	N	E		S		W	
Lane Group		42065	42066	42069	42070	42067	42068
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		100.00	100.00	100.00	100.00	100.00	100.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1o, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	62.8	62.8	0	0
Green Time End		57.8	57.8	95	95	0	57.8
G, Actual Green Time		52.8	52.8	32.2	32.2	0	57.8
gi, Effective Green Time		52.8	52.8	32.2	32.2	0	57.8
g/C, Green / Cycle		0.53	0.53	0.32	0.32	0	0.58
(v/s)i, Volume / Saturation Flow Rate		0.17	0.22	0.33	0.33	0.00	0.59
Critical Lane Group					Y		Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		42065	42066	42069	42070	42067	42068
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				100.00			
G(e), Actual GT				32.20			
g(e), Eff. perm. GT				32.20			
go(e), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				1.28			
PLT, Proportion LT in Lane Group				0.00			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				0.04			
Vo, Opposing Flow				0.00			
Volo, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				26.97			
gro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				26.97			
gu				5.23			
PL				0.00			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				1.00			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E			S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
Adj1, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.1. Mid-Term Without Project Conditions - AM Peak Hour

Vissim Post-Processor **Brisbane Baylands**
Results from Analyzed Runs, Interval All **Midterm No Project**
Volume and Delay by Movement **AM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	3	3	100.0%	1.5	1	5	0.0	6.5	4.7	0.0	11.1	A
	Through	32	31	96.9%	1.5	28	33	0.2	10.1	1.1	8.4	11.6	B
	Right Turn	3	2	66.7%	1.2	0	4	0.6	4.9	5.4	0.0	13.4	A
	Subtotal	38	36	94.7%	0.5	35	37	0.3	10.1	0.9	8.6	11.3	B
SB	Left Turn	568	368	64.7%	23.8	332	401	9.3	42.9	5.7	34.1	51.7	E
	Through	9	9	94.4%	3.1	5	14	0.2	32.6	34.6	0.0	122.2	D
	Right Turn	217	148	68.4%	7.5	140	166	5.1	37.7	7.6	28.1	55.1	E
	Subtotal	794	525	66.1%	21.8	490	551	10.5	41.4	5.1	33.2	49.4	E
EB	Left Turn	176	174	98.9%	8.3	165	190	0.1	11.3	1.5	10.0	14.0	B
	Through	143	144	100.4%	7.4	130	152	0.1	11.9	1.9	9.5	15.6	B
	Right Turn	3	3	113.3%	2.2	0	6	0.2	4.6	4.1	0.0	13.4	A
	Subtotal	322	321	99.7%	1.7	318	324	0.1	11.5	1.4	9.8	13.8	B
WB	Left Turn	39	37	93.6%	6.4	27	52	0.4	9.3	1.9	6.8	12.8	A
	Through	76	79	103.7%	7.0	64	89	0.3	11.9	1.1	10.4	13.6	B
	Right Turn	278	278	100.0%	6.9	267	290	0.0	2.3	0.6	1.3	3.1	A
	Subtotal	393	393	100.1%	2.5	387	396	0.0	4.8	0.5	4.2	5.7	A
Total		1,547	1,275	82.4%	24.4	1,232	1,303	7.2	22.0	2.2	18.0	25.3	C
						Worst Approach Delay		SB	41.4	5.1	33.2	49.4	E

Intersection 3 **Alana Way/Harney Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	134	140	104.3%	10.4	124	154	0.5	18.1	4.0	9.3	24.2	B
	Through	129	127	98.8%	8.2	113	138	0.1	35.7	5.3	26.6	42.6	D
	Right Turn	673	672	99.9%	8.2	658	683	0.0	17.0	1.3	14.6	19.6	B
	Subtotal	936	939	100.4%	4.2	934	947	0.1	19.8	2.1	15.0	23.0	B
SB	Left Turn	21	17	79.0%	4.2	12	24	1.0	185.2	38.8	125.4	246.7	F
	Through	239	188	78.7%	16.9	146	209	3.5	267.7	30.8	214.9	328.8	F
	Right Turn	125	99	79.2%	11.4	81	119	2.5	282.1	37.4	210.7	351.7	F
	Subtotal	385	304	78.9%	25.3	258	350	4.4	268.5	32.5	207.2	330.2	F
EB	Left Turn	158	159	100.9%	8.9	142	170	0.1	69.6	7.4	58.6	83.6	E
	Through	180	184	101.9%	9.5	163	193	0.3	63.9	6.3	53.2	72.0	E
	Right Turn	226	212	93.9%	10.8	196	226	0.9	104.3	10.3	81.0	116.5	F
	Subtotal	564	555	98.4%	12.7	536	576	0.4	80.7	6.1	66.0	87.9	F
WB	Left Turn	317	190	59.9%	16.4	160	208	8.0	187.0	23.1	165.2	231.3	F
	Through	664	380	57.2%	17.2	351	404	12.4	237.7	29.6	190.3	282.3	F
	Right Turn	51	27	52.9%	2.9	23	32	3.8	212.7	11.9	194.5	230.8	F
	Subtotal	1,032	597	57.8%	33.0	534	641	15.3	222.2	27.1	184.5	259.7	F
Total		2,917	2,395	82.1%	51.2	2,283	2,448	10.1	115.6	5.8	104.1	126.1	F

D.1. Mid-Term Without Project Conditions - AM Peak Hour

Brisbane Baylands
Midterm No Project

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run										Average Queue Length (ft)				Maximum Queue Length (ft) by Run										Maximum Queue Length (ft)			
			1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way S**
NB	UT																													
	L2																													
	LT	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	80	33	65	80	53	22	41	22	80	23	50	25	22	80
	TH	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	80	33	65	80	53	22	41	22	80	23	50	25	22	80
	RT	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	80	33	65	80	53	22	41	22	80	23	50	25	22	80
	R2																													
SB	UT																													
	L2																													
	LT	170	40	162	55	62	52	36	50	79	34	45	61	38	34	162	215	802	269	259	408	210	235	542	211	245	340	194	210	802
	TH	170	6	5	4	4	8	7	5	6	6	6	6	1	4	8	76	122	90	65	155	126	68	81	104	89	98	29	65	155
	RT	170	6	5	4	4	8	7	5	6	6	6	6	1	4	8	76	122	90	65	155	126	68	81	104	89	98	29	65	155
	R2																													
EB	UT																													
	L2																													
	LT	475	16	16	21	18	19	15	15	18	22	19	18	2	15	22	111	134	243	119	145	119	143	249	233	179	167	55	111	249
	TH	475	16	16	21	18	19	15	15	18	22	19	18	2	15	22	111	134	243	119	145	119	143	249	233	179	167	55	111	249
	RT	475	16	16	21	18	19	15	15	18	22	19	18	2	15	22	111	134	243	119	145	119	143	249	233	179	167	55	111	249
	R2																													
WB	UT																													
	L2																													
	LT	1,275	5	4	3	3	4	4	4	3	3	4	4	1	3	5	106	103	84	85	80	115	75	71	65	86	87	16	65	115
	TH	1,275	5	4	3	3	4	4	4	3	3	4	4	1	3	5	106	103	84	85	80	115	75	71	65	86	87	16	65	115
	RT	225	2	2	2	1	1	0	1	1	1	1	1	1	0	2	84	86	133	83	67	22	44	58	86	120	78	33	22	133
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	125	57	46	52	63	56	54	55	58	51	64	56	5	46	64	305	301	371	256	338	326	284	295	241	404	312	50	241	404
	TH	3,250	55	45	49	60	54	52	53	55	49	61	53	5	45	61	302	299	368	253	336	323	281	292	238	401	309	50	238	401
	RT	3,250	55	45	49	60	54	52	53	55	49	61	53	5	45	61	302	299	368	253	336	323	281	292	238	401	309	50	238	401
	R2																													
SB	UT																													
	L2																													
	LT	550	2	2	2	2	0	1	1	0	1	0	1	1	0	2	41	22	22	23	19	28	43	22	22	0	24	12	0	43
	TH	550	472	475	481	492	494	491	485	491	492	490	486	8	472	494	541	540	540	541	542	542	541	584	597	541	551	21	540	597
	RT	125	472	475	481	492	494	491	485	491	492	490	486	8	472	494	541	540	540	541	542	542	541	584	597	541	551	21	540	597
	R2																													
EB	UT																													
	L2																													
	LT	400	94	65	90	86	59	76	58	71	93	59	75	15	58	94	502	305	381	482	301	383	213	308	585	281	374	116	213	585
	TH	400	94	65	90	86	59	76	58	71	93	59	75	15	58	94	502	305	381	482	301	383	213	308	585	281	374	116	213	585
	RT	400	51	58	56	55	50	52	50	47	45	57	52	4	45	58	166	190	215	251	168	136	154	163	157	154	175	34	136	251
	R2																													
WB	UT																													
	L2																													
	LT	225	454	451	458	451	445	448	453	444	455	450	451	4	444	458	493	526	526	490	508	514	493	517	515	493	508	14	490	526
	TH	575	454	451	458	451	445	448	453	444	455	450	451	4	444	458	493	526	526	490	508	514	493	517	515	493	508	14	490	526
	RT	575	454	451	458	451	445	448	453	444	455	450	451	4	444	458	493	526	526	490	508	514	493	517	515	493	508	14	490	526
	R2																													

Appendix D.2. Mid-Term Without Project Conditions –PM Peak Hour

D.2. Mid-term Without Project Conditions – PM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way	9	13	1	447	6	134	142	163	1	19	73	309
3	Harney Way / Alana Way / Thomas Mellon Dr	240	238	723	18	237	130	133	301	88	454	388	77
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	466	870			368	170	93		86			
6	Sierra Point Pkwy / US-101 northbound ramps			533					455			1,337	1,135

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
D.2. Mid-Term Without Project Conditions - PM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	115.64
	Average LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	384.26	173.90	469.60	888.38	94.77	88.37
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	384.26	173.90	469.60	888.38	94.77	88.37
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	384.26	173.90	469.60	888.38	94.77	88.37
Left Turn Flow Rate	0.00	0.00	469.60	0.00	94.77	0.00
Right Turn Flow Rate	0.00	173.90	0.00	0.00	0.00	88.37
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	384.26	173.90	469.60	888.38	94.77	88.37
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.34	0.15	0.42	0.79	0.08	0.08
hd, iteration 1	5.69	4.99	5.64	5.13	7.40	6.20
Difference, iteration 1	2.49	1.79	2.44	1.93	4.20	3.00
hd, iteration 2	6.47	5.77	6.29	5.78	8.07	6.89
Difference, iteration 2	0.78	0.78	0.65	0.65	0.67	0.68
hd, iteration 3	6.60	5.90	6.45	5.95	8.22	7.03
Difference, iteration 3	0.13	0.13	0.17	0.17	0.14	0.14
hd, iteration 4	6.63	5.93	6.48	5.98	8.25	7.06
Difference, iteration 4	0.03	0.03	0.03	0.03	0.03	0.03
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	6.63	5.93	6.48	5.98	8.25	7.06
x final, Degree of Utilization	0.71	0.29	0.85	1.48	0.22	0.17

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	384.26	173.90	469.60	888.38	94.77	88.37
hd, Departure Headway	6.63	5.93	6.48	5.98	8.25	7.06
x, Degree of Utilization	0.71	0.29	0.85	1.48	0.22	0.17
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	4.33	3.63	4.18	3.68	5.95	4.76
Capacity	542.62	605.95	554.90	888.38	436.17	510.01
Delay	23.81	11.00	35.08	239.74	13.22	11.23
LOS	C	B	E	F	B	B
Q95, 95% Queue Length	5.66	1.18	8.96	43.44	0.82	0.62
Approach Delay	19.82		168.97		12.26	
Approach LOS	C		F		B	
Intersection Delay	115.64					
Intersection LOS	F					

Wed Apr 12 17:03:11 2023

Intersection No.: 6 Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.2. Mid-Term Without Project Conditions - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	49.31
Average LOS	D
V/C	0.89
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement*

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		1357	1166	0	0	552	0	473
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		339	291	0	0	138	0	118
Adjusted Volume		1357	1166	0	0	552	0	473

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		42059	42060	42063	42064	42061	42062
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1357	1166	276	276	0	473
PLT, Proportion Left Turns		0.00	0.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	1.00	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		42059	42060	42063	42064	42061	42062
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.850	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		42059	42060	42063	42064	42061	42062
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1357.34	1165.68	276.15	276.15	0	472.63
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900
c, Capacity		1343	1141	300	270	0	1423
g/C, Green / Cycle		0.71	0.71	0.17	0.17	0	0.75
X, Volume / Capacity		1.01	1.02	0.92	1.02	0	0.33
d1, Uniform Delay		17.45	17.45	49.77	49.55	0.00	5.00
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay		27.25	32.14	34.88	60.68	0.00	0.83
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.71	0.71	0.17	0.17	0.00	0.75
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		44.70	49.59	84.65	110.23	0.00	5.83
LOS		F	F	F	F	A	A
dA, Approach Delay	0.00	46.96		97.44		5.83	
Approach LOS	A	D		F		A	
dI, Intersection Delay				49.31			
Intersection LOS				D			

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		42059	42060	42063	42064	42061	42062
g/C, Green / Cycle		0.71	0.71	0.17	0.17	0.00	0.75
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		26.06	23.85	8.13	7.92	0.00	2.98
Q2, Second-term Queued		10.17	10.19	2.91	4.55	0.00	0.25
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		36.23	34.04	11.04	12.47	0.00	3.23
f8%, % Factor		1.28	1.31	1.49	1.48	1.00	1.80
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		46.86	44.47	16.49	18.47	0.00	5.82

Signal Timing Information

Approach	N	E		S		W	
Lane Group		42059	42060	42063	42064	42061	42062
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		119.00	119.00	119.00	119.00	119.00	119.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1o, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	94.1	94.1	0	0
Green Time End		89.1	89.1	114	114	0	89.1
G, Actual Green Time		84.1	84.1	19.9	19.9	0	89.1
gi, Effective Green Time		84.1	84.1	19.9	19.9	0	89.1
g/C, Green / Cycle		0.71	0.71	0.17	0.17	0	0.75
(v/s)i, Volume / Saturation Flow Rate		0.71	0.72	0.17	0.17	0.00	0.25
Critical Lane Group			Y	Y			

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		42059	42060	42063	42064	42061	42062
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				119.00			
G(e), Actual GT				19.90			
g(e), Eff. perm. GT				19.90			
go(e), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				0.00			
PLT, Proportion LT in Lane Group				0.00			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				0.00			
Vo, Opposing Flow				0.00			
Volo, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				2.00			
gro, Opposing Queue Ratio				1.00			
gs, Opposing Queue Clearing Time				2.00			
gu				17.90			
PL				0.00			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				1.00			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
AdjT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.2. Mid-Term Without Project Conditions - PM Peak Hour

Vissim Post-Processor **Brisbane Baylands**
Results from Analyzed Runs, Interval All **Midterm No Project**
Volume and Delay by Movement **PM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	9	7	80.0%	2.7	2	10	0.6	6.6	3.7	0.0	10.2	A
	Through	13	12	93.8%	3.1	7	17	0.2	8.7	3.4	0.0	13.1	A
	Right Turn	1	1	60.0%	0.7	0	2	0.4	1.4	3.0	0.0	7.3	A
	Subtotal	23	20	87.0%	0.5	19	21	0.6	9.2	0.9	8.1	10.6	A
SB	Left Turn	444	410	92.2%	17.7	378	436	1.7	47.5	13.1	32.8	73.9	E
	Through	6	5	75.0%	2.6	1	9	0.7	15.4	20.5	0.0	47.0	C
	Right Turn	133	118	88.8%	8.4	108	131	1.3	30.0	8.8	20.8	44.9	D
	Subtotal	583	532	91.3%	23.4	490	566	2.2	43.9	12.0	30.6	67.9	E
EB	Left Turn	142	139	97.9%	7.9	123	151	0.3	10.7	1.3	8.7	12.5	B
	Through	162	163	100.6%	7.4	152	178	0.1	10.8	1.2	9.1	12.9	B
	Right Turn	1	1	50.0%	0.5	0	1	0.6	0.9	2.9	0.0	9.2	A
	Subtotal	305	303	99.2%	2.1	299	306	0.1	10.7	1.1	9.2	12.6	B
WB	Left Turn	18	18	102.2%	3.4	13	25	0.1	9.7	2.1	6.5	14.4	A
	Through	73	74	101.9%	7.2	64	87	0.2	11.0	0.9	9.9	12.9	B
	Right Turn	307	305	99.4%	6.7	295	314	0.1	2.1	0.7	1.2	3.2	A
	Subtotal	398	398	100.0%	2.4	393	401	0.0	4.1	0.5	3.2	4.7	A
Total		1,309	1,253	95.7%	23.5	1,210	1,288	1.6	23.1	5.4	17.6	33.9	C
							Worst Approach Delay	SB	43.9	12.0	30.6	67.9	E

Intersection 3 **Alana Way/Harney Way** **Signal**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	238	169	71.2%	13.2	146	189	4.8	842.9	144.6	492.9	1012.5	F
	Through	236	172	72.8%	12.5	152	191	4.5	855.4	139.0	536.8	980.9	F
	Right Turn	718	533	74.2%	53.1	453	652	7.4	816.1	136.3	491.8	997.5	F
	Subtotal	1,192	874	73.3%	72.3	776	1,032	9.9	828.4	137.1	499.4	996.8	F
SB	Left Turn	18	16	86.1%	4.3	10	22	0.6	170.2	21.2	140.0	207.9	F
	Through	235	188	79.9%	22.9	159	222	3.2	280.0	33.9	219.7	324.4	F
	Right Turn	129	103	79.6%	10.7	87	125	2.4	274.8	32.8	221.3	331.4	F
	Subtotal	382	306	80.1%	28.6	272	361	4.1	272.2	31.2	217.1	313.8	F
EB	Left Turn	132	135	102.3%	11.4	114	148	0.3	109.0	30.2	81.9	176.2	F
	Through	299	299	100.0%	11.9	273	307	0.0	103.1	34.5	74.6	185.7	F
	Right Turn	87	89	102.8%	8.5	75	103	0.3	54.2	7.7	45.4	72.1	D
	Subtotal	518	523	101.0%	22.0	485	554	0.2	95.5	27.8	74.2	160.4	F
WB	Left Turn	451	423	93.7%	37.9	348	468	1.4	102.4	34.3	39.3	143.8	F
	Through	385	362	93.9%	17.1	325	386	1.2	126.8	49.1	54.1	176.2	F
	Right Turn	76	73	95.7%	13.0	53	93	0.4	107.1	47.4	37.8	170.0	F
	Subtotal	912	857	94.0%	57.7	726	914	1.8	113.7	41.4	45.3	159.1	F
Total		3,004	2,560	85.2%	29.8	2,513	2,609	8.4	383.2	50.5	272.5	462.5	F

D.2. Mid-Term Without Project Conditions - PM Peak Hour

Brisbane Baylands
Midterm No Project PM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way S**
NB	UT																													
	L2																													
	LT	250	0	0	1	0	0	0	0	0	0	0	0	0	0	1	22	40	43	41	28	22	26	23	23	22	29	8	22	43
	TH	250	0	0	1	0	0	0	0	0	0	0	0	0	0	1	22	40	43	41	28	22	26	23	23	22	29	8	22	43
	RT	250	0	0	1	0	0	0	0	0	0	0	0	0	0	1	22	40	43	41	28	22	26	23	23	22	29	8	22	43
	R2																													
SB	UT																													
	L2																													
	LT	170	69	77	97	131	99	115	80	172	72	88	100	32	69	172	340	354	319	753	653	503	365	612	304	479	468	159	304	753
	TH	170	5	2	2	3	3	4	3	6	5	4	4	1	2	6	88	65	62	64	53	68	78	101	112	79	77	19	53	112
	RT	170	5	2	2	3	3	4	3	6	5	4	4	1	2	6	88	65	62	64	53	68	78	101	112	79	77	19	53	112
	R2																													
EB	UT																													
	L2																													
	LT	475	13	15	16	16	14	13	13	16	15	16	15	1	13	16	146	160	173	139	132	118	167	233	164	151	158	31	118	233
	TH	475	13	15	16	16	14	13	13	16	15	16	15	1	13	16	146	160	173	139	132	118	167	233	164	151	158	31	118	233
	RT	475	13	15	16	16	14	13	13	16	15	16	15	1	13	16	146	160	173	139	132	118	167	233	164	151	158	31	118	233
	R2																													
WB	UT																													
	L2																													
	LT	1,275	3	2	2	2	2	2	2	3	2	3	2	0	2	3	86	68	70	66	46	75	44	68	67	84	68	14	44	86
	TH	1,275	3	2	2	2	2	2	2	3	2	3	2	0	2	3	86	68	70	66	46	75	44	68	67	84	68	14	44	86
	RT	225	1	1	0	1	1	0	1	1	1	0	1	0	0	1	63	62	22	67	61	41	128	105	101	37	69	33	22	128
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	125	906	1,777	2,142	2,676	2,622	2,410	2,196	1,255	1,407	2,105	1,950	597	906	2676	1,609	3,203	3,208	3,211	3,233	3,222	3,211	2,786	2,611	3,235	2,953	521	1609	3235
	TH	3,250	904	1,774	2,139	2,673	2,620	2,408	2,193	1,252	1,405	2,103	1,947	597	904	2673	1,606	3,200	3,206	3,209	3,230	3,220	3,209	2,783	2,609	3,233	2,950	521	1606	3233
	RT	3,250	904	1,774	2,139	2,673	2,620	2,408	2,193	1,252	1,405	2,103	1,947	597	904	2673	1,606	3,200	3,206	3,209	3,230	3,220	3,209	2,783	2,609	3,233	2,950	521	1606	3233
	R2																													
SB	UT																													
	L2																													
	LT	550	1	0	1	2	0	0	1	1	1	0	1	1	0	2	22	0	28	22	0	0	21	23	44	19	18	14	0	44
	TH	550	493	419	472	487	339	463	486	485	278	491	441	75	278	493	539	563	542	541	545	541	541	572	540	538	546	11	538	572
	RT	125	493	419	472	487	339	463	486	485	278	491	441	75	278	493	539	563	542	541	545	541	541	572	540	538	546	11	538	572
	R2																													
EB	UT																													
	L2																													
	LT	400	389	164	207	312	97	129	583	257	656	287	308	187	97	656	749	528	626	880	456	508	922	753	927	808	716	176	456	927
	TH	400	389	164	207	312	97	129	583	257	656	287	308	187	97	656	749	528	626	880	456	508	922	753	927	808	716	176	456	927
	RT	400	20	15	18	16	13	11	14	14	11	9	14	3	9	20	128	91	155	125	117	87	87	139	113	110	115	23	87	155
	R2																													
WB	UT																													
	L2																													
	LT	225	439	363	182	171	105	135	266	197	300	363	252	111	105	439	505	489	489	488	381	487	545	486	493	501	486	41	381	545
	TH	575	439	363	182	171	105	135	266	197	300	363	252	111	105	439	505	489	489	488	381	487	545	486	493	501	486	41	381	545
	RT	575	439	363	182	171	105	135	266	197	300	363	252	111	105	439	505	489	489	488	381	487	545	486	493	501	486	41	381	545
	R2																													

Appendix D.3. Mid-Term Plus Phase 1 Conditions – AM Peak Hour

D.3. Mid-Term Plus Phase 1 Conditions – AM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way		19	3	721	6	239	194	183	1	23	144	343
3	Harney Way / Alana Way / Thomas Mellon Dr	168	130	876	101	188	128	150	315	209	450	848	99
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	111	209			853	183	215		296			
6	Sierra Point Pkwy / US-101 northbound ramps	23		1,040					1,149			298	331

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
D.3. Mid-Term Plus Phase 1 Conditions - AM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	153.44
	Average LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	874.81	188.88	116.00	230.33	217.65	298.87
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	874.81	188.88	116.00	230.33	217.65	298.87
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	874.81	188.88	116.00	230.33	217.65	298.87
Left Turn Flow Rate	0.00	0.00	116.00	0.00	217.65	0.00
Right Turn Flow Rate	0.00	188.88	0.00	0.00	0.00	298.87
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	874.81	188.88	116.00	230.33	217.65	298.87
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.78	0.17	0.10	0.20	0.19	0.27
hd, iteration 1	5.58	4.87	6.59	6.08	6.96	5.76
Difference, iteration 1	2.38	1.67	3.39	2.88	3.76	2.56
hd, iteration 2	6.55	5.84	7.50	7.00	7.60	6.42
Difference, iteration 2	0.98	0.97	0.91	0.92	0.64	0.65
hd, iteration 3	6.77	6.05	7.67	7.17	7.71	6.52
Difference, iteration 3	0.21	0.21	0.17	0.17	0.10	0.10
hd, iteration 4	6.80	6.09	7.70	7.20	7.73	6.54
Difference, iteration 4	0.04	0.04	0.03	0.03	0.02	0.02
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	6.80	6.09	7.70	7.20	7.73	6.54
x final, Degree of Utilization	1.65	0.32	0.25	0.46	0.47	0.54

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	874.81	188.88	116.00	230.33	217.65	298.87
hd, Departure Headway	6.80	6.09	7.70	7.20	7.73	6.54
x, Degree of Utilization	1.65	0.32	0.25	0.46	0.47	0.54
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	4.50	3.79	5.40	4.90	5.43	4.24
Capacity	874.81	591.17	467.28	499.58	465.69	549.88
Delay	319.55	11.62	12.93	15.91	17.03	16.74
LOS	F	B	B	C	C	C
Q95, 95% Queue Length	49.78	1.37	0.97	2.39	2.44	3.23
Approach Delay	264.87		14.91		16.86	
Approach LOS	F		B		C	
Intersection Delay	153.44					
Intersection LOS	F					

Thu Dec 19 13:24:56 2024

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy		
D.3. Mid-Term Plus Phase 1 Conditions - AM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	59.22
	Average LOS	E
	V/C	0.95
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E			S		W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		323	365	23	0	1066	0	1174
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		81	91	6	0	267	0	293
Adjusted Volume		323	365	23	0	1066	0	1174

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		12592	12593	12596	12597	12594	12595
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		323	365	545	545	0	1174
PLT, Proportion Left Turns		0.00	0.00	0.04	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.96	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		12592	12593	12596	12597	12594	12595
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	0.994	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.855	0.850	1.000	1.000
flpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
frpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		12592	12593	12596	12597	12594	12595
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		323.14	364.86	544.64	544.64	0	1173.68
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900
c, Capacity		1025	871	553	518	0	1113
g/C, Green / Cycle		0.54	0.54	0.32	0.32	0	0.59
X, Volume / Capacity		0.32	0.42	0.98	1.05	0	1.05
d1, Uniform Delay		13.68	14.67	37.15	36.35	0.00	22.15
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay		0.81	1.48	34.82	53.93	0.00	42.45
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.54	0.54	0.32	0.32	0.00	0.59
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		14.49	16.15	71.97	90.28	0.00	64.60
LOS		B	B	E	F	A	F
dA, Approach Delay	0.00	15.37		81.12		64.60	
Approach LOS	A	B		F		E	
dI, Intersection Delay				59.22			
Intersection LOS				E			

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		12592	12593	12596	12597	12594	12595
g/C, Green / Cycle		0.54	0.54	0.32	0.32	0.00	0.59
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		3.04	4.77	14.04	13.02	0.00	23.50
Q2, Second-term Queued		0.23	0.36	5.35	7.76	0.00	13.13
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		4.17	5.13	19.38	20.77	0.00	36.63
f(B%, % Factor		1.80	1.72	1.37	1.41	1.00	1.33
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		7.51	8.85	26.60	29.20	0.00	48.69

Signal Timing Information

Approach	N	E		S		W	
Lane Group		12592	12593	12596	12597	12594	12595
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		107.00	107.00	107.00	107.00	107.00	107.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Lost Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start-Up Lost Time		2.00	2.00	2.00	2.00	0.00	2.00
l1p, Permitted Start-Up Lost Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Lost Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	67.7	67.7	0	0
Green Time End		62.7	62.7	102	102	0	62.7
G, Actual Green Time		57.7	57.7	34.3	34.3	0	62.7
gi, Effective Green Time		57.7	57.7	34.3	34.3	0	62.7
g/C, Green / Cycle		0.54	0.54	0.32	0.32	0	0.59
(v/s)i, Volume / Saturation Flow Rate		0.17	0.23	0.34	0.34	0.00	0.62
Critical Lane Group					Y		Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		12592	12593	12596	12597	12594	12595
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				107.00			
Gs(s), Actual GT				34.30			
gi(s), Eff. perm. GT				34.30			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				23.19			
PLT, Proportion LT in Lane Group				0.04			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				0.69			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				15.37			
qro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				15.37			
gu				18.93			
PL				0.04			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				0.99			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.99	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E			S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
ApbT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.3. Mid-Term Plus Phase 1 Conditions - AM Peak Hour

Vissim Post-Processor **Brisbane Baylands**
Results from Analyzed Runs, Interval All **Midterm Plus Project**
Volume and Delay by Movement **AM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	2	1	65.0%	0.9	0	3	0.5	2.3	3.7	0.0	8.5	A
	Through	19	17	89.5%	1.5	14	19	0.5	9.1	1.5	7.0	11.1	A
	Right Turn	2	2	90.0%	1.0	0	3	0.1	4.6	4.0	0.0	9.2	A
	Subtotal	23	20	87.4%	0.3	20	21	0.6	8.9	1.1	7.4	10.4	A
SB	Left Turn	708	475	67.0%	5.1	469	484	9.6	158.9	26.6	117.5	210.8	F
	Through	7	6	80.0%	1.5	4	9	0.6	86.7	55.6	0.0	154.5	F
	Right Turn	232	134	57.6%	18.4	111	166	7.3	120.0	23.9	78.4	166.7	F
	Subtotal	947	614	64.8%	21.6	587	656	11.9	150.3	26.9	108.7	204.8	F
EB	Left Turn	190	189	99.4%	7.6	177	200	0.1	13.8	2.4	9.8	17.5	B
	Through	179	186	103.7%	7.7	172	196	0.5	13.7	3.0	11.4	21.5	B
	Right Turn	1	0	30.0%	0.5	0	1	0.9	1.1	3.4	0.0	10.7	A
	Subtotal	370	375	101.3%	3.1	371	381	0.2	13.7	2.5	11.4	19.6	B
WB	Left Turn	22	23	103.6%	3.8	17	31	0.2	19.3	5.6	13.8	28.5	C
	Through	148	146	98.7%	10.7	126	164	0.2	17.6	2.9	13.5	22.6	C
	Right Turn	343	351	102.2%	14.0	333	373	0.4	2.5	0.7	1.5	3.9	A
	Subtotal	513	520	101.3%	3.6	513	524	0.3	7.5	1.2	6.0	10.3	A
Total		1,853	1,528	82.5%	24.5	1,496	1,572	7.9	66.7	9.2	51.4	83.3	F
						Worst Approach Delay		SB	150.3	26.9	108.7	204.8	F

Intersection 3 **Alana Way/Harney Way** **Signal**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	166	164	98.6%	14.2	142	185	0.2	43.4	30.2	23.5	125.9	D
	Through	128	134	104.8%	11.6	114	149	0.5	77.2	37.7	41.1	173.0	E
	Right Turn	864	874	101.2%	17.9	854	907	0.3	29.0	19.6	18.2	84.2	C
	Subtotal	1,158	1,172	101.2%	13.3	1,156	1,195	0.4	36.4	23.4	22.3	101.4	D
SB	Left Turn	100	100	100.4%	11.0	89	119	0.0	103.2	36.1	40.2	152.8	F
	Through	185	188	101.6%	13.6	167	207	0.2	173.1	43.0	97.8	226.7	F
	Right Turn	127	125	98.4%	8.0	114	139	0.2	162.6	42.9	82.4	209.0	F
	Subtotal	412	413	100.3%	11.7	391	426	0.1	153.4	40.1	84.4	203.3	F
EB	Left Turn	148	150	101.6%	14.4	135	178	0.2	112.1	40.8	70.0	200.4	F
	Through	310	299	96.4%	15.2	274	326	0.6	117.9	44.0	70.3	206.0	F
	Right Turn	206	211	102.5%	8.2	199	224	0.4	114.7	15.9	90.7	144.2	F
	Subtotal	664	660	99.4%	20.7	630	692	0.1	116.1	33.5	77.8	187.4	F
WB	Left Turn	447	246	55.1%	17.2	225	274	10.8	106.6	10.0	93.4	120.0	F
	Through	830	449	54.1%	32.7	404	511	15.0	139.3	18.7	110.0	171.7	F
	Right Turn	98	54	55.4%	8.3	41	66	5.0	117.1	17.8	96.7	157.9	F
	Subtotal	1,375	750	54.5%	47.3	670	836	19.2	127.3	14.8	105.6	149.6	F
Total		3,609	2,995	83.0%	60.8	2,893	3,092	10.7	93.2	12.3	77.9	111.1	F

D.3. Mid-Term Plus Phase 1 Conditions - AM Peak Hour

Brisbane Baylands
Midterm Plus Phase 1 AM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run										Average Queue Length (ft)				Maximum Queue Length (ft) by Run										Maximum Queue Length (ft)			
			1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way S**
NB	UT																													
	L2																													
	LT	250	1	0	1	0	0	0	0	0	0	0	0	0	0	1	62	22	42	23	23	23	24	45	62	23	35	17	22	62
	TH	250	1	0	1	0	0	0	0	0	0	0	0	0	0	1	62	22	42	23	23	23	24	45	62	23	35	17	22	62
	RT	250	1	0	1	0	0	0	0	0	0	0	0	0	0	1	62	22	42	23	23	23	24	45	62	23	35	17	22	62
	R2																													
SB	UT																													
	L2																													
	LT	170	901	975	1,140	1,273	1,391	1,319	740	956	1,159	829	1,068	220	740	1391	1,696	1,725	1,753	1,725	1,725	1,724	1,380	1,723	1,725	1,694	1,687	109	1380	1753
	TH	365	6	5	6	5	3	4	7	3	6	7	5	1	3	7	99	127	81	100	122	65	104	64	146	150	106	31	64	150
	RT	365	6	5	6	5	3	4	7	3	6	7	5	1	3	7	99	127	81	100	122	65	104	64	146	150	106	31	64	150
	R2																													
EB	UT																													
	L2																													
	LT	475	21	21	37	36	30	24	21	30	27	24	27	6	21	37	162	158	280	220	145	171	137	188	196	147	180	43	137	280
	TH	475	21	21	37	36	30	24	21	30	27	24	27	6	21	37	162	158	280	220	145	171	137	188	196	147	180	43	137	280
	RT	475	21	21	37	36	30	24	21	30	27	24	27	6	21	37	162	158	280	220	145	171	137	188	196	147	180	43	137	280
	R2																													
WB	UT																													
	L2																													
	LT	1,275	16	15	8	10	11	16	10	14	16	17	13	3	8	17	241	120	77	115	86	121	93	103	142	178	128	50	77	241
	TH	1,275	16	15	8	10	11	16	10	14	16	17	13	3	8	17	241	120	77	115	86	121	93	103	142	178	128	50	77	241
	RT	225	2	0	1	1	1	0	1	2	2	1	1	1	0	2	84	42	61	78	95	57	43	109	139	62	77	31	42	139
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	3,250	128	107	118	95	84	103	409	184	149	108	149	96	84	409	659	450	521	394	533	427	1,241	645	699	401	597	252	394	1241
	TH	3,250	125	104	116	93	82	101	407	182	147	106	146	96	82	407	657	447	518	392	530	424	1,239	642	696	398	594	252	392	1239
	RT	3,250	125	104	116	93	82	101	407	182	147	106	146	96	82	407	657	447	518	392	530	424	1,239	642	696	398	594	252	392	1239
	R2																													
SB	UT																													
	L2																													
	LT	550	38	6	70	31	23	98	14	85	46	53	46	30	6	98	533	123	538	453	352	537	213	536	534	535	435	154	123	538
	TH	550	329	182	458	283	188	260	126	355	303	439	292	109	126	458	540	540	542	539	540	540	536	545	545	541	541	3	536	545
	RT	125	329	182	458	283	188	260	126	355	303	439	292	109	126	458	540	540	542	539	540	540	536	545	545	541	541	3	536	545
	R2																													
EB	UT																													
	L2																													
	LT	400	257	428	465	238	135	405	372	339	255	502	339	116	135	502	650	809	726	543	527	859	744	744	802	897	730	124	527	897
	TH	400	257	428	465	238	135	405	372	339	255	502	339	116	135	502	650	809	726	543	527	859	744	744	802	897	730	124	527	897
	RT	400	59	49	53	60	58	58	52	46	58	57	55	5	46	60	198	214	156	166	197	245	156	170	261	181	194	36	156	261
	R2																													
WB	UT																													
	L2																													
	LT	630	432	431	438	444	437	447	414	418	440	437	434	11	414	447	545	528	493	504	505	526	526	520	519	523	519	15	493	545
	TH	630	432	431	438	444	437	447	414	418	440	437	434	11	414	447	545	528	493	504	505	526	526	520	519	523	519	15	493	545
	RT	470	432	431	438	444	437	447	414	418	440	437	434	11	414	447	545	528	493	504	505	526	526	520	519	523	519	15	493	545
	R2																													

Appendix D.4. Mid-Term Plus Phase 1 Conditions – PM Peak Hour

D.4. Mid-Term Plus Phase 1 Conditions – PM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way	5	8		503	4	230	189	180		11	91	363
3	Harney Way / Alana Way / Thomas Mellon Dr	262	265	1,131	105	204	147	134	387	117	694	496	149
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	466	875			369	263	193		104			
6	Sierra Point Pkwy / US-101 northbound ramps			534				1	473			1,340	1,167

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
D.4. Mid-Term Plus Phase 1 Conditions - PM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	146.78
	Average LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	385.53	273.23	469.35	892.86	198.68	106.84
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	385.53	273.23	469.35	892.86	198.68	106.84
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	385.53	273.23	469.35	892.86	198.68	106.84
Left Turn Flow Rate	0.00	0.00	469.35	0.00	198.68	0.00
Right Turn Flow Rate	0.00	273.23	0.00	0.00	0.00	106.84
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	385.53	273.23	469.35	892.86	198.68	106.84
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.34	0.24	0.42	0.79	0.18	0.09
hd, iteration 1	5.93	5.22	5.93	5.43	7.50	6.29
Difference, iteration 1	2.73	2.02	2.73	2.23	4.30	3.09
hd, iteration 2	6.93	6.23	6.94	6.44	8.25	7.06
Difference, iteration 2	1.00	1.01	1.01	1.00	0.75	0.77
hd, iteration 3	7.12	6.43	7.21	6.70	8.49	7.30
Difference, iteration 3	0.20	0.20	0.26	0.26	0.24	0.24
hd, iteration 4	7.18	6.48	7.27	6.76	8.55	7.36
Difference, iteration 4	0.06	0.06	0.07	0.06	0.06	0.06
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	7.18	6.48	7.27	6.76	8.55	7.36
x final, Degree of Utilization	0.77	0.49	0.95	1.68	0.47	0.22

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	385.53	273.23	469.35	892.86	198.68	106.84
hd, Departure Headway	7.18	6.48	7.27	6.76	8.55	7.36
x, Degree of Utilization	0.77	0.49	0.95	1.68	0.47	0.22
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	4.88	4.18	4.97	4.46	6.25	5.06
Capacity	500.74	554.99	494.10	892.86	421.03	488.83
Delay	29.90	15.29	55.24	330.24	18.65	12.11
LOS	D	C	F	F	C	B
Q95, 95% Queue Length	6.79	2.70	11.76	51.57	2.46	0.82
Approach Delay	23.84		235.49		16.36	
Approach LOS	C		F		C	
Intersection Delay	146.78					
Intersection LOS	F					

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy		
D.4. Mid-Term Plus Phase 1 Conditions - PM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	54.28
	Average LOS	D
	V/C	0.91
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		1362	1197	0	0	553	1	491
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		341	299	0	0	138	0	123
Adjusted Volume		1362	1197	0	0	553	1	491

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		30118	30119	30122	30123	30120	30121
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Prot	No Left	Prot	No Left
V, Volume		1362	1197	276	276	1	491
PLT, Proportion Left Turns		0.00	0.00	0.00	0.00	1.00	0.00
PRT, Proportion Right Turns		0.00	1.00	1.00	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		30118	30119	30122	30123	30120	30121
Control Type		No Left	No Left	Prot	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.850	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		30118	30119	30122	30123	30120	30121
Control Type		No Left	No Left	Prot	No Left	Prot	No Left
V, Volume		1362.04	1196.66	276.49	276.47	1.13	491.24
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900
c, Capacity		1349	1147	265	265	2	1430
g/C, Green / Cycle		0.71	0.71	0.16	0.16	0	0.75
X, Volume / Capacity		1.01	1.04	1.04	1.04	0.75	0.34
d1, Uniform Delay		17.40	17.40	50.15	50.15	59.94	4.96
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		26.89	38.68	66.88	66.88	581.36	0.66
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.71	0.71	0.16	0.16	0.00	0.75
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		44.29	56.08	117.03	117.03	641.30	5.61
LOS		F	F	F	F	F	A
dA, Approach Delay	0.00	49.81		117.03		7.08	
Approach LOS	A	D		F		A	
dI, Intersection Delay	54.28						
Intersection LOS	D						

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		30118	30119	30122	30123	30120	30121
g/C, Green / Cycle		0.71	0.71	0.16	0.16	0.00	0.75
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		28.38	24.13	7.85	7.85	0.03	3.10
Q2, Second-term Queued		10.08	12.32	4.93	4.93	0.24	0.26
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		38.46	36.45	12.78	12.78	0.28	3.37
fB%, % Factor		1.28	1.32	1.49	1.49	1.80	1.80
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		49.08	48.19	19.03	19.03	0.50	6.06

Signal Timing Information

Approach	N	E		S		W	
Lane Group		30118	30119	30122	30123	30120	30121
Control Type		No Left	No Left	Prot	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		120.00	120.00	120.00	120.00	120.00	120.00
Go, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	95.2	95.2	119.9	119.9
Green Time End		90.2	90.2	114.9	114.9	120	90.2
G, Actual Green Time		85.2	85.2	19.7	19.7	0.1	90.3
gi, Effective Green Time		85.2	85.2	19.7	19.7	0.1	90.3
g/C, Green / Cycle		0.71	0.71	0.16	0.16	0	0.75
(v/s)i, Volume / Saturation Flow Rate		0.72	0.74	0.17	0.17	0.00	0.26
Critical Lane Group			Y		Y	Y	

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		30118	30119	30122	30123	30120	30121
Control Type		No Left	No Left	Prot	No Left	Prot	No Left
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
gro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
FI 1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
ApbT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.4. Mid-Term Plus Phase 1 Conditions - PM Peak Hour

Vissim Post-Processor **Brisbane Baylands**
Results from Analyzed Runs, Interval All **Midterm Plus Project**
Volume and Delay by Movement **PM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	5	6	112.0%	1.1	4	7	0.3	8.2	4.9	0.0	16.4	A
	Through	8	6	71.3%	1.3	4	7	0.9	10.8	6.2	0.0	23.7	B
	Right Turn	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	13	12	90.0%	0.5	11	12	0.4	10.8	2.8	7.6	15.8	B
SB	Left Turn	501	385	76.8%	23.0	342	412	5.5	54.4	22.9	31.1	94.1	F
	Through	5	3	68.0%	1.8	0	6	0.8	33.3	60.0	0.0	187.8	D
	Right Turn	227	219	96.7%	12.9	195	243	0.5	50.0	7.9	39.0	62.7	F
	Subtotal	733	607	82.9%	28.0	561	646	4.9	53.5	16.9	37.1	82.8	F
EB	Left Turn	187	192	102.6%	11.3	180	218	0.3	12.6	2.6	9.2	17.2	B
	Through	178	174	97.8%	9.7	153	183	0.3	12.8	2.1	9.7	16.3	B
	Right Turn	-	-	-	-	-	-	-	-	-	-	-	-
	Subtotal	365	366	100.3%	3.4	362	372	0.1	12.7	2.2	9.6	16.0	B
WB	Left Turn	10	10	101.0%	4.7	3	18	0.0	14.2	12.8	0.0	45.9	B
	Through	120	124	103.3%	6.4	111	133	0.4	13.0	1.4	10.6	14.8	B
	Right Turn	369	365	98.9%	5.3	360	376	0.2	2.8	1.6	1.3	6.9	A
	Subtotal	499	499	100.0%	2.9	492	502	0.0	5.7	1.3	4.0	8.8	A
Total		1,610	1,484	92.2%	28.0	1,434	1,521	3.2	27.2	7.6	18.7	41.9	D
						Worst Approach Delay		SB	53.5	16.9	37.1	82.8	F

Intersection 3 **Alana Way/Harney Way** **Signal**

		Demand	Served Volume (vph)						Total Delay (sec/veh)				
Direction	Movement	Volume (vph)	Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	260	167	64.2%	12.5	150	192	6.4	702.1	100.1	593.1	950.5	F
	Through	263	165	62.6%	17.5	140	193	6.7	744.4	96.7	633.0	960.5	F
	Right Turn	1,124	711	63.3%	54.2	609	779	13.6	678.7	98.4	557.5	895.2	F
	Subtotal	1,647	1,043	63.3%	62.5	918	1,108	16.5	692.9	98.0	575.8	916.1	F
SB	Left Turn	103	93	90.0%	18.3	66	125	1.0	131.2	27.8	64.6	163.8	F
	Through	204	178	87.4%	6.1	169	186	1.9	214.8	37.3	140.3	267.5	F
	Right Turn	146	131	89.9%	17.3	95	156	1.2	180.0	33.1	105.1	228.3	F
	Subtotal	453	402	88.8%	31.8	349	450	2.5	183.5	33.8	110.2	234.5	F
EB	Left Turn	134	126	94.0%	9.8	112	141	0.7	175.6	98.3	67.1	380.9	F
	Through	384	362	94.2%	9.6	349	377	1.2	203.2	104.4	96.5	409.1	F
	Right Turn	117	94	80.1%	6.6	80	104	2.3	152.5	114.3	48.8	367.3	F
	Subtotal	635	581	91.5%	16.4	560	607	2.2	189.3	103.7	83.1	395.9	F
WB	Left Turn	690	474	68.7%	10.3	459	488	9.0	133.4	13.6	114.8	154.5	F
	Through	492	340	69.0%	15.3	319	369	7.5	116.7	6.5	101.8	124.9	F
	Right Turn	148	106	71.7%	11.9	92	122	3.7	116.8	8.7	98.4	128.1	F
	Subtotal	1,330	920	69.2%	18.7	893	956	12.2	125.8	9.5	112.5	140.2	F
Total		4,065	2,946	72.5%	65.4	2,841	3,065	18.9	345.9	23.2	320.6	386.7	F

D.4. Mid-Term Plus Phase 1 Conditions - PM Peak Hour

Brisbane Baylands
Midterm Plus Phase 1 PM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way S**
NB	UT																													
	L2																													
	LT	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22	21	44	22	21	21	40	23	26	9	21	44
	TH	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22	21	44	22	21	21	40	23	26	9	21	44
	RT	250	0	0	0	0	0	0	0	0	0	0	0	0	0	0	22	22	22	21	44	22	21	21	40	23	26	9	21	44
	R2																													
SB	UT																													
	L2																													
	LT	170	62	62	56	144	162	52	131	121	67	56	91	43	52	162	338	503	270	544	617	293	611	654	312	267	441	159	267	654
	TH	365	9	11	7	8	12	12	11	11	10	6	10	2	6	12	115	113	76	104	124	127	117	141	85	83	109	21	76	141
	RT	365	9	11	7	8	12	12	11	11	10	6	10	2	6	12	115	113	76	104	124	127	117	141	85	83	109	21	76	141
	R2																													
EB	UT																													
	L2																													
	LT	475	27	21	29	23	31	29	19	33	28	19	26	5	19	33	231	142	187	133	208	153	179	215	249	104	180	47	104	249
	TH	475	27	21	29	23	31	29	19	33	28	19	26	5	19	33	231	142	187	133	208	153	179	215	249	104	180	47	104	249
	RT	475	27	21	29	23	31	29	19	33	28	19	26	5	19	33	231	142	187	133	208	153	179	215	249	104	180	47	104	249
	R2																													
WB	UT																													
	L2																													
	LT	1,275	4	5	4	9	7	4	5	6	5	4	5	2	4	9	81	66	63	68	104	62	101	66	89	81	78	16	62	104
	TH	1,275	4	5	4	9	7	4	5	6	5	4	5	2	4	9	81	66	63	68	104	62	101	66	89	81	78	16	62	104
	RT	225	0	2	2	2	3	1	1	1	1	1	1	1	0	3	23	158	96	44	158	146	85	86	64	63	92	48	23	158
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	3,250	2,999	2,985	2,920	2,803	3,000	3,011	2,828	2,851	2,955	2,736	2,909	98	2736	3011	3,230	3,208	3,212	3,235	3,211	3,212	3,212	3,213	3,263	3,222	3,222	17	3208	3263
	TH	3,250	2,997	2,983	2,917	2,800	2,998	3,008	2,826	2,849	2,952	2,733	2,906	98	2733	3008	3,227	3,206	3,209	3,233	3,208	3,209	3,209	3,210	3,261	3,220	3,219	17	3206	3261
	RT	3,250	2,997	2,983	2,917	2,800	2,998	3,008	2,826	2,849	2,952	2,733	2,906	98	2733	3008	3,227	3,206	3,209	3,233	3,208	3,209	3,209	3,210	3,261	3,220	3,219	17	3206	3261
	R2																													
SB	UT																													
	L2																													
	LT	550	48	3	115	117	24	151	26	77	72	20	65	50	3	151	534	25	538	534	518	562	536	520	535	536	484	162	25	562
	TH	550	466	476	485	472	465	307	459	259	470	426	429	79	259	485	563	540	557	545	541	565	545	541	540	541	548	10	540	565
	RT	125	466	476	485	472	465	307	459	259	470	426	429	79	259	485	563	540	557	545	541	565	545	541	540	541	548	10	540	565
	R2																													
EB	UT																													
	L2																													
	LT	400	471	409	771	932	801	231	301	673	409	202	520	257	202	932	910	907	1,171	1,384	960	603	849	931	928	818	946	208	603	1384
	TH	400	471	409	771	932	801	231	301	673	409	202	520	257	202	932	910	907	1,171	1,384	960	603	849	931	928	818	946	208	603	1384
	RT	400	19	15	18	18	23	15	18	16	13	12	17	3	12	23	106	92	114	127	153	75	133	115	141	80	114	26	75	153
	R2																													
WB	UT																													
	L2																													
	LT	630	409	409	423	434	409	418	413	408	413	417	415	8	408	434	517	490	519	527	526	501	510	545	527	505	517	16	490	545
	TH	630	409	409	423	434	409	418	413	408	413	417	415	8	408	434	517	490	519	527	526	501	510	545	527	505	517	16	490	545
	RT	470	409	409	423	434	409	418	413	408	413	417	415	8	408	434	517	490	519	527	526	501	510	545	527	505	517	16	490	545
	R2																													

Appendix D.5. Mid-Term Plus Phase 1 Conditions with Recommended Improvements – AM Peak Hour

D.5. Mid-Term Plus Phase 1 Conditions with Recommended Improvements – AM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way*		1,165	171	334	1,220					30		32
3	Harney Way / Alana Way / Thomas Mellon Dr		461	1,091	123	395					1,491		69
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	179	61	209	320	184		1	200	202	759	251	
6	Sierra Point Pkwy / US-101 northbound ramps	108		1,040					1,145			342	286

*Geneva Avenue/Alana Way/Sierra Point Parkway

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007:US 101 SB Ramps & Lagoon Rd

D.5. Mid-Term Plus Phase 1 Conditions with Recommended Improvements - AM Peak Hour

Control Type	Roundabout
Method	HCM 7th Edition
Average Delay	25.89
Average LOS	D
Worst Case Delay	39.71
Worst Case LOS	E

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume (veh/h)	321.22	186.42	0.01	779.05	258.30	0.00	183.41	62.86	230.33	0.74	201.21	204.69
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume, Lane Flow Rate (veh/h)	321.22	186.42	0.01	779.05	258.30	0.00	183.41	62.86	230.33	0.74	201.21	204.69

Volume

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
Volume, Lane Flow Rate (veh/h)	321.222	186.427	1037.350	183.408	293.189	201.944	204.695
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Adjusted Volume (pc/h)	321.222	186.427	1037.350	183.408	293.189	201.944	204.695
De-Facto Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
Is Bypass Lane							
Uses Bypass							
Bypass Type							
Bypass Volume (pc/h)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Non-Bypass Volume (pc/h)	321.222	186.427	1037.350	183.408	293.189	201.944	204.695

Capacity

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
v_e, Entry Volume (pc/h)	321.22	186.43	1037.35	183.41	293.19	201.94	204.69
v_bypass, Bypass Volume (pc/h)							
t_f, Follow Up Headway							
t_c, Critical Headway							
A, Capacity Calibration Factor	1420.00	1420.00	1380.00	1420.00	1420.00	1420.00	1420.00
B, Capacity Calibration Factor	0.00091	0.00091	0.00102	0.00091	0.00091	0.00091	0.00091
v_c, Conflicting Volume (pc/h)	1220.76	1220.76	247.00	523.17	523.17	1286.70	1286.70
v_ex,pce, Conflicting Volume for Bypass Lane (pc/h)							
c_pce, Capacity (pc/h)	467.56	467.56	1072.66	882.12	882.12	440.33	440.33
n_ped, Conflicting Pedestrian Volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_ped, Pedestrian Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
c, Capacity (veh/h)	467.56	467.56	1072.66	882.12	882.12	440.33	440.33

Delay and Level of Service by Lane

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
v, Volume, Lane Flow Rate (veh/h)	321.22	186.43	1037.35	183.41	293.19	201.94	204.69
c, Capacity (veh/h)	467.56	467.56	1072.66	882.12	882.12	440.33	440.33
x, Volume-to-Capacity Ratio	0.69	0.40	0.97	0.21	0.33	0.46	0.46
Q_95, 95% Queue Length (veh)	5.14	1.89	17.64	0.78	1.46	2.36	2.41
d, Delay (s/veh)	26.38	14.71	39.71	6.19	7.76	17.21	17.40
LOS	D	B	E	A	A	C	C
Approach Delay (s/veh)	22.10		39.71	7.16		17.31	
Approach LOS	C		E	A		C	

Delay and Level of Service by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
v, Volume, Lane Flow Rate (veh/h)	321.22	186.42	0.01	779.05	258.30	0.00	183.41	62.86	230.33	0.74	201.21	204.69
c, Capacity (veh/h)	467.56	467.56	467.56	1072.66	1072.66	1072.66	882.12	882.12	882.12	440.33	440.33	440.33
x, Volume-to-Capacity Ratio	0.69	0.40	0.00	0.73	0.24	0.00	0.21	0.07	0.26	0.00	0.46	0.46
d, Delay (s/veh)	26.38	14.71	14.71	39.71	39.71	39.71	6.19	7.76	7.76	17.21	17.21	17.40
LOS	D	B	B	E	E	E	A	A	A	C	C	C
Approach Delay (s/veh)	22.10			39.71			7.16			17.31		
Approach LOS	C			E			A			C		

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.5. Mid-Term Plus Phase 1 Conditions with Recommended Improvements - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	66.63
Average LOS	E
V/C	0.99
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		368	318	108	0	1066	0	1170
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		92	80	27	0	267	0	293
Adjusted Volume		368	318	108	0	1066	0	1170

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		58859	58860	58863	58864	58861	58862
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		368	318	587	587	0	1170
PLT, Proportion Left Turns		0.00	0.00	0.18	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.82	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		58859	58860	58863	58864	58861	58862
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	0.956	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.874	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1588	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		58859	58860	58863	58864	58861	58862
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		368.24	318.26	587.22	587.22	0	1170.17
s, Saturation Flow Rate		1900	1615	1588	1615	1810	1900
c, Capacity		996	846	581	552	0	1081
g/C, Green / Cycle		0.52	0.52	0.34	0.34	0	0.57
X, Volume / Capacity		0.37	0.38	1.01	1.06	0	1.08
d1, Uniform Delay		15.73	15.80	38.02	36.85	0.00	24.15
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		1.06	1.28	39.95	56.22	0.00	52.69
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.52	0.52	0.34	0.34	0.00	0.57
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		16.79	17.07	77.96	93.07	0.00	76.84
LOS		B	B	F	F	A	F
dA, Approach Delay	0.00	16.92		85.52		76.84	
Approach LOS	A	B		F		E	
dI, Intersection Delay		66.63					
Intersection LOS		E					

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		58859	58860	58863	58864	58861	58862
g/C, Green / Cycle		0.52	0.52	0.34	0.34	0.00	0.57
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		5.13	4.46	15.91	14.57	0.00	24.69
Q2, Second-term Queued		0.29	0.30	6.45	8.62	0.00	15.82
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		5.43	4.76	22.36	23.20	0.00	40.50
fB%, % Factor		1.70	1.75	1.36	1.40	1.00	1.34
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		9.25	8.33	30.33	32.40	0.00	54.41

Signal Timing Information

Approach	N	E		S		W	
Lane Group		58859	58860	58863	58864	58861	58862
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		112.00	112.00	112.00	112.00	112.00	112.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	68.7	68.7	0	0
Green Time End		63.7	63.7	107	107	0	63.7
G, Actual Green Time		58.7	58.7	38.3	38.3	0	63.7
gi, Effective Green Time		58.7	58.7	38.3	38.3	0	63.7
g/C, Green / Cycle		0.52	0.52	0.34	0.34	0	0.57
(v/s)i, Volume / Saturation Flow Rate		0.19	0.20	0.37	0.36	0.00	0.62
Critical Lane Group				Y			Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		58859	58860	58863	58864	58861	58862
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				112.00			
G(s), Actual GT				38.30			
g(s), Eff. perm. GT				38.30			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				108.36			
PLT, Proportion LT in Lane Group				0.18			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				3.37			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				4.04			
gro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				4.04			
gu				34.26			
PL				0.18			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				0.96			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.96	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
AobT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.5 Mid-Term Plus Phase 1 with Recommended Improvements - AM Peak Hour

Vissim Post-Processor
Results from Analyzed Runs, Interval All
Volume and Delay by Movement

Brisbane Baylands
Midterm Plus Project with Mitigation
AM Peak Hour

Intersection 2 **SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
SB	Left Turn	352	360	102.1%	16.0	337	395	0.4	53.9	8.7	45.9	74.5	D
	Right Turn	389	393	101.1%	15.5	362	414	0.2	55.8	12.9	43.4	87.4	E
	Subtotal	741	753	101.6%	9.1	737	768	0.4	55.1	10.2	46.9	81.6	E
EB	Through	1,015	880	86.7%	19.6	818	938	4.4	39.1	8.9	26.5	54.5	D
	Right Turn	234	185	78.9%	20.5	156	220	3.4	38.1	11.9	24.4	60.5	D
	Subtotal	1,249	1,065	85.3%	24.6	1,019	1,096	5.4	38.7	8.7	26.6	54.0	D
WB	Left Turn	488	495	101.5%	8.7	480	509	0.3	27.2	5.3	19.3	39.4	C
	Through	1,133	1,152	101.7%	30.9	1,113	1,215	0.6	10.4	8.5	3.5	30.1	B
	Subtotal	1,621	1,647	101.6%	31.3	1,611	1,720	0.7	15.5	7.2	10.4	32.7	B
Total		3,611	3,465	95.9%	50.2	3,367	3,540	2.5	31.3	7.3	24.4	50.4	C

Intersection 3 **NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	47	49	104.3%	7.1	39	58	0.3	53.6	13.1	26.9	68.7	D
	Right Turn	632	635	100.5%	11.6	615	651	0.1	48.4	5.5	38.4	57.0	D
	Subtotal	679	684	100.8%	7.2	671	691	0.2	48.8	5.8	38.2	57.7	D
EB	Left Turn	413	351	85.0%	16.2	319	382	3.2	77.1	18.2	56.9	110.7	E
	Through	955	889	93.1%	26.3	863	939	2.2	11.9	3.8	6.9	18.6	B
	Subtotal	1,368	1,240	90.6%	22.5	1,218	1,280	3.5	30.6	4.7	24.6	37.7	C
WB	Through	1,574	1,601	101.7%	22.6	1,571	1,649	0.7	18.7	12.8	9.9	54.4	B
	Right Turn	436	446	102.3%	14.1	428	478	0.5	32.5	4.6	25.4	40.2	C
	Subtotal	2,010	2,047	101.9%	16.9	2,020	2,077	0.8	21.7	10.2	13.7	50.1	C
Total		4,057	3,972	97.9%	29.9	3,928	4,017	1.3	29.1	6.4	24.7	46.7	C

D.5 Mid-Term Plus Phase 1 with Recommended Improvements - AM Peak Hour

Brisbane Baylands
Midterm Plus Project Mitigated AM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run										Average Queue Length (ft)				Maximum Queue Length (ft) by Run										Maximum Queue Length (ft)			
			1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max
Intersection		2	**SB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
SB	UT																													
	L2																													
	LT	1,025	156	173	159	139	162	137	143	178	149	138	153	15	137	178	484	510	499	474	527	489	533	510	513	439	498	28	439	533
	TH																													
	RT	1,025	78	87	79	70	81	68	71	89	74	69	77	7	68	89	484	510	499	474	527	489	533	510	513	439	498	28	439	533
	R2																													
EB	UT																													
	L2																													
	LT	325	68	90	68	77	63	80	79	69	60	75	73	9	60	90	462	391	402	390	428	397	354	464	278	431	400	55	278	464
	TH	325	67	99	76	83	73	81	84	72	67	82	78	10	67	99	430	391	403	390	429	397	354	465	278	431	397	52	278	465
	RT	200	38	79	35	70	40	44	45	48	41	48	49	14	35	79	406	447	288	380	418	387	257	454	268	420	372	74	257	454
	R2																													
WB	UT																													
	L2																													
	LT	250	57	61	56	46	50	59	47	45	47	49	52	6	45	61	374	404	384	376	357	470	372	330	329	312	371	45	312	470
	TH	250	14	27	16	19	47	13	27	17	46	25	25	12	13	47	372	344	222	175	406	85	304	140	387	283	272	112	85	406
	RT																													
	R2																													
Intersection		3	**NB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT	2,500	147	151	144	142	150	143	143	124	133	129	141	9	124	151	369	511	402	517	412	387	457	365	385	490	430	59	365	517
	TH																													
	RT	2,500	145	150	143	141	149	141	142	123	131	127	139	9	123	150	367	510	400	515	410	386	456	363	384	488	428	59	363	515
	R2																													
SB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
EB	UT																													
	L2																													
	LT	245	89	113	73	92	99	94	82	76	81	106	91	13	73	113	375	378	306	239	392	384	312	239	346	390	336	60	239	392
	TH	245	28	20	35	20	22	18	18	28	23	28	24	5	18	35	375	265	283	240	255	280	238	297	250	260	274	40	238	375
	RT																													
	R2																													
WB	UT																													
	L2																													
	LT																													
	TH	0	42	61	54	60	62	49	94	74	108	82	69	21	42	108	396	444	492	645	408	357	593	574	573	538	502	97	357	645
	RT	0	35	39	44	38	35	42	44	55	45	50	43	6	35	55	219	162	178	197	160	236	192	287	229	301	216	48	160	301
	R2																													

Appendix D.6. Mid-Term Plus Phase 1 Conditions with Recommended Improvements – PM Peak Hour

D.6. Mid-Term Plus Phase 1 Conditions with Recommended Improvements – PM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way*		1,361	4		1,434					170		196
3	Harney Way / Alana Way / Thomas Mellon Dr		561	1,435	118	389					1,393		117
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	336	305	875		4		60	209	88	377	283	
6	Sierra Point Pkwy / US-101 northbound ramps			534					470			1,515	986

*Geneva Avenue/Alana Way/Sierra Point Parkway

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007:US 101 SB Ramps & Lagoon Rd

D.6. Mid-Term Plus Phase 1 Conditions with Recommended Improvements - PM Peak Hour

Control Type	Roundabout
Method	HCM 7th Edition
Average Delay	52.31
Average LOS	F
Worst Case Delay	71.72
Worst Case LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume (veh/h)	0.00	4.32	0.00	393.73	293.59	0.00	338.22	308.12	892.86	60.81	213.33	90.21
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume, Lane Flow Rate (veh/h)	0.00	4.32	0.00	393.73	293.59	0.00	338.22	308.12	892.86	60.81	213.33	90.21

Volume

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
Volume, Lane Flow Rate (veh/h)	0.000	4.324	687.322	338.220	1200.976	274.138	90.209
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Adjusted Volume (pc/h)	0.000	4.324	687.322	338.220	1200.976	274.138	90.209
De-Facto Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
Is Bypass Lane							
Uses Bypass							
Bypass Type							
Bypass Volume (pc/h)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Non-Bypass Volume (pc/h)	0.000	4.324	687.322	338.220	1200.976	274.138	90.209

Capacity

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
v_e, Entry Volume (pc/h)	0.00	4.32	687.32	338.22	1200.98	274.14	90.21
v_bypass, Bypass Volume (pc/h)							
t_f, Follow Up Headway							
t_c, Critical Headway							
A, Capacity Calibration Factor	1420.00	1420.00	1380.00	1420.00	1420.00	1420.00	1420.00
B, Capacity Calibration Factor	0.00091	0.00091	0.00102	0.00091	0.00091	0.00091	0.00091
v_c, Conflicting Volume (pc/h)	1025.54	1025.54	707.15	274.14	274.14	398.06	398.06
v_ex,pce, Conflicting Volume for Bypass Lane (pc/h)							
c_pce, Capacity (pc/h)	558.45	558.45	670.85	1106.49	1106.49	988.49	988.49
n_ped, Conflicting Pedestrian Volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_ped, Pedestrian Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
c, Capacity (veh/h)	558.45	558.45	670.85	1106.49	1106.49	988.49	988.49

Delay and Level of Service by Lane

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1	T, R1	L1, T, R1	L1	T, R1	L1, T	R1
v, Volume, Lane Flow Rate (veh/h)	0.00	4.32	687.32	338.22	1200.98	274.14	90.21
c, Capacity (veh/h)	558.45	558.45	670.85	1106.49	1106.49	988.49	988.49
x, Volume-to-Capacity Ratio	0.00	0.01	1.02	0.31	1.09	0.28	0.09
Q_95, 95% Queue Length (veh)	0.00	0.02	17.12	1.30	27.93	1.14	0.30
d, Delay (s/veh)	6.45	6.54	65.94	6.21	71.72	6.42	4.46
LOS	A	A	F	A	F	A	A
Approach Delay (s/veh)	6.54		65.94	57.32		5.94	
Approach LOS	A		F	F		A	

Delay and Level of Service by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
v, Volume, Lane Flow Rate (veh/h)	0.00	4.32	0.00	393.73	293.59	0.00	338.22	308.12	892.86	60.81	213.33	90.21
c, Capacity (veh/h)	558.45	558.45	558.45	670.85	670.85	670.85	1106.49	1106.49	1106.49	988.49	988.49	988.49
x, Volume-to-Capacity Ratio	0.00	0.01	0.00	0.59	0.44	0.00	0.31	0.28	0.81	0.06	0.22	0.09
d, Delay (s/veh)	6.45	6.54	6.54	65.94	65.94	65.94	6.21	71.72	71.72	6.42	6.42	4.46
LOS	A	A	A	F	F	F	A	F	F	A	A	A
Approach Delay (s/veh)	6.54			65.94			57.32			5.94		
Approach LOS	A			F			F			A		

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.6. Mid-Term Plus Phase 1 Conditions with Recommended Improvements - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	61.07
Average LOS	E
V/C	0.98
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		1539	1015	0	0	553	0	488
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		385	254	0	0	138	0	122
Adjusted Volume		1539	1015	0	0	553	0	488

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		44142	44143	44146	44147	44144	44145
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1539	1015	276	276	0	488
PLT, Proportion Left Turns		0.00	0.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	1.00	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		44142	44143	44146	44147	44144	44145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.850	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		44142	44143	44146	44147	44144	44145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1539.03	1014.63	276.49	276.47	0	488.27
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900
c, Capacity		1372	1166	276	246	0	1451
g/C, Green / Cycle		0.72	0.72	0.15	0.15	0	0.76
X, Volume / Capacity		1.12	0.87	1	1.13	0	0.34
d1, Uniform Delay		16.55	12.38	51.44	50.45	0.00	4.47
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		65.14	8.98	54.69	95.38	0.00	0.63
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.72	0.72	0.15	0.15	0.00	0.76
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		81.69	21.37	106.13	145.83	0.00	5.09
LOS		F	C	F	F	A	A
dA, Approach Delay	0.00	57.72		125.98		5.09	
Approach LOS	A	E		F		A	
dI, Intersection Delay	61.07						
Intersection LOS	E						

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		44142	44143	44146	44147	44144	44145
g/C, Green / Cycle		0.72	0.72	0.15	0.15	0.00	0.76
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		27.76	15.36	8.26	7.22	0.00	2.79
Q2, Second-term Queued		24.82	2.91	4.19	6.51	0.00	0.25
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		52.57	18.27	12.45	13.73	0.00	3.04
fB%, % Factor		1.36	1.38	1.47	1.52	1.00	1.80
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		71.38	25.28	18.26	20.91	0.00	5.47

Signal Timing Information

Approach	N	E		S		W	
Lane Group		44142	44143	44146	44147	44144	44145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		119.00	119.00	119.00	119.00	119.00	119.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	95.9	95.9	0	0
Green Time End		90.9	90.9	114	114	0	90.9
G, Actual Green Time		85.9	85.9	18.1	18.1	0	90.9
gi, Effective Green Time		85.9	85.9	18.1	18.1	0	90.9
g/C, Green / Cycle		0.72	0.72	0.15	0.15	0	0.76
(v/s)i, Volume / Saturation Flow Rate		0.81	0.63	0.17	0.17	0.00	0.26
Critical Lane Group		Y			Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		44142	44143	44146	44147	44144	44145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				119.00			
G(s), Actual GT				18.10			
g(s), Eff. perm. GT				18.10			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				0.17			
PLT, Proportion LT in Lane Group				0.00			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				0.01			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				15.51			
gro, Opposing Queue Ratio				1.00			
gg, Opposing Queue Clearing Time				15.51			
gu				2.59			
PL				0.00			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				1.00			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
AobT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.6 Mid-Term Plus Phase 1 with Recommended Improvements - PM Peak Hour

Vissim Post-Processor
Results from Analyzed Runs, Interval All
Volume and Delay by Movement

Brisbane Baylands
Midterm Plus Project with Mitigation
PM Peak Hour

Intersection 2 **SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
SB	Left Turn	387	392	101.2%	11.7	378	413	0.2	56.6	5.4	47.8	65.0	E
	Right Turn	281	280	99.5%	13.3	258	298	0.1	52.4	9.1	45.0	72.1	D
	Subtotal	668	671	100.5%	6.9	656	679	0.1	55.1	5.4	47.8	67.1	E
EB	Through	1,433	1,372	95.8%	21.4	1,314	1,455	1.6	36.2	9.4	25.6	52.9	E
	Right Turn	259	250	96.3%	14.2	232	275	0.6	19.2	8.0	10.3	32.3	B
	Subtotal	1,692	1,622	95.8%	19.0	1,595	1,647	1.7	32.7	8.1	24.9	44.8	C
WB	Left Turn	484	482	99.6%	14.9	466	505	0.1	34.0	7.8	22.1	47.9	C
	Through	1,087	1,105	101.6%	17.5	1,079	1,130	0.5	16.5	2.9	11.4	20.3	B
	Subtotal	1,571	1,587	101.0%	23.5	1,560	1,625	0.4	21.9	4.0	14.3	27.2	C
Total		3,931	3,880	98.7%	29.1	3,834	3,925	0.8	32.1	4.3	25.2	39.7	C

Intersection 3 **NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	272	276	101.6%	12.7	255	297	0.3	48.1	9.7	35.6	65.6	D
	Right Turn	745	743	99.8%	18.1	702	768	0.1	47.8	4.8	39.9	57.3	D
	Subtotal	1,017	1,020	100.3%	10.6	999	1,029	0.1	47.9	5.4	40.4	59.3	D
EB	Left Turn	592	588	99.3%	23.8	556	640	0.2	56.4	11.0	42.7	77.2	E
	Through	1,230	1,175	95.6%	26.9	1,143	1,208	1.6	28.4	4.7	22.0	36.3	C
	Subtotal	1,822	1,763	96.8%	23.3	1,733	1,801	1.4	37.5	6.1	28.7	46.9	D
WB	Through	1,298	1,308	100.8%	18.3	1,285	1,336	0.3	23.4	4.7	17.7	34.6	C
	Right Turn	448	447	99.7%	16.3	414	467	0.1	39.2	3.9	30.8	43.6	D
	Subtotal	1,746	1,755	100.5%	17.0	1,732	1,782	0.2	27.6	3.8	22.7	35.6	C
Total		4,585	4,538	99.0%	32.3	4,480	4,582	0.7	36.0	4.1	31.4	43.5	D

D.6 Mid-Term Plus Phase 1 with Recommended Improvements - PM Peak Hour

Brisbane Baylands
Midterm Plus Project Mitigated PM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run										Average Queue Length (ft)				Maximum Queue Length (ft) by Run										Maximum Queue Length (ft)			
			1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max
Intersection		2	**SB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
SB	UT																													
	L2																													
	LT	1,025	130	145	134	136	139	153	126	132	147	142	138	8	126	153	561	580	486	346	475	514	447	424	552	456	484	71	346	580
	TH																													
	RT	1,025	65	73	67	68	70	77	63	66	73	71	69	4	63	77	561	580	486	346	475	514	447	424	552	456	484	71	346	580
	R2																													
EB	UT																													
	L2																													
	LT	325	58	94	83	119	89	91	105	114	105	175	103	31	58	175	444	460	462	462	462	460	463	463	462	486	463	10	444	486
	TH	325	50	83	55	125	89	83	98	107	83	165	94	33	50	165	445	460	463	462	462	461	463	464	463	487	463	10	445	487
	RT	200	22	24	24	20	12	35	11	41	52	27	27	13	11	52	383	344	450	107	113	450	134	450	452	150	303	157	107	452
	R2																													
WB	UT																													
	L2																													
	LT	250	56	54	50	56	58	56	50	48	44	40	51	6	40	58	331	359	358	384	302	326	250	471	348	241	337	66	241	471
	TH	250	54	65	42	48	48	50	51	46	70	72	54	11	42	72	442	443	259	369	270	346	393	392	367	441	372	66	259	443
	RT																													
	R2																													
Intersection		3	**NB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT	2,500	189	221	193	191	211	204	186	172	205	201	197	14	172	221	579	695	625	635	584	611	638	564	565	587	608	41	564	695
	TH																													
	RT	2,500	188	220	191	189	210	202	185	171	203	200	196	14	171	220	577	693	623	633	582	609	636	563	563	585	607	41	563	693
	R2																													
SB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
EB	UT																													
	L2																													
	LT	245	89	148	130	123	124	119	134	100	145	152	126	20	89	152	387	440	390	392	393	393	392	322	399	393	390	28	322	440
	TH	245	77	87	87	76	76	73	73	86	91	88	82	7	73	91	385	389	393	388	390	392	354	383	391	392	386	12	354	393
	RT																													
	R2																													
WB	UT																													
	L2																													
	LT																													
	TH	0	74	59	53	54	51	67	53	59	94	94	66	16	51	94	401	381	293	343	418	396	291	357	459	401	374	54	291	459
	RT	0	52	55	58	55	57	58	57	61	63	60	58	3	52	63	243	195	313	217	257	301	275	277	248	219	255	38	195	313
	R2																													

Appendix D.7. Cumulative Without Project Conditions – AM Peak Hour

D.7. Cumulative Without Project Conditions – AM Peak Hour

Code	*Name*	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way	1	32	5	641	7	307	186	142	5	39	78	343
3	Harney Way / Alana Way / Thomas Mellon Dr	145	145	831	54	284	117	187	189	237	314	832	55
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	94	216			870	39	270		300			
6	Sierra Point Pkwy / US-101 northbound ramps	1		1,039					1,170			309	328

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
D.7. Cumulative Without Project Conditions - AM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	176.28
	Average LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	892.09	40.32	98.25	237.66	271.28	303.19
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	892.09	40.32	98.25	237.66	271.28	303.19
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	892.09	40.32	98.25	237.66	271.28	303.19
Left Turn Flow Rate	0.00	0.00	98.25	0.00	271.28	0.00
Right Turn Flow Rate	0.00	40.32	0.00	0.00	0.00	303.19
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	892.09	40.32	98.25	237.66	271.28	303.19
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.79	0.04	0.09	0.21	0.24	0.27
hd, iteration 1	5.66	4.95	6.59	6.09	6.86	5.66
Difference, iteration 1	2.46	1.75	3.39	2.89	3.66	2.46
hd, iteration 2	6.67	5.96	7.50	7.00	7.48	6.29
Difference, iteration 2	1.02	1.01	0.91	0.91	0.61	0.62
hd, iteration 3	6.89	6.17	7.64	7.14	7.56	6.37
Difference, iteration 3	0.21	0.21	0.14	0.14	0.08	0.08
hd, iteration 4	6.91	6.20	7.66	7.16	7.57	6.39
Difference, iteration 4	0.03	0.03	0.02	0.02	0.01	0.01
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	6.91	6.20	7.66	7.16	7.57	6.39
x final, Degree of Utilization	1.71	0.07	0.21	0.47	0.57	0.54

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	892.09	40.32	98.25	237.66	271.28	303.19
hd, Departure Headway	6.91	6.20	7.66	7.16	7.57	6.39
x, Degree of Utilization	1.71	0.07	0.21	0.47	0.57	0.54
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	4.61	3.90	5.36	4.86	5.27	4.09
Capacity	892.09	580.13	469.65	502.25	474.75	563.75
Delay	346.50	9.36	12.37	16.11	19.87	16.27
LOS	F	A	B	C	C	C
Q95, 95% Queue Length	52.77	0.22	0.78	2.50	3.51	3.18
Approach Delay	331.92		15.02		17.97	
Approach LOS	F		C		C	
Intersection Delay	176.28					
Intersection LOS	F					

Fri Dec 20 16:30:54 2024

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.7.Cumulative Without Project Conditions - A M Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	60.07
Average LOS	E
v/c	0.96
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E			S			W	
Movement		T	R1	L1	T	R1	L1	T	
Base Volume		335	362	1	0	1065	0	1195	
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Peak 15 Volume		84	91	0	0	266	0	299	
Adjusted Volume		335	362	1	0	1065	0	1195	

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		6243	6244	6247	6248	6245	6246
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		335	362	533	533	0	1195
PLT, Proportion Left Turns		0.00	0.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	1.00	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		6243	6244	6247	6248	6245	6246
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
ni, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.850	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		6243	6244	6247	6248	6245	6246
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		334.63	362.02	533.38	533.38	0	1195.29
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900
c, Capacity		1048	890	539	506	0	1133
g/C, Green / Cycle		0.55	0.55	0.31	0.31	0	0.6
X, Volume / Capacity		0.32	0.41	0.99	1.05	0	1.05
d1, Uniform Delay		13.56	14.40	38.98	39.10	0.00	22.40
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay		0.80	1.38	36.31	54.80	0.00	42.44
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.55	0.55	0.31	0.31	0.00	0.60
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		14.36	15.78	75.28	93.90	0.00	64.84
LOS		B	B	E	F	A	F
dA, Approach Delay	0.00	15.10		84.09		64.84	
Approach LOS	A	B		F		E	
dI, Intersection Delay		60.07					
Intersection LOS		E					

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		6243	6244	6247	6248	6245	6246
g/C, Green / Cycle		0.55	0.55	0.31	0.31	0.00	0.60
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		4.17	4.79	14.38	13.32	0.00	24.93
Q2, Second-term Queued		0.23	0.34	5.44	7.71	0.00	13.36
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		4.40	5.13	19.81	21.02	0.00	38.29
fB%, % Factor		1.78	1.72	1.37	1.40	1.00	1.32
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		7.85	8.85	27.11	29.53	0.00	50.70

Signal Timing Information

Approach	N	E		S		W	
Lane Group		6243	6244	6247	6248	6245	6246
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		111.00	111.00	111.00	111.00	111.00	111.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1o, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	71.2	71.2	0	0
Green Time End		66.2	66.2	106	106	0	66.2
G, Actual Green Time		61.2	61.2	34.8	34.8	0	66.2
gi, Effective Green Time		61.2	61.2	34.8	34.8	0	66.2
g/C, Green / Cycle		0.55	0.55	0.31	0.31	0	0.6
(v/s)i, Volume / Saturation Flow Rate		0.18	0.22	0.33	0.33	0.00	0.63
Critical Lane Group					Y		Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		6243	6244	6247	6248	6245	6246
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				111.00			
G(e), Actual GT				34.80			
g(e), Eff. perm. GT				34.80			
go(e), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				1.28			
PLT, Proportion LT in Lane Group				0.00			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				0.04			
Vo, Opposing Flow				0.00			
Vole, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				29.09			
gro, Opposing Queue Ratio				1.00			
go, Opposing Queue Clearing Time				29.09			
gu				5.71			
PL				0.00			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				1.00			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E			S			W	
Movement		T	R1	L1	T	R1	L1	T	
gp, Pedestrian Green			0.00	0.00		0.00	0.00		
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00		
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00		
AdjT, Adjustment Factor			1.00	1.00		1.00	1.00		
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00		
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00		

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.7. Cumulative Without Project Conditions - AM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative No Project**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	3	3	86.7%	1.6	0	5	0.2	3.7	6.1	0.0	15.3	A
	Through	33	32	95.5%	1.4	29	34	0.3	10.4	1.7	8.5	14.7	B
	Right Turn	3	2	66.7%	1.2	0	4	0.6	3.7	3.9	0.0	8.5	A
	Subtotal	39	36	92.6%	0.6	35	37	0.5	10.3	1.8	8.5	14.8	B
SB	Left Turn	634	346	54.6%	12.2	335	374	13.0	40.2	7.9	28.5	57.7	E
	Through	9	8	90.0%	3.1	3	12	0.3	22.0	18.8	0.0	63.4	C
	Right Turn	301	156	51.7%	11.4	135	173	9.6	31.4	4.7	24.3	38.9	D
	Subtotal	944	510	54.0%	14.6	490	542	16.1	37.6	7.1	26.8	53.6	E
EB	Left Turn	185	185	100.2%	8.5	168	198	0.0	12.4	1.4	10.3	14.7	B
	Through	140	144	102.5%	8.1	133	159	0.3	11.1	1.8	8.0	13.8	B
	Right Turn	3	4	116.7%	2.2	0	6	0.3	4.6	6.4	0.0	19.5	A
	Subtotal	328	332	101.3%	2.2	328	335	0.2	11.7	1.3	9.4	13.9	B
WB	Left Turn	38	40	105.8%	6.4	27	50	0.4	10.4	1.0	8.8	12.4	B
	Through	77	81	104.8%	7.4	69	95	0.4	11.9	1.0	10.4	13.4	B
	Right Turn	338	338	99.9%	8.2	328	350	0.0	4.1	3.1	2.0	12.5	A
	Subtotal	453	459	101.2%	4.5	455	470	0.3	6.2	2.3	4.3	12.5	A
Total		1,764	1,336	75.8%	17.1	1,319	1,370	10.9	19.5	3.0	15.3	24.9	C
						Worst Approach Delay		SB	37.6	7.1	26.8	53.6	E

Intersection 3 **Alana Way/Harney Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	143	147	102.9%	12.3	132	172	0.3	27.8	8.4	18.6	48.1	C
	Through	143	141	98.7%	8.2	125	153	0.2	51.5	15.1	32.3	86.0	D
	Right Turn	819	829	101.2%	14.0	804	851	0.4	20.1	2.2	17.4	23.9	C
	Subtotal	1,105	1,118	101.1%	8.8	1,100	1,131	0.4	25.3	4.4	20.9	36.0	C
SB	Left Turn	53	35	66.0%	8.2	27	49	2.7	202.3	35.9	161.2	264.3	F
	Through	280	196	69.9%	15.6	176	212	5.5	283.7	44.1	222.0	357.1	F
	Right Turn	115	82	71.6%	8.8	65	95	3.3	293.2	51.0	218.0	390.8	F
	Subtotal	448	313	69.9%	23.5	279	352	6.9	277.9	45.9	212.0	357.7	F
EB	Left Turn	184	186	101.0%	12.4	166	203	0.1	95.4	22.3	72.6	137.3	F
	Through	186	192	103.0%	10.8	169	209	0.4	92.7	22.6	67.7	129.4	F
	Right Turn	234	208	89.0%	14.1	188	230	1.7	111.4	7.0	103.9	124.5	F
	Subtotal	604	586	97.0%	16.7	557	613	0.8	99.8	15.1	84.0	128.8	F
WB	Left Turn	310	153	49.2%	7.7	141	167	10.4	210.4	27.1	146.7	248.4	F
	Through	820	373	45.5%	16.2	351	401	18.3	248.8	35.6	196.4	310.4	F
	Right Turn	54	24	44.3%	4.6	16	29	4.8	217.7	33.0	175.6	287.6	F
	Subtotal	1,184	549	46.4%	24.3	508	590	21.6	235.7	31.7	181.0	291.8	F
Total		3,341	2,566	76.8%	32.8	2,520	2,615	14.3	118.9	7.8	105.7	133.3	F

D.7. Cumulative Without Project Conditions - AM Peak Hour

Brisbane Baylands
Cumulative No Project AM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way S**
NB	UT																													
	L2																													
	LT	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	80	24	65	80	53	22	41	22	80	40	51	24	22	80
	TH	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	80	24	65	80	53	22	41	22	80	40	51	24	22	80
	RT	250	1	1	1	1	1	1	1	1	1	1	1	0	1	1	80	24	65	80	53	22	41	22	80	40	51	24	22	80
	R2																													
SB	UT																													
	L2																													
	LT	170	34	100	43	53	59	40	34	53	31	45	49	20	31	100	207	545	198	237	276	234	247	242	224	208	262	102	198	545
	TH	170	8	4	5	3	7	6	6	6	6	8	6	2	3	8	112	64	120	74	105	107	97	89	73	146	99	25	64	146
	RT	170	8	4	5	3	7	6	6	6	6	8	6	2	3	8	112	64	120	74	105	107	97	89	73	146	99	25	64	146
	R2																													
EB	UT																													
	L2																													
	LT	475	17	17	23	18	21	18	15	19	18	17	18	2	15	23	139	149	256	150	131	126	146	251	186	123	166	49	123	256
	TH	475	17	17	23	18	21	18	15	19	18	17	18	2	15	23	139	149	256	150	131	126	146	251	186	123	166	49	123	256
	RT	475	17	17	23	18	21	18	15	19	18	17	18	2	15	23	139	149	256	150	131	126	146	251	186	123	166	49	123	256
	R2																													
WB	UT																													
	L2																													
	LT	1,275	5	4	4	2	4	3	3	3	3	4	3	1	2	5	89	86	83	46	44	67	44	66	88	81	69	19	44	89
	TH	1,275	5	4	4	2	4	3	3	3	3	4	3	1	2	5	89	86	83	46	44	67	44	66	88	81	69	19	44	89
	RT	225	1	2	2	4	1	2	2	1	3	8	3	2	1	8	64	132	84	121	45	106	92	64	111	173	99	38	45	173
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	125	87	66	100	86	78	113	88	84	92	83	88	13	66	113	399	308	402	351	403	406	362	271	414	332	365	49	271	414
	TH	3,250	85	64	98	84	75	111	86	81	90	80	86	13	64	111	396	305	399	349	400	404	359	268	412	329	362	49	268	412
	RT	3,250	85	64	98	84	75	111	86	81	90	80	86	13	64	111	396	305	399	349	400	404	359	268	412	329	362	49	268	412
	R2																													
SB	UT																													
	L2																													
	LT	550	1	2	2	0	2	0	1	2	4	2	1	1	0	4	42	22	28	0	23	0	24	23	42	25	23	14	0	42
	TH	550	488	481	489	491	482	491	491	482	475	481	485	6	475	491	541	541	541	541	541	542	539	540	541	540	541	1	539	542
	RT	125	488	481	489	491	482	491	491	482	475	481	485	6	475	491	541	541	541	541	541	542	539	540	541	540	541	1	539	542
	R2																													
EB	UT																													
	L2																													
	LT	400	120	155	157	104	68	157	129	140	194	121	134	35	68	194	575	545	586	455	293	518	412	524	661	509	508	102	293	661
	TH	400	120	155	157	104	68	157	129	140	194	121	134	35	68	194	575	545	586	455	293	518	412	524	661	509	508	102	293	661
	RT	400	59	60	60	49	51	53	44	44	50	49	52	6	44	60	187	241	196	167	169	154	172	139	162	170	176	28	139	241
	R2																													
WB	UT																													
	L2																													
	LT	225	446	460	455	453	446	449	452	451	451	451	452	4	446	460	501	503	526	514	488	526	505	517	526	500	511	13	488	526
	TH	575	446	460	455	453	446	449	452	451	451	451	452	4	446	460	501	503	526	514	488	526	505	517	526	500	511	13	488	526
	RT	575	446	460	455	453	446	449	452	451	451	451	452	4	446	460	501	503	526	514	488	526	505	517	526	500	511	13	488	526
	R2																													

Appendix D.8. Cumulative Without Project Conditions – PM Peak Hour

D.8. Cumulative Without Project Conditions – PM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way	9	13	1	494	6	159	170	166	1	19	85	368
3	Harney Way / Alana Way / Thomas Mellon Dr	240	253	890	30	268	154	153	326	115	630	424	68
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	495	890			395	178	105		88			
6	Sierra Point Pkwy / US-101 northbound ramps			539					483			1,386	1,155

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
D.8. Cumulative Without Project Conditions - PM Peak Hour	Control Type	AWSC
	Method	HCM 7th Edition
	Average Delay	129.72
	Average LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments						
Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	411.43	181.46	498.54	909.34	106.52	90.07
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Flow Rate	411.43	181.46	498.54	909.34	106.52	90.07
Geometry Group	5		5		5	

Saturation Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	411.43	181.46	498.54	909.34	106.52	90.07
Left Turn Flow Rate	0.00	0.00	498.54	0.00	106.52	0.00
Right Turn Flow Rate	0.00	181.46	0.00	0.00	0.00	90.07
PLT, Proportion LT	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion RT	0.00	1.00	0.00	0.00	0.00	1.00
PHV, Proportion HV	0.00	0.00	0.00	0.00	0.00	0.00
hLT,adj, Headway adjustment for left turns	0.50		0.50		0.50	
hRT,adj, Headway adjustment for right turns	-0.70		-0.70		-0.70	
hHV,adj, Headway adjustment for heavy vehicles	1.70		1.70		1.70	
hadj, Headway adjustment	0.00	-0.70	0.50	0.00	0.50	-0.70

Departure Headway						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	411.43	181.46	498.54	909.34	106.52	90.07
hd initial	3.20	3.20	3.20	3.20	3.20	3.20
x initial	0.37	0.16	0.44	0.81	0.09	0.08
hd, iteration 1	5.76	5.05	5.68	5.18	7.48	6.28
Difference, iteration 1	2.56	1.85	2.48	1.98	4.28	3.08
hd, iteration 2	6.57	5.87	6.40	5.90	8.15	6.96
Difference, iteration 2	0.81	0.82	0.72	0.71	0.67	0.69
hd, iteration 3	6.71	6.02	6.58	6.08	8.32	7.13
Difference, iteration 3	0.15	0.15	0.18	0.18	0.16	0.16
hd, iteration 4	6.75	6.05	6.62	6.12	8.35	7.16
Difference, iteration 4	0.04	0.04	0.04	0.04	0.03	0.03
Convergence	Y	Y	Y	Y	Y	Y
hd final, Departure Headway	6.75	6.05	6.62	6.12	8.35	7.16
x final, Degree of Utilization	0.77	0.31	0.92	1.54	0.25	0.18

Capacity and Level of Service						
Approach	N		S		W	
Lanes	Lane 1	Lane 2	Lane 1	Lane 2	Lane 1	Lane 2
Total Lane Flow Rate	411.43	181.46	498.54	909.34	106.52	90.07
hd, Departure Headway	6.75	6.05	6.62	6.12	8.35	7.16
x, Degree of Utilization	0.77	0.31	0.92	1.54	0.25	0.18
m, Move Up Time	2.30	2.30	2.30	2.30	2.30	2.30
ts, Service Time	4.45	3.75	4.32	3.82	6.05	4.86
Capacity	532.76	594.01	543.33	909.34	430.56	502.61
Delay	28.65	11.39	46.14	270.18	13.77	11.42
LOS	D	B	E	F	B	B
Q95, 95% Queue Length	6.95	1.29	11.14	47.29	0.96	0.65
Approach Delay	23.37		190.84		12.69	
Approach LOS	C		F		B	
Intersection Delay	129.72					
Intersection LOS	F					

Fri Dec 20 16:15:18 2024

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.8. Cumulative Without Project Conditions - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	54.78
Average LOS	D
v/c	0.91
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E			S			W	
Movement		T	R1	L1	T	R1	L1	T	
Base Volume		1408	1185	0	0	558	0	501	
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Peak 15 Volume		352	296	0	0	139	0	125	
Adjusted Volume		1408	1185	0	0	558	0	501	

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		3367	3368	3371	3372	3369	3370
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1408	1185	279	279	0	501
PLT, Proportion Left Turns		0.00	0.00	0.00	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	1.00	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		3367	3368	3371	3372	3369	3370
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
ni, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.850	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		3367	3368	3371	3372	3369	3370
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1407.86	1184.7	279	279	0	501.5
s, Saturation Flow Rate		1900	1615	1615	1615	1810	1900
c, Capacity		1347	1145	298	268	0	1427
g/C, Green / Cycle		0.71	0.71	0.17	0.17	0	0.75
X, Volume / Capacity		1.04	1.03	0.94	1.04	0	0.35
d1, Uniform Delay		17.45	17.45	50.45	50.05	0.00	5.06
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		37.11	35.87	38.22	66.30	0.00	0.68
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.71	0.71	0.17	0.17	0.00	0.75
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		54.56	53.32	88.67	116.35	0.00	5.74
LOS		F	F	F	F	A	A
dA, Approach Delay	0.00	54.00		102.51		5.74	
Approach LOS	A	D		F		A	
dI, Intersection Delay				54.78			
Intersection LOS				D			

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		3367	3368	3371	3372	3369	3370
g/C, Green / Cycle		0.71	0.71	0.17	0.17	0.00	0.75
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		28.40	24.14	8.33	7.93	0.00	3.23
Q2, Second-term Queued		13.89	11.41	3.16	4.93	0.00	0.27
X0, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		42.29	35.55	11.49	12.86	0.00	3.50
fB%, % Factor		1.30	1.32	1.48	1.49	1.00	1.80
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		55.14	46.75	17.05	19.13	0.00	6.30

Signal Timing Information

Approach	N	E		S		W	
Lane Group		3367	3368	3371	3372	3369	3370
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		120.00	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
tf, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
tfo, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
tf, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	95.1	95.1	0	0
Green Time End		90.1	90.1	115	115	0	90.1
G, Actual Green Time		85.1	85.1	19.9	19.9	0	90.1
gi, Effective Green Time		85.1	85.1	19.9	19.9	0	90.1
g/C, Green / Cycle		0.71	0.71	0.17	0.17	0	0.75
(v/s)i, Volume / Saturation Flow Rate		0.74	0.73	0.17	0.17	0.00	0.26
Critical Lane Group		Y		Y			

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		3367	3368	3371	3372	3369	3370
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				120.00			
G(e), Actual GT				19.90			
g(e), Eff. perm. GT				19.90			
go(e), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				0.01			
PLT, Proportion LT in Lane Group				0.00			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				0.00			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				17.77			
gro, Opposing Queue Ratio				1.00			
go, Opposing Queue Clearing Time				17.77			
gu				2.13			
PL				0.00			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				1.00			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E			S			W	
Movement		T	R1	L1	T	R1	L1	T	
gp, Pedestrian Green			0.00	0.00		0.00	0.00		
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00		
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00		
AdjT, Adjustment Factor			1.00	1.00		1.00	1.00		
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00		
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00		

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.8. Cumulative Without Project Conditions - PM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative No Project**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **All Way Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	9	7	81.1%	2.8	2	10	0.6	5.7	4.0	0.0	9.6	A
	Through	13	12	92.3%	3.0	7	16	0.3	10.7	3.2	8.3	19.2	B
	Right Turn	1	1	60.0%	0.7	0	2	0.4	0.0	0.0	0.0	0.0	A
	Subtotal	23	20	86.5%	0.6	19	21	0.7	9.9	2.7	7.8	17.2	A
SB	Left Turn	491	400	81.5%	19.9	364	424	4.3	58.6	19.3	26.4	88.9	F
	Through	6	5	78.3%	2.4	1	9	0.6	24.8	21.9	0.0	54.8	C
	Right Turn	158	133	84.2%	8.3	118	144	2.1	38.2	10.9	20.6	51.9	E
	Subtotal	655	538	82.1%	19.5	500	560	4.8	53.5	17.1	24.5	79.6	F
EB	Left Turn	168	167	99.2%	5.8	157	173	0.1	12.7	3.3	9.8	20.0	B
	Through	166	167	100.8%	7.0	157	179	0.1	12.1	2.8	9.6	18.7	B
	Right Turn	1	0	30.0%	0.5	0	1	0.9	2.2	4.7	0.0	12.1	A
	Subtotal	335	334	99.8%	2.7	328	338	0.0	12.4	2.8	10.3	17.8	B
WB	Left Turn	18	18	98.9%	2.7	14	22	0.0	16.5	22.2	7.6	79.4	C
	Through	83	87	104.2%	7.8	76	101	0.4	11.6	1.1	10.5	14.6	B
	Right Turn	365	361	98.9%	8.5	345	374	0.2	6.0	7.6	1.3	24.6	A
	Subtotal	466	465	99.8%	3.0	462	470	0.0	7.3	6.3	3.3	22.9	A
Total		1,479	1,357	91.8%	19.4	1,324	1,384	3.2	27.1	7.9	13.6	37.5	D
						Worst Approach Delay		SB	53.5	17.1	24.5	79.6	F

Intersection 3 **Alana Way/Harney Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	238	137	57.4%	9.7	123	150	7.4	1003.5	144.8	796.2	1261.7	F
	Through	251	150	59.9%	7.4	137	160	7.1	982.3	133.8	818.5	1215.2	F
	Right Turn	886	534	60.3%	30.5	481	586	13.2	918.2	131.4	765.2	1116.0	F
	Subtotal	1,375	821	59.7%	35.2	765	894	16.7	942.9	131.8	786.3	1151.2	F
SB	Left Turn	29	19	64.5%	5.3	12	26	2.1	195.6	35.6	142.8	251.9	F
	Through	266	168	63.2%	8.6	151	180	6.6	302.3	31.3	241.8	344.5	F
	Right Turn	153	97	63.1%	10.5	80	111	5.0	306.2	37.3	220.9	356.9	F
	Subtotal	448	284	63.3%	16.8	267	314	8.6	295.8	33.3	223.2	338.2	F
EB	Left Turn	152	150	98.8%	9.1	139	169	0.2	202.7	112.1	89.5	390.8	F
	Through	323	313	96.9%	14.6	286	335	0.6	196.7	113.1	85.6	404.3	F
	Right Turn	115	114	99.0%	8.2	103	127	0.1	119.4	96.5	41.5	306.2	F
	Subtotal	590	577	97.8%	19.3	539	607	0.5	183.4	108.2	78.5	379.6	F
WB	Left Turn	629	533	84.7%	20.6	491	558	4.0	121.0	11.2	102.6	137.1	F
	Through	421	357	84.7%	13.5	341	381	3.3	134.6	24.8	104.2	184.5	F
	Right Turn	68	62	91.6%	10.0	47	77	0.7	115.5	16.0	96.4	142.4	F
	Subtotal	1,118	952	85.1%	24.9	909	994	5.2	126.2	15.0	102.8	149.7	F
Total		3,531	2,633	74.6%	35.0	2,559	2,676	16.2	423.6	31.6	355.7	462.9	F

D.8. Cumulative Without Project Conditions - PM Peak Hour

Brisbane Baylands
Cumulative No Project PM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**All Way S**
NB	UT																													
	L2																													
	LT	250	0	1	0	1	0	0	0	0	0	0	0	0	0	1	22	40	43	41	28	22	26	23	23	22	29	8	22	43
	TH	250	0	1	0	1	0	0	0	0	0	0	0	0	0	1	22	40	43	41	28	22	26	23	23	22	29	8	22	43
	RT	250	0	1	0	1	0	0	0	0	0	0	0	0	0	1	22	40	43	41	28	22	26	23	23	22	29	8	22	43
	R2																													
SB	UT																													
	L2																													
	LT	75	103	159	113	129	88	85	136	94	99	123	113	24	85	159	479	573	594	506	437	474	931	409	592	595	559	148	409	931
	TH	75	4	3	4	4	3	5	7	6	4	3	4	1	3	7	72	47	63	79	52	101	154	141	70	46	82	38	46	154
	RT	75	4	3	4	4	3	5	7	6	4	3	4	1	3	7	72	47	63	79	52	101	154	141	70	46	82	38	46	154
	R2																													
EB	UT																													
	L2																													
	LT	475	17	18	24	18	23	19	15	18	18	18	19	3	15	24	152	144	253	148	151	126	159	204	195	120	165	41	120	253
	TH	475	17	18	24	18	23	19	15	18	18	18	19	3	15	24	152	144	253	148	151	126	159	204	195	120	165	41	120	253
	RT	475	17	18	24	18	23	19	15	18	18	18	19	3	15	24	152	144	253	148	151	126	159	204	195	120	165	41	120	253
	R2																													
WB	UT																													
	L2																													
	LT	1,275	4	3	3	3	3	3	2	2	4	3	3	1	2	4	81	89	70	47	46	53	75	49	95	81	69	18	46	95
	TH	1,275	4	3	3	3	3	3	2	2	4	3	3	1	2	4	81	89	70	47	46	53	75	49	95	81	69	18	46	95
	RT	225	2	1	0	1	3	0	3	12	0	2	2	3	0	12	67	65	21	87	102	62	82	182	40	108	82	44	21	182
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	125	2,848	2,552	2,971	2,846	2,866	2,693	2,871	2,473	2,858	2,804	2,778	157	2473	2971	3,256	3,207	3,263	3,235	3,212	3,229	3,251	3,207	3,263	3,212	3,234	24	3207	3263
	TH	3,250	2,846	2,549	2,969	2,844	2,864	2,691	2,868	2,470	2,855	2,801	2,776	157	2470	2969	3,253	3,205	3,260	3,233	3,209	3,226	3,249	3,204	3,261	3,209	3,231	24	3204	3261
	RT	3,250	2,846	2,549	2,969	2,844	2,864	2,691	2,868	2,470	2,855	2,801	2,776	157	2470	2969	3,253	3,205	3,260	3,233	3,209	3,226	3,249	3,204	3,261	3,209	3,231	24	3204	3261
	R2																													
SB	UT																													
	L2																													
	LT	550	1	1	1	0	0	0	0	1	0	0	0	0	0	1	21	21	23	20	24	18	20	22	21	22	21	2	18	24
	TH	550	490	486	484	496	493	493	491	492	487	487	490	4	484	496	540	540	540	540	563	542	539	539	540	541	542	7	539	563
	RT	125	490	486	484	496	493	493	491	492	487	487	490	4	484	496	540	540	540	540	563	542	539	539	540	541	542	7	539	563
	R2																													
EB	UT																													
	L2																													
	LT	400	886	629	136	756	449	410	367	904	679	591	581	243	136	904	1,302	953	541	944	954	914	854	1,383	1,208	938	999	243	541	1383
	TH	400	886	629	136	756	449	410	367	904	679	591	581	243	136	904	1,302	953	541	944	954	914	854	1,383	1,208	938	999	243	541	1383
	RT	400	73	29	26	26	21	17	18	20	20	21	27	17	17	73	910	175	155	197	150	109	127	157	194	131	231	240	109	910
	R2																													
WB	UT																													
	L2																													
	LT	225	414	413	398	366	407	407	400	406	421	401	403	15	366	421	488	505	489	493	519	545	517	545	516	545	516	23	488	545
	TH	575	414	413	398	366	407	407	400	406	421	401	403	15	366	421	488	505	489	493	519	545	517	545	516	545	516	23	488	545
	RT	575	414	413	398	366	407	407	400	406	421	401	403	15	366	421	488	505	489	493	519	545	517	545	516	545	516	23	488	545
	R2																													

Appendix D.9. Cumulative Plus Project Conditions – AM Peak Hour

D.9. Cumulative Plus Project Conditions – AM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way	58	964	246	436	872	109	178	193	27	309	100	310
3	Harney Way / Alana Way / Thomas Mellon Dr	218	329	1,148	101	210	233	148	691	610	469	1,044	128
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	351	451	943	165	155		9	282	76	325	197	
6	Sierra Point Pkwy / US-101 northbound ramps	40		539					556			1,705	1,127

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd		
D.9. Cumulative Plus Project Conditions - AM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	219.47
	Average LOS	F
	V/C	1.14
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	159	452	0	779	154	0	89	184	238	1	251	266
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	40	113	0	195	39	0	22	46	59	0	63	66
Adjusted Volume	159	452	0	779	154	0	89	184	238	1	251	266

Volume and Adjustments by Lane Group

Approach	N		E	S		W	
Lane Group	L	C	C	L	C	L	C
ID	57184	57185	57183	57181	57182	57186	57187
Lanes	L	RT	LTR	L	RT	L	RT
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	159	452	933	89	422	1	517
PLT, Proportion Left Turns	1.00	0.00	0.83	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	0.00	0.56	0.00	0.51

Saturation Flow Rate

Approach	N		E	S		W	
Lane Group	57184	57185	57183	57181	57182	57186	57187
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.960	0.952	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	1.000	0.910	1.000	0.917
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate	1810	1900	1824	1810	1728	1810	1742

Capacity, Control Delay, and Level of Service Determination

Approach	N		E	S		W	
Lane Group	57184	57185	57183	57181	57182	57186	57187
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	158.63	451.69	933	89.22	422.14	0.6	516.54
s, Saturation Flow Rate	1810	1900	1824	1810	1728	1810	1742
c, Capacity	116	339	682	116	308	392	377
g/C, Green / Cycle	0.06	0.18	0.37	0.06	0.18	0.22	0.22
X, Volume / Capacity	1.37	1.33	1.37	0.77	1.37	0	1.37
d1, Uniform Delay	56.15	49.30	37.55	55.27	49.30	36.83	47.00
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	210.14	168.76	174.53	37.76	185.72	0.01	182.00
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.06	0.18	0.37	0.06	0.18	0.22	0.22
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	266.29	218.06	212.08	93.03	235.02	36.84	229.00
LOS	F	F	F	F	F	D	F
dA, Approach Delay	230.60		212.08	210.25		228.78	
Approach LOS	F		F	F		F	
dI, Intersection Delay	219.47						
Intersection LOS	F						

Back of Queue

Approach	N		E	S		W	
Arrival Type	3		3	3		3	
Lane Group	57184	57185	57183	57181	57182	57186	57187
g/C, Green / Cycle	0.06	0.18	0.37	0.06	0.18	0.22	0.22
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	3.51	10.11	18.86	2.59	8.94	0.01	11.19
Q2, Second-term Queued	6.78	15.88	33.08	1.22	15.90	0.00	19.08
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	10.29	25.99	51.94	3.81	24.84	0.01	30.27
fB%, % Factor	1.65	1.51	1.48	1.80	1.53	1.80	1.51
Q%, Back of Queue Percentile	95	95	95	95	95	95	95
% Back of Queue	17.01	39.18	76.96	6.86	37.97	0.03	45.73

Signal Timing Information

Approach	N		E	S		W	
Lane Group	57184	57185	57183	57181	57182	57186	57187
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Signal Type	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Go, Minimum Pedestrian Timing	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	112.3	5	62.4	112.3	5	31.4	31.4
Green Time End	120	26.4	107.3	120	26.4	57.4	57.4
G, Actual Green Time	7.7	21.4	44.9	7.7	21.4	26	26
gi, Effective Green Time	7.7	21.4	44.9	7.7	21.4	26	26
g/C, Green / Cycle	0.06	0.18	0.37	0.06	0.18	0.22	0.22
(v/s)i, Volume / Saturation Flow Rate	0.09	0.24	0.51	0.05	0.24	0.00	0.30
Critical Lane Group	Y		Y		Y		Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		E	S		W	
Lane Group	57184	57185	57183	57181	57182	57186	57187
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
gro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
FL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	0.95	1.00	0.96	0.95	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.9. Cumulative Plus Project Conditions - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	127.48
Average LOS	F
V/C	1.17
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		360	356	151	0	1069	0	1496
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		90	89	38	0	267	0	374
Adjusted Volume		360	356	151	0	1069	0	1496

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		57142	57143	57146	57147	57144	57145
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		360	356	610	610	0	1496
PLT, Proportion Left Turns		0.00	0.00	0.25	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.75	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		57142	57143	57146	57147	57144	57145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	0.940	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.883	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1577	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		57142	57143	57146	57147	57144	57145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		360.36	356.41	609.9	609.9	0	1496.18
s, Saturation Flow Rate		1900	1615	1577	1615	1810	1900
c, Capacity		1087	924	514	487	0	1167
g/C, Green / Cycle		0.57	0.57	0.3	0.3	0	0.61
X, Volume / Capacity		0.33	0.39	1.19	1.25	0	1.28
d1, Uniform Delay		13.43	13.97	42.78	41.55	0.00	22.95
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		0.82	1.22	102.63	129.40	0.00	133.53
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.57	0.57	0.30	0.30	0.00	0.61
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		14.25	15.19	145.40	170.95	0.00	156.48
LOS		B	B	F	F	A	F
dA, Approach Delay	0.00	14.72		158.18		156.48	
Approach LOS	A	B		F		F	
dI, Intersection Delay	127.48						
Intersection LOS	F						

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		57142	57143	57146	57147	57144	57145
g/C, Green / Cycle		0.57	0.57	0.30	0.30	0.00	0.61
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		4.70	4.84	15.21	13.93	0.00	27.79
Q2, Second-term Queued		0.25	0.31	14.64	17.51	0.00	43.29
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		4.95	5.15	29.85	31.45	0.00	71.08
fB%, % Factor		1.74	1.72	1.44	1.47	1.00	1.44
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		8.60	8.87	43.06	46.31	0.00	102.53

Signal Timing Information

Approach	N	E		S		W	
Lane Group		57142	57143	57146	57147	57144	57145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		119.00	119.00	119.00	119.00	119.00	119.00
Go, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	78.1	78.1	0	0
Green Time End		73.1	73.1	114	114	0	73.1
G, Actual Green Time		68.1	68.1	35.9	35.9	0	73.1
gi, Effective Green Time		68.1	68.1	35.9	35.9	0	73.1
g/C, Green / Cycle		0.57	0.57	0.3	0.3	0	0.61
(v/s)i, Volume / Saturation Flow Rate		0.19	0.22	0.39	0.38	0.00	0.79
Critical Lane Group				Y			Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		57142	57143	57146	57147	57144	57145
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				119.00			
G(s), Actual GT				35.90			
g(s), Eff. perm. GT				35.90			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				151.00			
PLT, Proportion LT in Lane Group				0.25			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				4.99			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				1.38			
gro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				2.00			
gu				33.90			
PL				0.25			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.62			
fm				0.94			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.94	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
ApbT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.9. Cumulative Plus Project Conditions - AM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative Plus Project with TDM**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	54	25	46.3%	3.7	19	33	4.6	55.2	31.0	15.3	94.5	E
	Through	637	531	83.4%	34.8	484	584	4.4	50.0	17.5	26.9	87.3	D
	Right Turn	193	153	79.2%	12.5	138	175	3.0	20.0	6.1	12.5	27.9	B
	Subtotal	884	709	80.2%	44.2	647	783	6.2	43.8	15.1	23.2	76.1	D
SB	Left Turn	481	228	47.5%	8.7	215	244	13.4	107.3	17.6	77.9	130.9	F
	Through	863	411	47.6%	30.6	368	461	17.9	25.6	2.9	19.5	29.8	C
	Right Turn	185	70	37.7%	7.1	61	81	10.2	19.3	8.4	7.7	35.3	B
	Subtotal	1,529	709	46.4%	35.7	645	763	24.5	53.8	9.9	39.6	68.4	D
EB	Left Turn	137	139	101.1%	5.5	131	146	0.1	68.3	11.1	53.5	88.8	E
	Through	5	4	80.0%	2.2	2	9	0.5	47.8	32.3	10.7	94.2	D
	Right Turn	12	11	87.5%	2.7	6	14	0.4	51.9	30.0	0.0	92.6	D
	Subtotal	154	153	99.4%	3.1	148	158	0.1	67.0	11.3	50.9	88.8	E
WB	Left Turn	471	277	58.9%	18.6	240	301	10.0	252.4	31.6	204.3	301.2	F
	Through	192	108	56.3%	11.6	94	127	6.8	258.4	42.8	210.7	323.4	F
	Right Turn	335	194	57.8%	21.1	172	234	8.7	235.2	45.5	199.0	348.2	F
	Subtotal	998	579	58.0%	44.7	525	662	14.9	247.9	35.1	204.1	314.3	F
Total		3,565	2,150	60.3%	79.6	1,969	2,223	26.5	104.4	15.8	86.0	142.8	F

Intersection 3 **Alana Way/Harney Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	144	144	100.1%	11.5	131	162	0.0	28.9	7.9	19.8	42.3	C
	Through	169	73	43.0%	12.1	59	97	8.8	46.6	7.4	35.5	56.2	D
	Right Turn	908	1,072	118.1%	13.2	1,052	1,089	5.2	26.3	3.9	22.2	32.9	C
	Subtotal	1,221	1,289	105.6%	9.1	1,276	1,301	1.9	27.7	4.0	23.1	34.9	C
SB	Left Turn	100	74	73.6%	12.9	57	100	2.8	145.3	17.4	110.9	164.9	F
	Through	222	166	74.5%	11.5	148	184	4.1	214.7	17.7	186.6	246.7	F
	Right Turn	194	146	75.0%	9.8	127	157	3.7	218.6	13.1	191.4	233.0	F
	Subtotal	516	385	74.5%	26.4	341	422	6.2	202.3	15.4	168.3	220.4	F
EB	Left Turn	219	60	27.3%	9.1	46	75	13.5	263.7	28.2	219.5	306.1	F
	Through	442	404	91.4%	12.1	376	417	1.8	284.2	42.8	218.6	363.5	F
	Right Turn	326	315	96.7%	26.8	258	349	0.6	184.5	31.3	144.4	250.2	F
	Subtotal	987	779	78.9%	34.1	718	831	7.0	242.8	36.8	185.2	304.7	F
WB	Left Turn	265	95	36.0%	15.2	74	124	12.6	114.4	11.7	94.0	126.3	F
	Through	1,251	442	35.3%	35.4	388	499	27.8	161.3	14.0	136.0	178.3	F
	Right Turn	119	42	35.4%	8.3	27	52	8.6	125.9	22.2	99.4	175.1	F
	Subtotal	1,635	579	35.4%	46.5	489	639	31.7	150.4	13.5	130.6	166.9	F
Total		4,359	3,032	69.6%	61.1	2,885	3,116	21.8	129.3	6.3	119.6	141.5	F

D.9. Cumulative Plus Project Conditions - AM Peak Hour

Brisbane Baylands
CPP w/ TDM AM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**Signal**
NB	UT																													
	L2																													
	LT	250	135	154	100	119	122	141	107	89	142	146	125	22	89	154	428	390	331	350	391	389	374	272	360	388	367	43	272	428
	TH	250	135	154	100	119	122	141	107	89	142	146	125	22	89	154	428	390	331	350	391	389	374	272	360	388	367	43	272	428
	RT	250	19	9	9	18	14	25	12	11	8	32	16	8	8	32	172	98	65	114	110	111	66	82	48	166	103	41	48	172
	R2																													
SB	UT																													
	L2																													
	LT	170	244	192	224	243	248	224	224	246	234	217	230	17	192	248	439	446	435	452	480	454	474	436	435	459	451	16	435	480
	TH	365	30	46	39	43	62	48	23	70	16	64	44	18	16	70	430	442	412	447	431	433	419	429	429	408	428	12	408	447
	RT	365	30	46	39	43	62	48	23	70	16	64	44	18	16	70	430	442	412	447	431	433	419	429	429	408	428	12	408	447
	R2																													
EB	UT																													
	L2																													
	LT	475	65	46	40	48	56	44	49	43	63	64	52	9	40	65	229	279	171	156	194	175	196	308	242	235	218	49	156	308
	TH	475	65	46	40	48	56	44	49	43	63	64	52	9	40	65	229	279	171	156	194	175	196	308	242	235	218	49	156	308
	RT	475	65	46	40	48	56	44	49	43	63	64	52	9	40	65	229	279	171	156	194	175	196	308	242	235	218	49	156	308
	R2																													
WB	UT																													
	L2																													
	LT	1,275	1,134	1,139	1,165	1,085	1,123	1,128	1,105	1,124	1,139	1,085	1,123	25	1085	1165	1,279	1,285	1,279	1,318	1,280	1,282	1,283	1,280	1,280	1,281	1,285	12	1279	1318
	TH	1,275	1,134	1,139	1,165	1,085	1,123	1,128	1,105	1,124	1,139	1,085	1,123	25	1085	1165	1,279	1,285	1,279	1,318	1,280	1,282	1,283	1,280	1,280	1,281	1,285	12	1279	1318
	RT	225	17	14	6	107	1	5	4	2	328	5	49	103	1	328	686	519	154	1,321	80	183	138	64	1,351	149	465	501	64	1351
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	3,250	120	112	127	110	96	122	107	109	229	96	123	39	96	229	468	412	458	397	506	458	423	545	865	425	496	137	397	865
	TH	3,250	118	110	125	107	94	121	105	106	227	95	121	39	94	227	465	409	455	394	503	456	420	542	862	423	493	137	394	862
	RT	3,250	118	110	125	107	94	121	105	106	227	95	121	39	94	227	465	409	455	394	503	456	420	542	862	423	493	137	394	862
	R2																													
SB	UT																													
	L2																													
	LT	550	49	49	12	72	397	125	11	6	6	116	84	118	6	397	537	534	518	536	537	536	518	43	43	551	435	207	43	551
	TH	550	473	462	464	471	465	466	468	468	475	473	469	4	462	475	540	541	545	541	569	541	540	541	541	555	545	9	540	569
	RT	125	473	462	464	471	465	466	468	468	475	473	469	4	462	475	540	541	545	541	569	541	540	541	541	555	545	9	540	569
	R2																													
EB	UT																													
	L2																													
	LT	400	877	808	774	606	1,023	764	759	820	913	708	805	115	606	1023	1,090	1,079	1,040	1,072	1,223	1,073	1,055	1,047	1,220	1,078	1,098	67	1040	1223
	TH	400	877	808	774	606	1,023	764	759	820	913	708	805	115	606	1023	1,090	1,079	1,040	1,072	1,223	1,073	1,055	1,047	1,220	1,078	1,098	67	1040	1223
	RT	400	806	621	570	552	1,012	449	590	488	840	459	639	187	449	1012	1,078	1,067	1,028	1,060	1,211	1,061	1,018	1,035	1,208	1,067	1,083	69	1018	1211
	R2																													
WB	UT																													
	L2																													
	LT	630	455	454	453	450	455	460	442	453	450	459	453	5	442	460	512	541	511	545	545	526	496	511	545	533	527	18	496	545
	TH	630	455	454	453	450	455	460	442	453	450	459	453	5	442	460	512	541	511	545	545	526	496	511	545	533	527	18	496	545
	RT	470	455	454	453	450	455	460	442	453	450	459	453	5	442	460	512	541	511	545	545	526	496	511	545	533	527	18	496	545
	R2																													

Appendix D.10. Cumulative Plus Project Conditions – PM Peak Hour

D.10. Cumulative Plus Project Conditions – PM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way	61	661	193	496	887	185	150	6	11	534	223	336
3	Harney Way / Alana Way / Thomas Mellon Dr	147	145	1,010	101	225	201	186	478	359	266	1,285	120
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	85	177	216	156	448		1	248	263	754	151	
6	Sierra Point Pkwy / US-101 northbound ramps	145		1,042					1,465			333	322

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd

D.10. Cumulative Plus Project Conditions - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	386.96
Average LOS	F
V/C	1.53
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	172	158	0	341	203	0	354	456	965	9	291	78
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	43	39	0	85	51	0	88	114	241	2	73	20
Adjusted Volume	172	158	0	341	203	0	354	456	965	9	291	78

Volume and Adjustments by Lane Group

Approach	N		E	S		W	
Lane Group	L	C	C	L	C	L	C
ID	45010	45011	45009	45007	45008	45012	45013
Lanes	L	RT	LTR	L	RT	L	RT
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	172	158	544	354	1421	9	369
PLT, Proportion Left Turns	1.00	0.00	0.63	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	0.00	0.68	0.00	0.21

Saturation Flow Rate

Approach	N		E	S		W	
Lane Group	45010	45011	45009	45007	45008	45012	45013
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.970	0.952	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	1.000	0.893	1.000	0.964
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate	1810	1900	1842	1810	1697	1810	1831

Capacity, Control Delay, and Level of Service Determination

Approach	N		E	S		W	
Lane Group	45010	45011	45009	45007	45008	45012	45013
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	171.6	157.56	543.76	353.92	1421.14	9.31	369.08
s, Saturation Flow Rate	1810	1900	1842	1810	1697	1810	1831
c, Capacity	193	866	296	193	773	199	201
g/C, Green / Cycle	0.11	0.46	0.16	0.11	0.46	0.11	0.11
X, Volume / Capacity	0.89	0.18	1.84	1.83	1.84	0.05	1.83
d1, Uniform Delay	52.90	19.37	50.35	53.60	32.65	47.77	53.40
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	41.02	0.46	388.72	394.64	381.93	0.44	393.17
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.11	0.46	0.16	0.11	0.46	0.11	0.11
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	93.92	19.84	439.07	448.24	414.58	48.22	446.57
LOS	F	B	F	F	F	D	F
dA, Approach Delay	58.46		439.07	421.29		436.77	
Approach LOS	E		F	F		F	
dI, Intersection Delay	386.96						
Intersection LOS	F						

Back of Queue

Approach	N		E	S		W	
Arrival Type	3		3	3		3	
Lane Group	45010	45011	45009	45007	45008	45012	45013
g/C, Green / Cycle	0.11	0.46	0.16	0.11	0.46	0.11	0.11
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	5.10	2.62	8.62	5.66	20.71	0.25	6.06
Q2, Second-term Queued	2.20	0.11	31.99	21.16	82.05	0.02	22.00
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	7.30	2.73	40.61	26.82	102.76	0.28	28.06
fB%, % Factor	1.61	1.80	1.56	1.58	1.59	1.80	1.57
Q%, Back of Queue Percentile	95	95	95	95	95	95	95
% Back of Queue	11.73	4.92	63.25	42.34	162.93	0.50	44.17

Signal Timing Information

Approach	N		E	S		W	
Lane Group	45010	45011	45009	45007	45008	45012	45013
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Signal Type	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Go, Minimum Pedestrian Timing	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	107.2	5	82.9	107.2	5	64.7	64.7
Green Time End	120	59.7	102.2	120	59.7	77.9	77.9
G, Actual Green Time	12.8	54.7	19.3	12.8	54.7	13.2	13.2
gi, Effective Green Time	12.8	54.7	19.3	12.8	54.7	13.2	13.2
g/C, Green / Cycle	0.11	0.46	0.16	0.11	0.46	0.11	0.11
(v/s)i, Volume / Saturation Flow Rate	0.09	0.08	0.30	0.20	0.84	0.01	0.20
Critical Lane Group			Y	Y	Y		Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		E	S		W	
Lane Group	45010	45011	45009	45007	45008	45012	45013
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
gro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
FL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	0.95	1.00	0.97	0.95	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Tue Nov 19 12:22:39 2024

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy		
D.10. Cumulative Plus Project Conditions - PM Peak Hour	Control Type	Signalized
	Method	HCM 7th Edition
	Average Delay	94.77
	Average LOS	F
	V/C	1.1
	Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		1733	1157	42	0	558	0	576
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		433	289	11	0	139	0	144
Adjusted Volume		1733	1157	42	0	558	0	576

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		44968	44969	44972	44973	44970	44971
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1733	1157	302	298	0	576
PLT, Proportion Left Turns		0.00	0.00	0.14	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.86	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		44968	44969	44972	44973	44970	44971
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	0.971	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.868	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1602	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		44968	44969	44972	44973	44970	44971
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1732.73	1157.05	302.33	297.99	0	576.43
s, Saturation Flow Rate		1900	1615	1602	1615	1810	1900
c, Capacity		1379	1172	273	241	0	1458
g/C, Green / Cycle		0.73	0.73	0.15	0.15	0	0.77
X, Volume / Capacity		1.26	0.99	1.11	1.24	0	0.4
d1, Uniform Delay		16.45	15.91	52.12	51.05	0.00	4.66
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		121.47	23.37	86.09	137.00	0.00	0.80
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.73	0.73	0.15	0.15	0.00	0.77
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		137.92	39.27	138.20	188.05	0.00	5.46
LOS		F	D	F	F	A	A
dA, Approach Delay	0.00	98.42		162.95		5.46	
Approach LOS	A	F		F		A	
dI, Intersection Delay	94.77						
Intersection LOS	F						

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		44968	44969	44972	44973	44970	44971
g/C, Green / Cycle		0.73	0.73	0.15	0.15	0.00	0.77
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		28.04	22.74	8.26	7.15	0.00	3.46
Q2, Second-term Queued		46.53	7.61	6.53	9.17	0.00	0.33
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		74.57	30.35	14.79	16.32	0.00	3.79
fB%, % Factor		1.43	1.30	1.50	1.54	1.00	1.80
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		106.92	39.39	22.12	25.16	0.00	6.82

Signal Timing Information

Approach	N	E		S		W	
Lane Group		44968	44969	44972	44973	44970	44971
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		120.00	120.00	120.00	120.00	120.00	120.00
Go, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	97.1	97.1	0	0
Green Time End		92.1	92.1	115	115	0	92.1
G, Actual Green Time		87.1	87.1	17.9	17.9	0	92.1
gi, Effective Green Time		87.1	87.1	17.9	17.9	0	92.1
g/C, Green / Cycle		0.73	0.73	0.15	0.15	0	0.77
(v/s)i, Volume / Saturation Flow Rate		0.91	0.72	0.19	0.18	0.00	0.30
Critical Lane Group		Y		Y			

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		44968	44969	44972	44973	44970	44971
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				120.00			
G(s), Actual GT				17.90			
g(s), Eff. perm. GT				17.90			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				42.33			
PLT, Proportion LT in Lane Group				0.14			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				1.41			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				4.15			
gro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				4.15			
gu				13.75			
PL				0.14			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				0.97			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.97	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
ApbT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.10. Cumulative Plus Project Conditions - PM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative Plus Project with TDM**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 2 **Beatty Ave/Alana Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	64	19	30.2%	5.1	15	32	6.9	109.9	39.0	46.0	158.5	F
	Through	879	426	48.5%	38.5	363	484	17.7	116.9	24.7	78.9	147.9	F
	Right Turn	236	107	45.4%	19.4	77	128	9.8	33.0	12.8	14.0	49.9	C
	Subtotal	1,179	553	46.9%	57.4	455	628	21.3	104.5	24.0	70.1	137.5	F
SB	Left Turn	424	224	52.8%	6.9	215	233	11.1	123.3	12.4	100.1	139.5	F
	Through	841	427	50.7%	34.8	369	491	16.5	25.0	2.1	22.4	29.2	C
	Right Turn	106	47	44.2%	6.2	37	58	6.8	27.6	9.0	14.2	40.7	C
	Subtotal	1,371	697	50.9%	39.8	621	755	21.0	57.4	5.5	47.3	64.2	E
EB	Left Turn	169	167	98.6%	10.6	152	182	0.2	113.1	27.5	72.9	168.3	F
	Through	165	169	102.5%	10.1	151	184	0.3	96.7	30.8	59.1	161.4	F
	Right Turn	27	25	91.9%	4.2	19	34	0.4	96.1	28.7	43.7	134.5	F
	Subtotal	361	361	99.9%	6.4	349	368	0.0	104.7	28.2	65.3	162.0	F
WB	Left Turn	269	150	55.6%	16.6	116	173	8.3	511.5	179.0	295.5	847.1	F
	Through	94	56	59.6%	11.7	40	68	4.4	489.8	174.8	293.0	836.7	F
	Right Turn	295	164	55.7%	23.4	123	191	8.6	559.1	192.1	302.2	912.5	F
	Subtotal	658	370	56.2%	45.2	310	426	12.7	531.1	182.4	297.8	877.9	F
Total		3,569	1,980	55.5%	111.7	1,828	2,164	30.2	160.3	25.7	120.7	195.7	F

Intersection 3 **Alana Way/Harney Way** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	208	168	80.9%	10.3	152	190	2.9	490.9	70.0	393.2	575.7	F
	Through	376	126	33.5%	10.3	112	143	15.8	507.9	63.7	394.8	587.1	F
	Right Turn	989	1,025	103.7%	57.1	927	1,087	1.1	473.4	60.6	384.5	554.1	F
	Subtotal	1,573	1,320	83.9%	59.5	1,229	1,396	6.7	479.2	62.0	386.3	559.9	F
SB	Left Turn	97	58	60.2%	11.2	40	75	4.4	175.8	44.2	126.5	285.3	F
	Through	207	138	66.4%	22.5	114	176	5.3	240.4	35.6	196.1	293.3	F
	Right Turn	230	151	65.4%	10.6	133	167	5.8	249.3	51.4	182.4	358.1	F
	Subtotal	534	346	64.9%	34.8	287	412	8.9	234.9	42.6	180.9	321.2	F
EB	Left Turn	176	38	21.8%	7.5	22	49	13.3	358.0	58.2	270.7	438.6	F
	Through	629	370	58.8%	18.3	331	402	11.6	338.7	44.3	259.6	391.3	F
	Right Turn	532	335	63.0%	18.2	308	362	9.5	181.0	22.5	137.5	220.9	F
	Subtotal	1,337	743	55.6%	33.1	682	779	18.4	269.0	34.8	211.4	318.7	F
WB	Left Turn	477	190	39.8%	20.2	163	228	15.7	106.6	14.7	96.1	138.5	F
	Through	1,012	395	39.0%	37.1	346	457	23.3	176.4	37.8	128.0	236.0	F
	Right Turn	120	47	38.9%	8.8	26	56	8.0	151.5	54.3	100.9	270.6	F
	Subtotal	1,609	631	39.2%	56.0	535	699	29.2	153.3	30.4	116.5	204.0	F
Total		5,053	3,041	60.2%	103.0	2,857	3,189	31.6	329.5	22.4	298.6	370.0	F

D.10. Cumulative Plus Project Conditions - PM Peak Hour

Brisbane Baylands
CPP w/ TDM PM

Queue Report

		Storage	Average Queue Length (ft) by Run										Average Queue Length (ft)				Maximum Queue Length (ft) by Run										Maximum Queue Length (ft)			
		(ft)	1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	95th %ile	St Dev	Min	Max
Intersection		**2**	**Beatty Ave/Alana Way**																											**Signal**
NB	UT																													
	L2																													
	LT	250	255	261	272	283	276	278	254	278	255	274	269	11	254	283	418	389	391	386	394	413	395	389	418	391	398	13	386	418
	TH	250	255	261	272	283	276	278	254	278	255	274	269	11	254	283	418	389	391	386	394	413	395	389	418	391	398	13	386	418
	RT	250	25	16	7	11	9	12	4	13	13	11	12	6	4	25	283	107	89	136	87	113	43	89	109	107	116	63	43	283
	R2																													
SB	UT																													
	L2																													
	LT	170	263	299	255	276	286	283	225	244	251	243	263	23	225	299	435	471	437	474	449	467	441	436	438	435	448	16	435	474
	TH	365	83	23	25	33	25	6	49	40	58	49	39	22	6	83	416	429	399	445	390	64	436	433	430	429	387	115	64	445
	RT	365	83	23	25	33	25	6	49	40	58	49	39	22	6	83	416	429	399	445	390	64	436	433	430	429	387	115	64	445
	R2																													
EB	UT																													
	L2																													
	LT	475	166	310	191	268	243	177	244	201	216	205	222	44	166	310	474	500	473	473	472	473	471	471	471	471	475	9	471	500
	TH	475	166	310	191	268	243	177	244	201	216	205	222	44	166	310	474	500	473	473	472	473	471	471	471	471	475	9	471	500
	RT	475	166	310	191	268	243	177	244	201	216	205	222	44	166	310	474	500	473	473	472	473	471	471	471	471	475	9	471	500
	R2																													
WB	UT																													
	L2																													
	LT	1,275	1,192	1,195	1,180	1,185	1,149	1,170	1,096	1,215	1,181	1,195	1,176	33	1096	1215	1,279	1,337	1,318	1,294	1,285	1,298	1,288	1,337	1,307	1,281	1,302	22	1279	1337
	TH	1,275	1,192	1,195	1,180	1,185	1,149	1,170	1,096	1,215	1,181	1,195	1,176	33	1096	1215	1,279	1,337	1,318	1,294	1,285	1,298	1,288	1,337	1,307	1,281	1,302	22	1279	1337
	RT	225	726	1,087	983	876	643	1,241	989	1,286	966	920	972	202	643	1286	1,351	1,408	1,389	1,353	1,352	1,369	1,359	1,408	1,363	1,353	1,370	23	1351	1408
	R2																													
Intersection		**3**	**Alana Way/Harney Way**																											**Signal**
NB	UT																													
	L2																													
	LT	3,250	2,944	2,875	2,756	2,770	2,294	3,018	2,909	3,017	2,992	2,805	2,838	214	2294	3018	3,263	3,241	3,224	3,207	3,236	3,234	3,235	3,251	3,234	3,212	3,234	17	3207	3263
	TH	3,250	2,942	2,872	2,753	2,767	2,292	3,016	2,906	3,014	2,989	2,802	2,835	214	2292	3016	3,261	3,239	3,221	3,205	3,233	3,231	3,233	3,248	3,232	3,209	3,231	17	3205	3261
	RT	3,250	2,942	2,872	2,753	2,767	2,292	3,016	2,906	3,014	2,989	2,802	2,835	214	2292	3016	3,261	3,239	3,221	3,205	3,233	3,231	3,233	3,248	3,232	3,209	3,231	17	3205	3261
	R2																													
SB	UT																													
	L2																													
	LT	550	95	2	4	5	2	484	66	4	32	80	77	147	2	484	575	23	49	43	45	538	536	43	539	539	293	266	23	575
	TH	550	489	488	482	480	479	488	462	475	470	479	479	9	462	489	578	578	540	545	551	541	541	540	542	555	551	15	540	578
	RT	125	489	488	482	480	479	488	462	475	470	479	479	9	462	489	578	578	540	545	551	541	541	540	542	555	551	15	540	578
	R2																													
EB	UT																													
	L2																													
	LT	400	931	939	932	948	910	929	935	946	925	930	932	11	910	948	1,072	1,073	1,112	1,072	1,080	1,073	1,079	1,078	1,079	1,076	1,079	12	1072	1112
	TH	400	931	939	932	948	910	929	935	946	925	930	932	11	910	948	1,072	1,073	1,112	1,072	1,080	1,073	1,079	1,078	1,079	1,076	1,079	12	1072	1112
	RT	400	918	928	920	937	898	917	923	810	913	918	908	36	810	937	1,061	1,061	1,100	1,061	1,068	1,061	1,067	1,066	1,067	1,064	1,068	12	1061	1100
	R2																													
WB	UT																													
	L2																													
	LT	630	447	458	436	446	447	448	433	438	444	437	443	8	433	458	511	497	511	545	515	527	511	511	511	509	515	13	497	545
	TH	630	447	458	436	446	447	448	433	438	444	437	443	8	433	458	511	497	511	545	515	527	511	511	511	509	515	13	497	545
	RT	470	447	458	436	446	447	448	433	438	444	437	443	8	433	458	511	497	511	545	515	527	511	511	511	509	515	13	497	545
	R2																													

Appendix D.11. Cumulative Plus Project with Candlestick Interchange – AM Peak Hour

D.11. Cumulative Plus Project with Candlestick Interchange – AM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way*		1,239	237	682	1,347					58		196
3	Harney Way / Alana Way / Thomas Mellon Dr		527	1,389	144	471					1,818		75
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	101	175	216	187	471		16	225	255	777	141	1
6	Sierra Point Pkwy / US-101 northbound ramps	133		1,041					1,503			359	297

*Geneva Avenue/Alana Way/Sierra Point Parkway

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd

D.11. Cumulative Plus Project with Candlestick Interchange - AM
Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	224.25
Average LOS	F
V/C	1.15
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	191	475	0	802	144	1	106	182	238	16	229	257
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	48	119	0	200	36	0	27	45	59	4	57	64
Adjusted Volume	191	475	0	802	144	1	106	182	238	16	229	257

Volume and Adjustments by Lane Group

Approach	N		E	S		W	
Lane Group	L	C	C	L	C	L	C
ID	17532	17533	17531	17529	17530	17534	17535
Lanes	L	RT	LTR	L	RT	L	RT
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	191	475	947	106	419	16	486
PLT, Proportion Left Turns	1.00	0.00	0.85	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	0.00	0.57	0.00	0.53

Saturation Flow Rate

Approach	N		E	S		W	
Lane Group	17532	17533	17531	17529	17530	17534	17535
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.959	0.952	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	1.000	0.909	1.000	0.915
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate	1810	1900	1823	1810	1727	1810	1738

Capacity, Control Delay, and Level of Service Determination

Approach	N		E	S		W	
Lane Group	17532	17533	17531	17529	17530	17534	17535
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	190.5	474.73	946.64	106.05	419.33	16.04	485.85
s, Saturation Flow Rate	1810	1900	1823	1810	1727	1810	1738
c, Capacity	137	344	683	137	312	365	350
g/C, Green / Cycle	0.08	0.18	0.38	0.08	0.18	0.2	0.2
X, Volume / Capacity	1.39	1.38	1.39	0.77	1.34	0.04	1.39
d1, Uniform Delay	55.45	49.15	37.50	54.44	49.15	38.58	47.90
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	213.16	189.01	182.29	33.59	174.13	0.23	190.73
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.08	0.18	0.38	0.08	0.18	0.20	0.20
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	268.61	238.16	219.79	88.03	223.28	38.81	238.63
LOS	F	F	F	F	F	D	F
dA, Approach Delay	246.88		219.79	195.98		232.24	
Approach LOS	F		F	F		F	
dI, Intersection Delay	224.25						
Intersection LOS	F						

Back of Queue

Approach	N		E	S		W	
Arrival Type	3		3	3		3	
Lane Group	17532	17533	17531	17529	17530	17534	17535
g/C, Green / Cycle	0.08	0.18	0.38	0.08	0.18	0.20	0.20
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	4.15	10.24	18.88	3.07	9.05	0.38	10.41
Q2, Second-term Queued	8.13	18.04	34.61	1.28	15.11	0.02	18.56
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	12.27	28.28	53.49	4.35	24.16	0.41	28.98
fB%, % Factor	1.62	1.51	1.49	1.79	1.52	1.80	1.52
Q%, Back of Queue Percentile	95	95	95	95	95	95	95
% Back of Queue	19.93	42.81	79.53	7.77	36.82	0.73	44.02

Signal Timing Information

Approach	N		E	S		W	
Lane Group	17532	17533	17531	17529	17530	17534	17535
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Signal Type	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	110.9	5	60.9	110.9	5	31.7	31.7
Green Time End	120	26.7	105.9	120	26.7	55.9	55.9
G, Actual Green Time	9.1	21.7	45	9.1	21.7	24.2	24.2
gi, Effective Green Time	9.1	21.7	45	9.1	21.7	24.2	24.2
g/C, Green / Cycle	0.08	0.18	0.38	0.08	0.18	0.2	0.2
(v/s)i, Volume / Saturation Flow Rate	0.11	0.25	0.52	0.06	0.24	0.01	0.28
Critical Lane Group	Y	Y	Y				Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		E	S		W	
Lane Group	17532	17533	17531	17529	17530	17534	17535
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
gro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	0.95	1.00	0.96	0.95	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
AobT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Tue Nov 19 11:13:37 2024

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.11. Cumulative Plus Project with Candlestick Interchange - AM

Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	133.09
Average LOS	F
V/C	1.19
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		387	330	138	0	1068	0	1534
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		97	83	35	0	267	0	383
Adjusted Volume		387	330	138	0	1068	0	1534

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		17490	17491	17494	17495	17492	17493
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		387	330	603	603	0	1534
PLT, Proportion Left Turns		0.00	0.00	0.23	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.77	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		17490	17491	17494	17495	17492	17493
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	0.944	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.880	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1579	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		17490	17491	17494	17495	17492	17493
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		387.01	330.31	603.15	603.15	0	1533.83
s, Saturation Flow Rate		1900	1615	1579	1615	1810	1900
c, Capacity		1102	936	501	475	0	1182
g/C, Green / Cycle		0.58	0.58	0.29	0.29	0	0.62
X, Volume / Capacity		0.35	0.35	1.2	1.27	0	1.3
d1, Uniform Delay		13.19	13.21	43.23	42.00	0.00	22.50
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		0.88	1.04	109.07	137.19	0.00	140.52
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.58	0.58	0.29	0.29	0.00	0.62
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		14.07	14.25	152.30	179.19	0.00	163.02
LOS		B	B	F	F	A	F
dA, Approach Delay	0.00	14.15		165.74		163.02	
Approach LOS	A	B		F		F	
dI, Intersection Delay	133.09						
Intersection LOS	F						

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		17490	17491	17494	17495	17492	17493
g/C, Green / Cycle		0.58	0.58	0.29	0.29	0.00	0.62
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		5.02	4.29	14.86	13.61	0.00	27.92
Q2, Second-term Queued		0.27	0.27	15.19	18.10	0.00	46.12
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		5.29	4.56	30.05	31.71	0.00	74.04
fB%, % Factor		1.71	1.77	1.45	1.48	1.00	1.45
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		9.06	8.06	43.57	46.91	0.00	107.36

Signal Timing Information

Approach	N	E		S		W	
Lane Group		17490	17491	17494	17495	17492	17493
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		119.00	119.00	119.00	119.00	119.00	119.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	79	79	0	0
Green Time End		74	74	114	114	0	74
G, Actual Green Time		69	69	35	35	0	74
gi, Effective Green Time		69	69	35	35	0	74
g/C, Green / Cycle		0.58	0.58	0.29	0.29	0	0.62
(v/s)i, Volume / Saturation Flow Rate		0.20	0.20	0.38	0.37	0.00	0.81
Critical Lane Group				Y			Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		17490	17491	17494	17495	17492	17493
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				119.00			
G(s), Actual GT				35.00			
g(s), Eff. perm. GT				35.00			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				138.37			
PLT, Proportion LT in Lane Group				0.23			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				4.57			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				1.73			
gro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				2.00			
gu				33.00			
PL				0.23			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.27			
fm				0.94			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.94	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
AobT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Tue Nov 19 11:13:36 2024

D.11. Cumulative Plus Project with Candlestick Interchange Conditions - AM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative Plus Project w/ TDM w/ Interchange**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 2 **SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
SB	Left Turn	390	306	78.6%	17.7	286	350	4.5	295.5	37.0	235.2	350.2	F
	Through	-	-	-	-	-	-	-	-	-	-	-	-
	Right Turn	700	577	82.4%	24.6	531	607	4.9	274.8	34.6	227.8	333.4	F
	Subtotal	1,090	883	81.0%	33.6	839	928	6.6	281.7	35.1	230.1	338.5	F
EB	Through	1,213	1,001	82.5%	38.0	955	1,081	6.4	46.2	7.1	33.9	53.6	D
	Right Turn	180	138	76.6%	12.2	117	154	3.3	49.9	9.4	32.6	63.3	D
	Subtotal	1,393	1,139	81.8%	42.1	1,079	1,223	7.1	46.6	6.8	33.7	54.9	D
WB	Left Turn	581	525	90.4%	24.6	500	577	2.4	57.0	10.3	46.9	76.3	E
	Through	1,211	1,088	89.8%	46.3	1,002	1,148	3.6	45.9	19.2	26.2	91.7	D
	Subtotal	1,792	1,613	90.0%	44.6	1,556	1,691	4.3	49.1	11.2	36.5	74.4	D
Total		4,275	3,635	85.0%	43.2	3,574	3,699	10.2	103.5	9.4	91.8	122.2	F

Intersection 3 **NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	16	16	100.0%	2.5	13	19	0.0	65.0	23.8	45.5	122.6	E
	Through	-	-	-	-	-	-	-	-	-	-	-	-
	Right Turn	695	701	100.8%	12.7	677	724	0.2	49.8	6.6	34.8	57.5	D
	Subtotal	711	717	100.8%	11.5	696	737	0.2	50.3	6.5	35.7	57.4	D
EB	Left Turn	422	428	101.4%	17.1	404	452	0.3	97.7	16.8	63.3	118.0	F
	Through	1,182	880	74.4%	36.9	831	940	9.4	10.4	2.7	6.8	16.4	B
	Subtotal	1,604	1,307	81.5%	47.1	1,253	1,386	7.8	38.1	4.9	28.8	45.5	D
WB	Through	1,776	1,598	89.9%	41.7	1,546	1,674	4.3	79.3	17.9	57.7	106.8	E
	Right Turn	454	391	86.1%	26.4	355	442	3.1	40.0	7.2	30.4	50.5	D
	Subtotal	2,230	1,988	89.2%	58.3	1,911	2,080	5.3	72.6	15.7	52.2	96.4	E
Total		4,545	4,012	88.3%	50.1	3,933	4,073	8.1	57.1	7.6	48.2	68.8	E

D.11. Cumulative Plus Project with Candlestick Interchange Conditions - AM Peak Hour

Brisbane Baylands
CPP w/ TDM w/ Interchange AM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**SB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
SB	UT																													
	L2																													
	LT	1,025	956	965	942	979	959	867	939	626	956	699	889	124	626	979	1,046	1,066	1,057	1,075	1,071	1,047	1,024	1,075	1,075	1,040	1,058	18	1024	1075
	TH																													
	RT	1,025	961	660	473	748	732	489	850	332	686	522	645	191	332	961	1,055	1,066	1,057	1,075	1,071	1,047	1,033	1,075	1,075	1,049	1,060	15	1033	1075
	R2																													
EB	UT																													
	L2																													
	LT																													
	TH	650	102	178	199	147	160	178	142	182	134	138	156	29	102	199	296	464	462	462	462	489	462	468	353	463	438	62	296	489
	RT	200	23	19	45	31	45	29	34	36	34	51	35	10	19	51	110	86	451	112	153	109	107	141	150	281	170	113	86	451
	R2																													
WB	UT																													
	L2																													
	LT	250	83	153	131	124	64	80	57	109	121	123	104	32	57	153	470	472	474	502	471	471	474	470	468	488	476	11	468	502
	TH	250	122	181	125	127	81	223	98	137	191	140	142	44	81	223	419	472	421	475	374	472	475	471	469	473	452	35	374	475
	RT																													
	R2																													
Intersection		**3**	**NB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT	2,500	114	139	121	129	134	121	135	103	120	131	125	11	103	139	428	413	450	472	414	383	516	356	419	505	436	51	356	516
	TH																													
	RT	2,500	114	139	121	129	134	121	135	103	120	131	125	11	103	139	428	413	450	472	414	383	516	356	419	505	436	51	356	516
	R2																													
SB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
EB	UT																													
	L2																													
	LT	245	125	164	167	155	159	138	149	144	138	153	149	13	125	167	384	393	389	341	256	277	422	370	383	393	361	54	256	422
	TH	245	20	28	23	20	17	21	22	28	21	24	22	3	17	28	329	266	176	178	198	232	275	220	311	303	249	56	176	329
	RT																													
	R2																													
WB	UT																													
	L2																													
	LT																													
	TH	0	238	332	246	279	231	301	258	275	382	280	282	46	231	382	669	723	711	672	673	670	670	683	684	671	683	19	669	723
	RT	0	29	20	39	42	34	36	35	33	27	35	33	6	20	42	180	154	247	224	200	164	173	142	115	181	178	39	115	247
	R2																													

Appendix D.12. Cumulative Plus Project with Candlestick Interchange – PM Peak Hour

D.12. Cumulative Plus Project with Candlestick Interchange – PM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way*		1,688	103	257	1,274					345		413
3	Harney Way / Alana Way / Thomas Mellon Dr		634	1,704	114	477					1,672		100
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	344	504	953	161	131		20	398	89	327	195	
6	Sierra Point Pkwy / US-101 northbound ramps	34		539					547			1,767	1,055

*Geneva Avenue/Alana Way/Sierra Point Parkway

Intersection No. 5. Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007: US 101 SB Ramps & Lagoon Rd

D.12. Cumulative Plus Project with Candlestick Interchange - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	440.58
Average LOS	F
V/C	1.63
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	166	134	0	343	201	0	348	508	974	20	409	91
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	41	33	0	86	50	0	87	127	243	5	102	23
Adjusted Volume	166	134	0	343	201	0	348	508	974	20	409	91

Volume and Adjustments by Lane Group

Approach	N		E	S		W	
Lane Group	L	C	C	L	C	L	C
ID	9065	9066	9064	9062	9063	9067	9068
Lanes	L	RT	LTR	L	RT	L	RT
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	166	134	544	348	1482	20	500
PLT, Proportion Left Turns	1.00	0.00	0.63	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	0.00	0.66	0.00	0.18

Saturation Flow Rate

Approach	N		E	S		W	
Lane Group	9065	9066	9064	9062	9063	9067	9068
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	0.969	0.952	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	1.000	0.896	1.000	0.969
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate	1810	1900	1842	1810	1703	1810	1841

Capacity, Control Delay, and Level of Service Determination

Approach	N		E	S		W	
Lane Group	9065	9066	9064	9062	9063	9067	9068
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
V, Volume	165.65	133.75	543.9	348.24	1482.11	20.41	500.2
s, Saturation Flow Rate	1810	1900	1842	1810	1703	1810	1841
c, Capacity	178	845	278	178	758	252	256
g/C, Green / Cycle	0.1	0.45	0.15	0.1	0.45	0.14	0.14
X, Volume / Capacity	0.93	0.16	1.96	1.96	1.96	0.08	1.95
d1, Uniform Delay	53.70	19.88	50.95	54.10	33.30	44.97	51.65
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	51.39	0.40	443.83	450.48	435.08	0.63	442.64
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.10	0.45	0.15	0.10	0.45	0.14	0.14
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	105.09	20.28	494.78	504.58	468.38	45.60	494.29
LOS	F	C	F	F	F	D	F
dA, Approach Delay	67.20		494.78	475.27		476.70	
Approach LOS	E		F	F		F	
dI, Intersection Delay	440.58						
Intersection LOS	F						

Back of Queue

Approach	N		E	S		W	
Arrival Type	3		3	3		3	
Lane Group	9065	9066	9064	9062	9063	9067	9068
g/C, Green / Cycle	0.10	0.45	0.15	0.10	0.45	0.14	0.14
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	4.95	2.25	8.09	5.23	20.39	0.53	7.68
Q2, Second-term Queued	2.54	0.09	34.25	22.27	91.57	0.04	31.50
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	7.49	2.34	42.35	27.49	111.96	0.58	39.18
fB%, % Factor	1.60	1.80	1.56	1.58	1.60	1.80	1.56
Q%, Back of Queue Percentile	95	95	95	95	95	95	95
% Back of Queue	11.98	4.21	66.09	43.46	178.66	1.04	61.20

Signal Timing Information

Approach	N		E	S		W	
Lane Group	9065	9066	9064	9062	9063	9067	9068
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Signal Type	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	108.2	5	85.1	108.2	5	63.4	63.4
Green Time End	120	58.4	103.2	120	58.4	80.1	80.1
G, Actual Green Time	11.8	53.4	18.1	11.8	53.4	16.7	16.7
gi, Effective Green Time	11.8	53.4	18.1	11.8	53.4	16.7	16.7
g/C, Green / Cycle	0.1	0.45	0.15	0.1	0.45	0.14	0.14
(v/s)i, Volume / Saturation Flow Rate	0.09	0.07	0.30	0.19	0.87	0.01	0.27
Critical Lane Group			Y	Y	Y		Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		E	S		W	
Lane Group	9065	9066	9064	9062	9063	9067	9068
Control Type	Prot	No Left	Split	Prot	No Left	Split	No Left
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
gro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	0.95	1.00	0.97	0.95	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
AobT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Tue Nov 19 09:50:04 2024

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.12. Cumulative Plus Project with Candlestick Interchange - PM
Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	101.57
Average LOS	F
V/C	1.13
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E		S			W	
Movement		T	R1	L1	T	R1	L1	T
Base Volume		1795	1085	35	0	558	0	568
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		449	271	9	0	139	0	142
Adjusted Volume		1795	1085	35	0	558	0	568

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		9023	9024	9027	9028	9025	9026
Lanes		T	R	LTR	R	L	T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1795	1085	298	295	0	568
PLT, Proportion Left Turns		0.00	0.00	0.12	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.88	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		9023	9024	9027	9028	9025	9026
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		1	1	1	1	1	1
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment		1.000	1.000	0.977	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.865	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		1900	1615	1606	1615	1810	1900

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		9023	9024	9027	9028	9025	9026
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1795.03	1084.99	298.48	294.84	0	567.89
s, Saturation Flow Rate		1900	1615	1606	1615	1810	1900
c, Capacity		1389	1181	263	231	0	1469
g/C, Green / Cycle		0.73	0.73	0.14	0.14	0	0.77
X, Volume / Capacity		1.29	0.92	1.13	1.28	0	0.39
d1, Uniform Delay		16.00	13.11	52.04	51.00	0.00	4.37
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,		137.01	12.79	96.36	154.18	0.00	0.77
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.73	0.73	0.14	0.14	0.00	0.77
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		153.01	25.90	148.41	205.18	0.00	5.14
LOS		F	C	F	F	A	A
dA, Approach Delay	0.00	105.12		176.62		5.14	
Approach LOS	A	F		F		A	
dI, Intersection Delay	101.57						
Intersection LOS	F						

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		9023	9024	9027	9028	9025	9026
g/C, Green / Cycle		0.73	0.73	0.14	0.14	0.00	0.77
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		27.50	17.60	7.88	6.79	0.00	3.19
Q2, Second-term Queued		52.87	4.20	7.05	9.88	0.00	0.31
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		80.37	21.80	14.93	16.67	0.00	3.50
fB%, % Factor		1.45	1.35	1.51	1.55	1.00	1.80
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		116.74	29.45	22.51	25.89	0.00	6.30

Signal Timing Information

Approach	N	E		S		W	
Lane Group		9023	9024	9027	9028	9025	9026
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		119.00	119.00	119.00	119.00	119.00	119.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time		2.00	2.00	2.00	2.00	0.00	2.00
l1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
l2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	97	97	0	0
Green Time End		92	92	114	114	0	92
G, Actual Green Time		87	87	17	17	0	92
gi, Effective Green Time		87	87	17	17	0	92
g/C, Green / Cycle		0.73	0.73	0.14	0.14	0	0.77
(v/s)i, Volume / Saturation Flow Rate		0.94	0.67	0.19	0.18	0.00	0.30
Critical Lane Group		Y		Y			

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		9023	9024	9027	9028	9025	9026
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				119.00			
G(s), Actual GT				17.00			
g(s), Eff. perm. GT				17.00			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				35.33			
PLT, Proportion LT in Lane Group				0.12			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				1.17			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
FLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				4.59			
gro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				4.59			
gu				12.41			
PL				0.12			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				0.98			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.98	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E		S		W	
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
AobT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.12. Cumulative Plus Project with Candlestick Interchange Conditions - PM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative Plus Project w/ TDM w/ Interchange**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 2 **SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
SB	Left Turn	392	397	101.3%	22.4	345	425	0.3	52.9	4.2	45.6	59.6	D
	Through	-	-	-	-	-	-	-	-	-	-	-	-
	Right Turn	324	320	98.7%	16.8	300	347	0.2	61.0	16.2	37.3	80.7	E
	Subtotal	716	717	100.1%	10.5	692	728	0.0	56.4	5.9	47.5	64.7	E
EB	Through	1,741	1,366	78.4%	40.6	1,312	1,451	9.5	38.2	5.8	29.2	46.2	D
	Right Turn	243	211	86.7%	15.0	190	231	2.1	35.2	7.0	25.5	49.4	D
	Subtotal	1,984	1,576	79.4%	45.5	1,514	1,679	9.7	37.8	5.6	29.7	46.6	D
WB	Left Turn	488	431	88.3%	22.4	409	472	2.7	43.3	7.5	32.2	57.7	D
	Through	1,157	1,008	87.1%	17.1	984	1,038	4.5	43.7	14.0	23.7	69.6	D
	Subtotal	1,645	1,439	87.5%	23.7	1,403	1,475	5.3	43.6	10.7	28.1	61.5	D
Total		4,345	3,732	85.9%	62.7	3,636	3,872	9.6	43.6	5.5	34.4	50.3	D

Intersection 3 **NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	108	108	100.0%	8.7	99	125	0.0	51.5	20.2	29.0	99.6	D
	Through	-	-	-	-	-	-	-	-	-	-	-	-
	Right Turn	855	865	101.1%	7.2	855	880	0.3	50.4	10.8	39.1	75.7	D
	Subtotal	963	973	101.0%	7.7	963	985	0.3	50.6	11.8	37.9	79.3	D
EB	Left Turn	696	609	87.5%	22.5	569	647	3.4	56.1	7.3	44.5	68.8	E
	Through	1,437	1,153	80.2%	36.9	1,076	1,206	7.9	28.9	7.5	19.2	43.1	C
	Subtotal	2,133	1,762	82.6%	53.0	1,661	1,853	8.4	38.5	6.9	28.4	50.2	D
WB	Through	1,536	1,339	87.1%	27.9	1,294	1,378	5.2	78.3	22.2	58.3	130.0	E
	Right Turn	580	518	89.3%	31.0	463	566	2.7	67.8	13.7	51.2	93.7	E
	Subtotal	2,116	1,856	87.7%	53.2	1,775	1,920	5.8	75.5	19.9	56.3	120.7	E
Total		5,212	4,591	88.1%	88.9	4,418	4,743	8.9	55.4	9.8	45.9	75.0	E

D.12. Cumulative Plus Project with Candlestick Interchange Conditions - PM Peak Hour

Brisbane Baylands
CPP w/ TDM w/ Interchange PM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) 95th %ile	St Dev	Min	Max
Intersection		**2**	**SB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
SB	UT																													
	L2																													
	LT	1,025	149	206	181	153	167	162	163	154	182	222	174	24	149	222	430	659	555	586	500	464	524	540	519	755	553	95	430	755
	TH																													
	RT	1,025	117	134	144	96	113	119	104	112	133	168	124	21	96	168	439	659	564	586	500	473	524	549	529	764	559	95	439	764
	R2																													
EB	UT																													
	L2																													
	LT																													
	TH	650	119	98	116	137	168	124	152	144	151	124	133	21	98	168	460	461	460	461	486	463	480	479	462	461	467	10	460	486
	RT	200	38	47	34	29	71	46	27	37	41	46	42	12	27	71	169	352	291	158	450	202	146	150	248	428	260	116	146	450
	R2																													
WB	UT																													
	L2																													
	LT	250	47	52	47	42	41	43	56	65	104	63	56	19	41	104	272	384	373	223	329	328	361	472	423	471	364	80	223	472
	TH	250	102	100	43	57	98	56	129	83	171	57	90	40	43	171	471	474	389	482	463	379	477	467	472	295	437	62	295	482
	RT																													
	R2																													
Intersection		**3**	**NB Ramps**																											**Signal**
NB	UT																													
	L2																													
	LT	2,500	227	156	142	149	179	168	195	160	180	167	172	25	142	227	699	523	460	524	637	489	530	589	656	668	578	83	460	699
	TH																													
	RT	2,500	227	156	142	149	179	168	195	160	180	167	172	25	142	227	699	523	460	524	637	489	530	589	656	668	578	83	460	699
	R2																													
SB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
EB	UT																													
	L2																													
	LT	245	151	117	138	106	150	153	167	160	147	116	140	21	106	167	433	393	393	394	398	392	404	394	399	392	399	13	392	433
	TH	245	76	69	75	67	62	70	70	85	57	64	70	8	57	85	392	375	374	368	390	373	334	389	382	390	376	17	334	392
	RT																													
	R2																													
WB	UT																													
	L2																													
	LT																													
	TH	0	308	265	187	213	223	184	225	311	319	223	246	51	184	319	670	669	662	670	670	670	685	694	697	670	676	12	662	697
	RT	0	90	86	83	113	87	93	83	86	69	90	88	11	69	113	281	261	304	665	353	387	273	224	268	526	354	139	224	665
	R2																													

Appendix D.13. Cumulative Plus Project with Candlestick Interchange with Recommended Improvements – AM Peak Hour

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements – AM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way*	50		178					1,240	209	628	1,406	
3	Harney Way / Alana Way / Thomas Mellon Dr		524	1,387	142	474					1,813		77
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	130	117	216	258	284		1	227	254	960	108	
6	Sierra Point Pkwy / US-101 northbound ramps	116		1,041					1,499			346	308

*Geneva Avenue/Alana Way/Sierra Point Parkway

Intersection No. 5, Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007:US 101 SB Ramps & Lagoon Rd

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Control Type	Roundabout
Method	HCM 7th Edition
Average Delay	126.54
Average LOS	F
Worst Case Delay	298.19
Worst Case LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume (veh/h)	342.99	303.22	0.00	985.95	220.32	0.00	163.52	159.60	237.66	0.66	250.76	240.84
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume, Lane Flow Rate (veh/h)	342.99	303.22	0.00	985.95	220.32	0.00	163.52	159.60	237.66	0.66	250.76	240.84

Volume

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
Volume, Lane Flow Rate (veh/h)	646.212	0.004	1206.272	323.123	237.664	251.422	240.840
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Adjusted Volume (pc/h)	646.212	0.004	1206.272	323.123	237.664	251.422	240.840
De-Facto Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
Is Bypass Lane							
Uses Bypass							
Bypass Type							
Bypass Volume (pc/h)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Non-Bypass Volume (pc/h)	646.212	0.004	1206.272	323.123	237.664	251.422	240.840

Capacity

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
v_e, Entry Volume (pc/h)	646.21	0.00	1206.27	323.12	237.66	251.42	240.84
v_bypass, Bypass Volume (pc/h)							
t_f, Follow Up Headway							
t_c, Critical Headway							
A, Capacity Calibration Factor	1420.00	1420.00	1380.00	1420.00	1420.00	1420.00	1420.00
B, Capacity Calibration Factor	0.00091	0.00091	0.00102	0.00091	0.00091	0.00091	0.00091
v_c, Conflicting Volume (pc/h)	1369.79	1369.79	323.78	594.41	594.41	1632.16	1632.16
v_ex,pce, Conflicting Volume for Bypass Lane (pc/h)							
c_pce, Capacity (pc/h)	408.26	408.26	991.86	826.74	826.74	321.55	321.55
n_ped, Conflicting Pedestrian Volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_ped, Pedestrian Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
c, Capacity (veh/h)	408.26	408.26	991.86	826.74	826.74	321.55	321.55

Delay and Level of Service by Lane

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
v, Volume, Lane Flow Rate (veh/h)	646.21	0.00	1206.27	323.12	237.66	251.42	240.84
c, Capacity (veh/h)	408.26	408.26	991.86	826.74	826.74	321.55	321.55
x, Volume-to-Capacity Ratio	1.58	0.00	1.22	0.39	0.29	0.78	0.75
Q_95, 95% Queue Length (veh)	36.40	0.00	38.54	1.87	1.19	6.27	5.71
d, Delay (s/veh)	298.19	8.82	123.24	9.07	7.54	45.71	41.91
LOS	F	A	F	A	A	E	E
Approach Delay (s/veh)	298.18		123.24	8.42		43.85	
Approach LOS	F		F	A		E	

Delay and Level of Service by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
v, Volume, Lane Flow Rate (veh/h)	342.99	303.22	0.00	985.95	220.32	0.00	163.52	159.60	237.66	0.66	250.76	240.84
c, Capacity (veh/h)	408.26	408.26	408.26	991.86	991.86	991.86	826.74	826.74	826.74	321.55	321.55	321.55
x, Volume-to-Capacity Ratio	0.84	0.74	0.00	0.99	0.22	0.00	0.20	0.19	0.29	0.00	0.78	0.75
d, Delay (s/veh)	298.19	298.19	8.82	123.24	123.24	123.24	9.07	9.07	7.54	45.71	45.71	41.91
LOS	F	F	A	F	F	F	A	A	A	E	E	E
Approach Delay (s/veh)	298.18			123.24			8.42			43.85		
Approach LOS	F			F			A			E		

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	31.56
Average LOS	C
V/C	0.82
Lose Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E			S			W	
Movement		T	R1	L1	T	R1	L1	T	
Base Volume		379	336	182	0	1058	0	1530	
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Peak 15 Volume		95	84	45	0	267	0	383	
Adjusted Volume		379	336	182	0	1058	0	1530	

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		6396	6397	6400	6401	6398	6399
Lanes		T, T	R	LTR	R	L	T, T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		379	336	625	625	0	1530
PLT, Proportion Left Turns		0.00	0.00	0.29	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.71	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		6396	6397	6400	6401	6398	6399
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		2	1	1	1	1	2
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		0.952	1.000	1.000	1.000	1.000	0.952
fLT, Left Turn Adjustment		1.000	1.000	0.929	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.889	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		3618	1615	1570	1615	1810	3618

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		6396	6397	6400	6401	6398	6399
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		379.15	336.2	624.79	624.79	0	1530.01
s, Saturation Flow Rate		3618	1615	1570	1615	1810	3618
c, Capacity		1369	611	720	677	0	1613
g/C, Green / Cycle		0.38	0.38	0.42	0.42	0	0.45
X, Volume / Capacity		0.28	0.55	0.87	0.92	0	0.95
d1, Uniform Delay		15.97	18.06	20.66	20.38	0.00	19.88
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay		0.50	3.54	13.36	20.23	0.00	13.11
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.38	0.38	0.42	0.42	0.00	0.45
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		16.47	21.60	34.02	40.60	0.00	32.79
LOS		B	C	C	D	A	C
dA, Approach Delay	0.00	18.88		37.31		32.79	
Approach LOS	A	B		D		C	
dI, Intersection Delay		31.56					
Intersection LOS		C					

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		6396	6397	6400	6401	6398	6399
g/C, Green / Cycle		0.38	0.38	0.42	0.42	0.00	0.45
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		1.95	3.91	9.15	9.00	0.00	10.37
Q2, Second-term Queued		0.10	0.60	2.67	3.80	0.00	2.94
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		2.05	4.51	11.82	12.80	0.00	13.31
f95, % Factor		1.80	1.77	1.48	1.46	1.00	1.45
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		3.68	8.00	17.48	18.67	0.00	19.29

Signal Timing Information

Approach	N	E		S		W	
Lane Group		6396	6397	6400	6401	6398	6399
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		74.00	74.00	74.00	74.00	74.00	74.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
f1, Start Up Lost Time		2.00	2.00	2.00	2.00	0.00	2.00
f1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
f2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	38	38	0	0
Green Time End		33	33	69	69	0	33
G, Actual Green Time		28	28	31	31	0	33
gi, Effective Green Time		28	28	31	31	0	33
g/C, Green / Cycle		0.38	0.38	0.42	0.42	0	0.45
(v/s)i, Volume / Saturation Flow Rate		0.10	0.21	0.40	0.39	0.00	0.42
Critical Lane Group				Y			Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		6396	6397	6400	6401	6398	6399
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				74.00			
G(s), Actual GT				31.00			
g(e), Eff., perm. GT				31.00			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				181.64			
PLT, Proportion LT in Lane Group				0.29			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				3.73			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
PLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				2.33			
g/o, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				2.33			
gu				28.67			
PL				0.29			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.00			
fm				0.93			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.93	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E			S			W	
Movement		T	R1	L1	T	R1	L1	T	
gp, Pedestrian Green			0.00	0.00		0.00	0.00		
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00		
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00		
AdjT, Adjustment Factor			1.00	1.00		1.00	1.00		
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00		
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00		

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian **and Bicycle** Analysis

D.13 Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative Plus Project with Mitigation**
Volume and Delay by Movement | **AM Peak Hour**

Intersection 2 **SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
SB	Left Turn	390	345	88.5%	15.9	312	362	2.3	280.8	36.6	236.1	364.7	F
	Right Turn	595	532	89.4%	26.2	503	578	2.6	259.7	32.8	234.9	340.3	F
	Subtotal	985	877	89.0%	30.0	826	930	3.5	267.7	33.9	235.3	350.4	F
EB	Through	1,218	1,009	82.8%	17.7	944	1,059	6.3	46.5	12.0	29.4	72.5	D
	Right Turn	171	152	88.9%	6.7	143	163	1.5	44.3	9.2	26.0	54.7	D
	Subtotal	1,389	1,161	83.6%	31.4	1,102	1,204	6.4	44.6	9.7	28.5	66.3	D
WB	Left Turn	522	502	96.1%	24.3	464	528	0.9	49.7	8.9	34.9	64.7	D
	Through	1,326	1,265	95.4%	44.7	1,186	1,313	1.7	33.3	6.5	26.2	45.6	C
	Subtotal	1,848	1,767	95.6%	54.8	1,674	1,840	1.9	37.8	4.6	32.6	47.7	D
Total		4,222	3,805	90.1%	71.1	3,698	3,923	6.6	93.1	7.5	81.6	105.2	F

Intersection 3 **NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	8	8	93.8%	3.3	2	13	0.2	92.5	53.7	0.0	164.4	F
	Right Turn	708	717	101.3%	9.4	702	730	0.3	53.5	11.4	41.3	76.9	D
	Subtotal	716	724	101.2%	6.9	714	734	0.3	54.1	11.3	42.3	77.4	D
EB	Left Turn	433	400	92.4%	13.6	379	420	1.6	79.0	16.7	42.4	98.0	E
	Through	1,175	955	81.3%	26.8	916	1,007	6.7	16.6	3.8	9.4	22.8	B
	Subtotal	1,608	1,355	84.3%	30.7	1,312	1,418	6.6	34.5	6.2	24.1	41.0	C
WB	Through	1,840	1,758	95.6%	52.6	1,671	1,833	1.9	44.7	16.1	25.1	78.3	D
	Right Turn	445	442	99.4%	23.6	403	486	0.1	38.0	5.7	30.3	50.6	D
	Subtotal	2,285	2,200	96.3%	67.0	2,074	2,279	1.8	43.4	13.2	29.1	70.5	D
Total		4,609	4,280	92.9%	67.6	4,162	4,411	4.9	42.4	6.4	35.2	55.7	D

D.13 Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Brisbane Baylands
Cumulative Plus Project with Mitigation AM

Queue Report

		Storage (ft)	Average Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Average Queue Length (ft) Avg	St Dev	Min	Max	Maximum Queue Length (ft) by Run 1	2	3	4	5	6	7	8	9	10	Maximum Queue Length (ft) Avg	St Dev	Min	Max
Intersection		2	**SB Ramps**																											Signal
NB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
SB	UT																													
	L2																													
	LT	1,025	202	230	263	226	235	204	204	191	188	175	212	26	175	263	766	827	641	558	629	706	515	546	653	532	637	105	515	827
	TH																													
	RT	1,025	149	164	201	169	184	122	136	136	156	139	156	24	122	201	766	827	641	566	629	706	515	546	662	541	640	103	515	827
	R2																													
EB	UT																													
	L2																													
	LT	325	82	53	78	58	55	52	67	60	68	75	65	11	52	82	462	291	461	462	461	460	460	360	459	457	433	59	291	462
	TH	325	44	12	43	37	19	25	31	26	41	31	31	11	12	44	461	235	462	463	461	461	460	360	460	458	428	75	235	463
	RT	200	6	6	10	7	4	6	2	8	6	11	7	3	2	11	113	142	390	104	110	166	103	238	169	447	198	124	103	447
	R2																													
WB	UT																													
	L2																													
	LT	250	135	122	122	130	116	107	125	127	133	117	123	8	107	135	410	402	434	473	431	371	393	404	416	392	413	28	371	473
	TH	250	193	167	183	247	179	190	168	140	174	160	180	28	140	247	475	475	474	474	473	475	451	474	474	439	468	13	439	475
	RT																													
	R2																													
Intersection		3	**NB Ramps**																											Signal
NB	UT																													
	L2																													
	LT	2,500	141	160	150	171	148	157	142	141	151	147	151	10	141	171	454	466	478	475	450	443	397	508	447	552	467	41	397	552
	TH																													
	RT	2,500	140	159	148	170	147	156	141	140	150	146	150	10	140	170	453	464	476	473	449	441	396	506	445	551	465	41	396	551
	R2																													
SB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
EB	UT																													
	L2																													
	LT	245	56	63	78	54	50	62	60	54	67	67	61	8	50	78	299	363	331	307	280	379	308	254	378	345	324	42	254	379
	TH	245	63	67	67	74	63	68	71	61	71	66	67	4	61	74	307	324	385	368	323	330	341	307	325	351	336	25	307	385
	RT																													
	R2																													
WB	UT																													
	L2																													
	LT																													
	TH	0	453	433	440	518	516	439	470	445	468	453	463	31	433	518	701	693	701	713	708	739	670	716	727	706	707	19	670	739
	RT	0	39	35	45	33	28	44	37	46	35	35	38	6	28	46	225	197	296	281	231	372	313	209	237	254	262	54	197	372
	R2																													

Appendix D.14. Cumulative Plus Project with Candlestick Interchange with Recommended Improvements – PM Peak Hour

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements – PM Peak Hour

Code	***Name***	NBL	NBT	NBR	SBL	SBT	SBR	EBL	EBT	EBR	WBL	WBT	WBR
2	Beatty Ave / Alana Way*	315		418					1,624	72	206	1,399	
3	Harney Way / Alana Way / Thomas Mellon Dr		640	1,684	115	469					1,637		106
5	Sierra Point Pkwy / Lagoon Rd / US-101 southbound ramps	297	570	1,031	123	50		3	292	96	398	272	
6	Sierra Point Pkwy / US-101 northbound ramps	107	21	539					544			1,791	1,026

*Geneva Avenue/Alana Way/Sierra Point Parkway

Intersection No. 5, Sierra Point Parkway / Lagoon Road / U.S. 101 Southbound Ramps

Node 1007:US 101 SB Ramps & Lagoon Rd

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Control Type	Roundabout
Method	HCM 7th Edition
Average Delay	68.08
Average LOS	F
Worst Case Delay	145.24
Worst Case LOS	F

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume (veh/h)	127.76	51.10	0.00	415.31	281.16	0.00	299.25	576.93	1053.54	3.72	299.28	97.85
PHF	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Volume, Lane Flow Rate (veh/h)	127.76	51.10	0.00	415.31	281.16	0.00	299.25	576.93	1053.54	3.72	299.28	97.85

Volume

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
Volume, Lane Flow Rate (veh/h)	178.858	0.000	696.468	876.177	1053.538	303.003	97.848
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Adjusted Volume (pc/h)	178.858	0.000	696.468	876.177	1053.538	303.003	97.848
De-Facto Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
Is Bypass Lane							
Uses Bypass							
Bypass Type							
Bypass Volume (pc/h)	0.000	0.000	0.000	0.000	0.000	0.000	0.000
Non-Bypass Volume (pc/h)	178.858	0.000	696.468	876.177	1053.538	303.003	97.848

Capacity

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
v_e, Entry Volume (pc/h)	178.86	0.00	696.47	876.18	1053.54	303.00	97.85
v_bypass, Bypass Volume (pc/h)							
t_f, Follow Up Headway							
t_c, Critical Headway							
A, Capacity Calibration Factor	1420.00	1420.00	1380.00	1420.00	1420.00	1420.00	1420.00
B, Capacity Calibration Factor	0.00091	0.00091	0.00102	0.00091	0.00091	0.00091	0.00091
v_c, Conflicting Volume (pc/h)	995.72	995.72	879.90	430.76	430.76	594.17	594.17
v_ex,pce, Conflicting Volume for Bypass Lane (pc/h)							
c_pce, Capacity (pc/h)	573.82	573.82	562.47	959.50	959.50	826.93	826.93
n_ped, Conflicting Pedestrian Volume	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_ped, Pedestrian Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
P_T, Share of Heavy Vehicles	0.00	0.00	0.00	0.00	0.00	0.00	0.00
f_HV, Heavy-Vehicle Adjustment Factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000
c, Capacity (veh/h)	573.82	573.82	562.47	959.50	959.50	826.93	826.93

Delay and Level of Service by Lane

Approach	N		E	S		W	
Lane	Lane 1	Lane 2	Lane 1	Lane 1	Lane 2	Lane 1	Lane 2
Movements	L1, T	R1	L1, T, R1	L1, T	R1	L1, T	R1
v, Volume, Lane Flow Rate (veh/h)	178.86	0.00	696.47	876.18	1053.54	303.00	97.85
c, Capacity (veh/h)	573.82	573.82	562.47	959.50	959.50	826.93	826.93
x, Volume-to-Capacity Ratio	0.31	0.00	1.24	0.91	1.10	0.37	0.12
Q_95, 95% Queue Length (veh)	1.32	0.00	26.58	13.65	26.60	1.69	0.40
d, Delay (s/veh)	10.65	6.27	145.24	32.64	79.18	8.68	5.53
LOS	B	A	F	D	F	A	A
Approach Delay (s/veh)	10.65		145.24	58.05		7.91	
Approach LOS	B		F	F		A	

Delay and Level of Service by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
v, Volume, Lane Flow Rate (veh/h)	127.76	51.10	0.00	415.31	281.16	0.00	299.25	576.93	1053.54	3.72	299.28	97.85
c, Capacity (veh/h)	573.82	573.82	573.82	562.47	562.47	562.47	959.50	959.50	959.50	826.93	826.93	826.93
x, Volume-to-Capacity Ratio	0.22	0.09	0.00	0.74	0.50	0.00	0.31	0.60	1.10	0.00	0.36	0.12
d, Delay (s/veh)	10.65	10.65	6.27	145.24	145.24	145.24	32.64	32.64	79.18	8.68	8.68	5.53
LOS	B	B	A	F	F	F	D	D	F	A	A	A
Approach Delay (s/veh)	10.65			145.24			58.05			7.91		
Approach LOS	B			F			F			A		

Intersection No. 6. Sierra Point Parkway / U.S. 101 Northbound Ramps

Node 618: US 101 NB Ramps & Sierra Point Pkwy

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	33.59
Average LOS	C
V/C	0.86
Lose Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N	E			S			W
Movement		T	R1	L1	T	R1	L1	T
Base Volume		1819	1055	111	21	558	0	564
PHF, Peak-hour factor		1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume		455	264	28	5	139	0	141
Adjusted Volume		1818	1055	111	21	558	0	564

Volume and Adjustments by Lane Group

Approach	N	E		S		W	
Lane Group		C	R	C	R	L	C
ID		6308	6309	6312	6313	6310	6311
Lanes		T, T	R	LTR	R	L	T, T
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1819	1055	351	338	0	564
PLT, Proportion Left Turns		0.00	0.00	0.31	0.00	0.00	0.00
PRT, Proportion Right Turns		0.00	1.00	0.63	1.00	0.00	0.00

Saturation Flow Rate

Approach	N	E		S		W	
Lane Group		6308	6309	6312	6313	6310	6311
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Proportion of CAVs		0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate		1900	1900	1900	1900	1900	1900
N, Number of Lanes		2	1	1	1	1	2
fw, Lane Width Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles		0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment		0.952	1.000	1.000	1.000	1.000	0.952
fLT, Left Turn Adjustment		1.000	1.000	0.924	1.000	0.952	1.000
fRT, Right Turn Adjustment		1.000	0.850	0.900	0.850	1.000	1.000
fLpb, Left Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment		1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane							
s, Saturation Flow Rate		3618	1615	1582	1615	1810	3618

Capacity, Control Delay, and Level of Service Determination

Approach	N	E		S		W	
Lane Group		6308	6309	6312	6313	6310	6311
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
V, Volume		1819.21	1054.91	350.9	338.2	0	564.25
s, Saturation Flow Rate		3618	1615	1582	1615	1810	3618
c, Capacity		2365	1056	385	352	0	2520
g/C, Green / Cycle		0.65	0.65	0.22	0.22	0	0.7
X, Volume / Capacity		0.77	1	0.91	0.96	0	0.22
d1, Uniform Delay		14.10	20.21	45.88	45.26	0.00	6.38
k, Delay Calibration		0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay		2.48	27.46	28.12	39.03	0.00	0.21
d3, Initial Queue Delay		0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio		1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green		0.65	0.65	0.22	0.22	0.00	0.70
PF, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
d, Delay		16.58	47.67	74.00	84.28	0.00	6.59
LOS		B	D	E	F	A	A
dA, Approach Delay	0.00	27.99		79.05		6.59	
Approach LOS	A	C		E		A	
d, Intersection Delay		33.59					
Intersection LOS		C					

Back of Queue

Approach	N	E		S		W	
Arrival Type	3	3		3		3	
Lane Group		6308	6309	6312	6313	6310	6311
g/C, Green / Cycle		0.65	0.65	0.22	0.22	0.00	0.70
PF2, Progression Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued		14.06	23.38	10.06	9.54	0.00	2.10
Q2, Second-term Queued		0.81	8.05	3.01	3.82	0.00	0.07
XU, Upstream V/C		0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor		1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue		14.87	31.43	13.06	13.36	0.00	2.18
f95, % Factor		1.43	1.29	1.45	1.46	1.00	1.80
Q%, Back of Queue Percentile		95	95	95	95	95	95
% Back of Queue		21.20	40.62	18.99	19.35	0.00	3.92

Signal Timing Information

Approach	N	E		S		W	
Lane Group		6308	6309	6312	6313	6310	6311
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Signal Type		P	P	P	P	P	P
C, Cycle Length		117.00	117.00	117.00	117.00	117.00	117.00
Gp, Minimum Pedestrian Timing		0	0	0	0	0	0
L, Total Loss Time per Cycle		0.00	0.00	0.00	0.00	0.00	0.00
f1, Start Up Lost Time		2.00	2.00	2.00	2.00	0.00	2.00
f1p, Permitted Start Up Loss Time		0.00	0.00	2.00	0.00	0.00	0.00
f2, Clearance Loss Time		0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start		5	5	86.5	86.5	0	0
Green Time End		81.5	81.5	112	112	0	81.5
G, Actual Green Time		76.5	76.5	25.5	25.5	0	81.5
gi, Effective Green Time		76.5	76.5	25.5	25.5	0	81.5
g/C, Green / Cycle		0.65	0.65	0.22	0.22	0	0.7
(v/s)i, Volume / Saturation Flow Rate		0.50	0.65	0.22	0.21	0.00	0.16
Critical Lane Group			Y	Y			

Left Turn Adjustment Factors for Permitted Phasing

Approach	N	E		S		W	
Lane Group		6308	6309	6312	6313	6310	6311
Control Type		No Left	No Left	Perm	No Left	Prot	No Left
Subject is Single(S) or Multi(M)				S			
Opposed by Single(S) or Multi(M)				S			
C, Cycle Length				117.00			
G(s), Actual GT				25.50			
g(e), Eff., perm., GT				25.50			
go(s), Opposing Eff. GT				0.00			
No, Number Lanes in Opposing				0			
N, Number Left Lanes				1			
VLT, Adj. LT Flow Rate				110.51			
PLT, Proportion LT in Lane Group				0.31			
PLTo, Proportion LT in Opposing				0.00			
LT Volume per Cycle				3.59			
Vo, Opposing Flow				0.00			
Volc, Adjusted Opposing Flow				0.00			
PLUo, Opposing Lane Utilization				1.00			
Rpo, Opposing Platoon Ratio				1.00			
gf				1.73			
gro, Opposing Queue Ratio				1.00			
gq, Opposing Queue Clearing Time				2.00			
gu				23.50			
PL				0.31			
de facto caused by PL >= 1.0							
EL1				1.32			
EL2				1.05			
gdiff				0.27			
fm				0.92			
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment		1.00	1.00	0.92	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N	E			S			W
Movement		T	R1	L1	T	R1	L1	T
gp, Pedestrian Green			0.00	0.00		0.00	0.00	
OCCpedg, Average Pedestrian Occupancy			0.00	0.00		0.00	0.00	
OCCr, Relevant Conflict Zone Occupancy			0.00	0.00		0.00	0.00	
AdjT, Adjustment Factor			1.00	1.00		1.00	1.00	
fRpb, Right Turn Factor			1.00	1.00		1.00	1.00	
fLpb, Left Turn Factor			1.00	1.00		1.00	1.00	

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian **and Bicycle** Analysis

D.14 Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Vissim Post-Processor | **Brisbane Baylands**
Results from Analyzed Runs, Interval All | **Cumulative Plus Project with Mitigation**
Volume and Delay by Movement | **PM Peak Hour**

Intersection 2 **SB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
SB	Left Turn	397	395	99.4%	10.4	381	409	0.1	52.5	6.2	46.5	64.5	D
	Right Turn	312	310	99.4%	18.1	274	337	0.1	65.7	18.2	46.8	96.1	E
	Subtotal	709	705	99.4%	10.7	683	718	0.2	58.5	9.0	48.8	71.3	E
EB	Through	1,747	1,432	82.0%	34.4	1,334	1,531	7.9	60.8	12.4	39.0	77.4	E
	Right Turn	268	233	86.8%	14.4	211	258	2.2	41.1	8.1	29.7	57.2	D
	Subtotal	2,015	1,665	82.6%	57.7	1,585	1,738	8.2	56.7	10.7	36.7	73.9	E
WB	Left Turn	528	503	95.2%	22.4	451	530	1.1	34.9	7.3	25.6	47.0	C
	Through	1,118	1,043	93.3%	53.0	952	1,119	2.3	48.9	26.7	18.1	104.4	D
	Subtotal	1,646	1,546	93.9%	65.4	1,403	1,619	2.5	44.3	17.5	22.4	77.2	D
Total		4,370	3,915	89.6%	83.7	3,793	4,052	7.1	51.6	11.1	34.8	68.8	D

Intersection 3 **NB Ramps** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph) Average	Percent	Std. Dev.	Minimum	Maximum	GEH	Total Delay (sec/veh) Average	Std. Dev.	Minimum	Maximum	LOS
NB	Left Turn	148	141	95.1%	16.6	110	156	0.6	165.2	157.6	44.6	544.1	F
	Right Turn	871	851	97.7%	42.3	766	898	0.7	110.6	86.2	50.9	328.0	F
	Subtotal	1,019	992	97.4%	45.7	885	1,046	0.8	118.6	97.9	52.7	365.9	F
EB	Left Turn	721	630	87.3%	19.7	598	666	3.5	77.8	15.1	59.8	106.0	E
	Through	1,423	1,192	83.7%	45.6	1,119	1,264	6.4	31.6	3.4	26.6	36.9	C
	Subtotal	2,144	1,821	84.9%	53.9	1,738	1,901	7.2	47.8	6.1	39.2	57.8	D
WB	Through	1,499	1,412	94.2%	55.0	1,290	1,484	2.3	66.4	54.5	16.8	175.1	E
	Right Turn	599	588	98.2%	23.1	559	635	0.4	64.8	22.0	37.3	103.4	E
	Subtotal	2,098	2,000	95.3%	58.0	1,867	2,081	2.2	65.5	43.4	24.1	151.0	E
Total		5,261	4,813	91.5%	107.8	4,592	4,988	6.3	68.4	36.3	36.0	149.9	E

D.14 Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Brisbane Baylands
Cumulative Plus Project with Mitigation PM

Queue Report

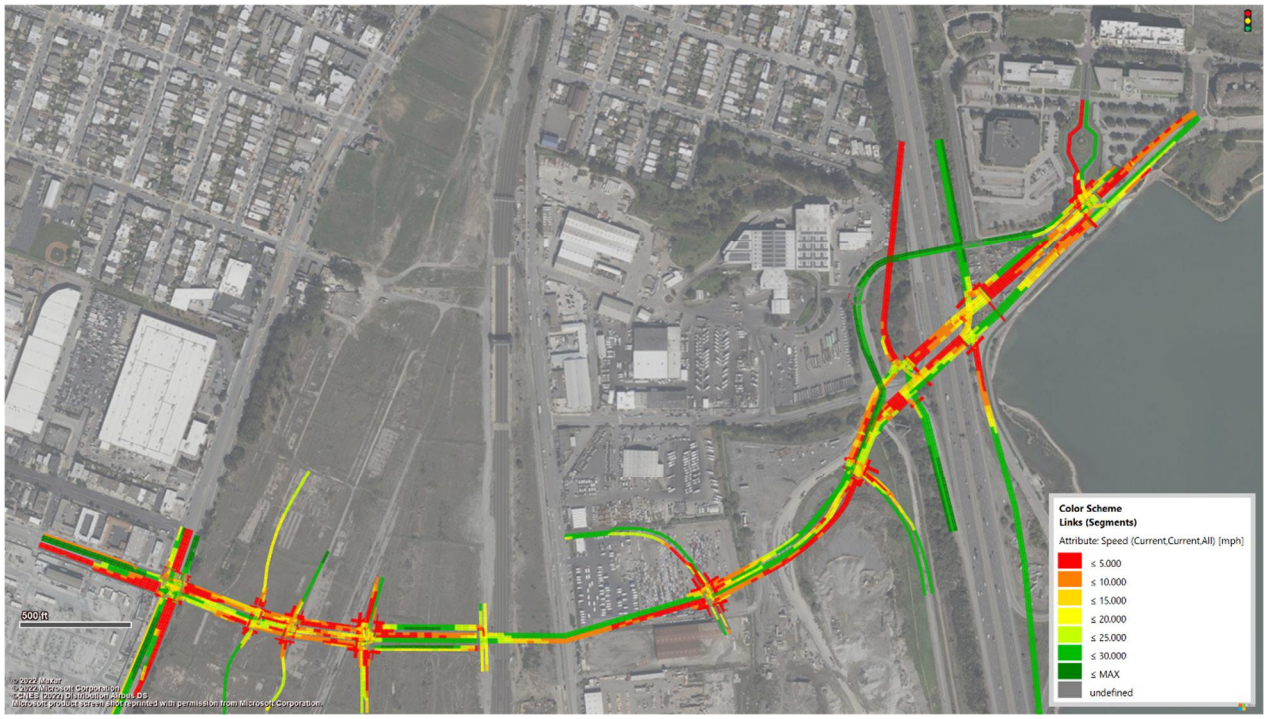
		Storage (ft)	Average Queue Length (ft) by Run										Average Queue Length (ft)				Maximum Queue Length (ft) by Run										Maximum Queue Length (ft)			
			1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max	1	2	3	4	5	6	7	8	9	10	Avg	St Dev	Min	Max
Intersection		2	**SB Ramps**																											Signal
NB	UT	325	90	100	85	89	88	85	137	89	84	82	93	16	82	137	308	308	277	323	455	242	476	273	239	271	317	83	239	476
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
SB	UT																													
	L2																													
	LT	1,025	146	154	182	153	156	181	167	158	164	154	161	12	146	182	476	600	597	426	589	505	527	468	519	582	529	62	426	600
	TH																													
	RT	1,025	100	105	136	109	103	115	123	108	119	101	112	11	100	136	485	600	606	435	589	505	527	468	519	591	532	61	435	606
	R2																													
EB	UT																													
	L2																													
	LT	325	204	97	154	162	117	200	193	202	189	167	168	37	97	204	484	471	463	461	461	468	463	464	463	519	472	18	461	519
	TH	325	187	87	140	133	113	193	195	201	154	165	157	39	87	201	485	471	464	462	461	468	463	464	464	520	472	18	461	520
	RT	200	52	38	44	57	38	51	27	67	34	38	45	12	27	67	449	150	451	448	338	450	129	453	449	410	373	128	129	453
	R2																													
WB	UT																													
	L2																													
	LT	250	72	58	83	66	73	67	62	77	66	82	71	8	58	83	347	240	404	424	353	358	138	394	197	400	325	99	138	424
	TH	250	68	73	57	70	57	91	89	83	64	59	71	13	57	91	400	365	346	443	266	371	367	346	368	346	362	45	266	443
	RT																													
	R2																													
Intersection		3	**NB Ramps**																											Signal
NB	UT																													
	L2																													
	LT	2,500	200	207	208	225	183	198	200	194	190	195	200	11	183	225	604	657	612	608	578	531	546	512	674	601	592	52	512	674
	TH																													
	RT	2,500	199	205	207	224	182	196	198	193	189	194	199	11	182	224	603	655	610	606	576	529	544	510	672	599	591	52	510	672
	R2																													
SB	UT																													
	L2																													
	LT																													
	TH																													
	RT																													
	R2																													
EB	UT																													
	L2																													
	LT	245	168	110	150	159	132	161	137	143	162	149	147	17	110	168	395	400	400	395	393	394	395	392	393	392	395	3	392	400
	TH	245	65	82	79	100	86	78	88	80	89	88	83	9	65	100	308	392	389	393	393	390	392	392	391	390	383	26	308	393
	RT																													
	R2																													
WB	UT																													
	L2																													
	LT																													
	TH	0	81	95	69	67	61	166	202	115	118	85	106	46	61	202	599	485	364	466	453	700	700	653	672	611	570	119	364	700
	RT	0	66	82	71	114	82	104	201	116	150	121	111	41	66	201	399	292	313	523	293	347	698	651	670	609	479	168	292	698
	R2																													

Appendix D.15 Geneva Avenue Extension – VISSIM Link Speed Figures

The following figures present the AM and PM peak hour speeds for all links within the VISSIM network for the cumulative plus project with interchange scenario and cumulative plus project with interchange and recommended improvements. Four intervals are presented for each peak hour, representing each 15 minutes during the peak hour.

Cumulative Plus Project with Candlestick Interchange - AM Peak Hour Conditions

Interval 1

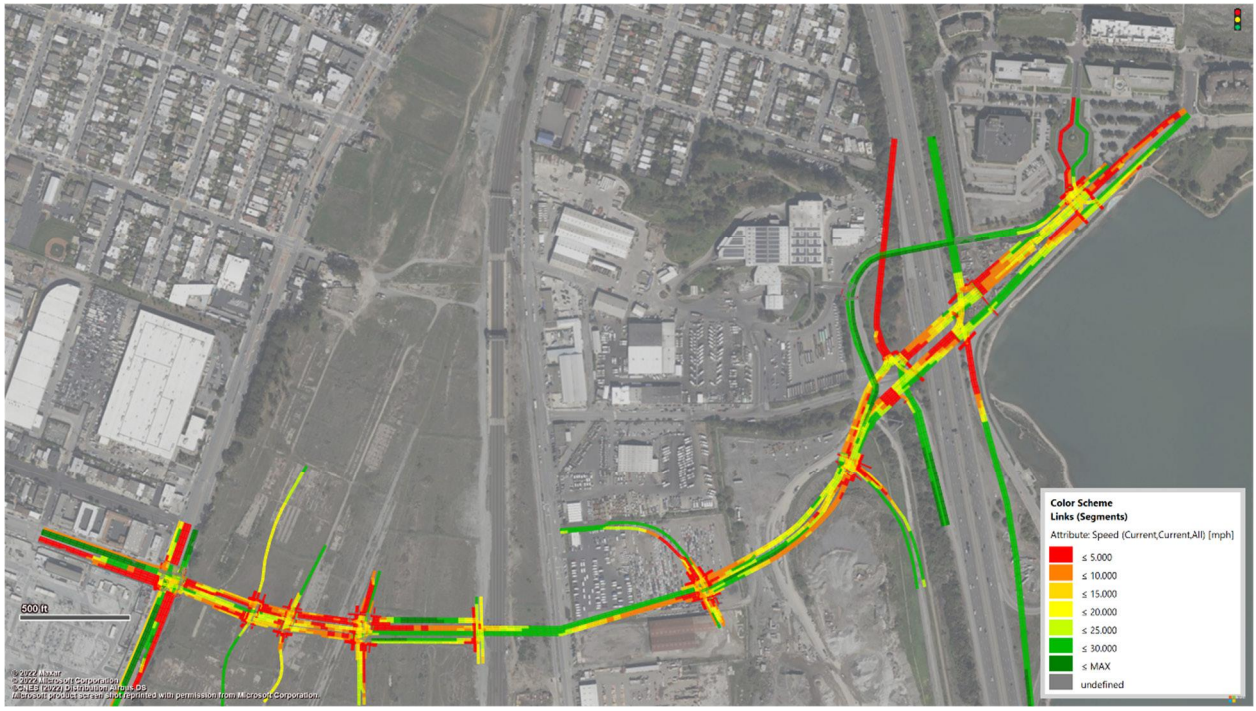


Interval 2



Cumulative Plus Project with Candlestick Interchange - AM Peak Hour Conditions

Interval 3



Interval 4

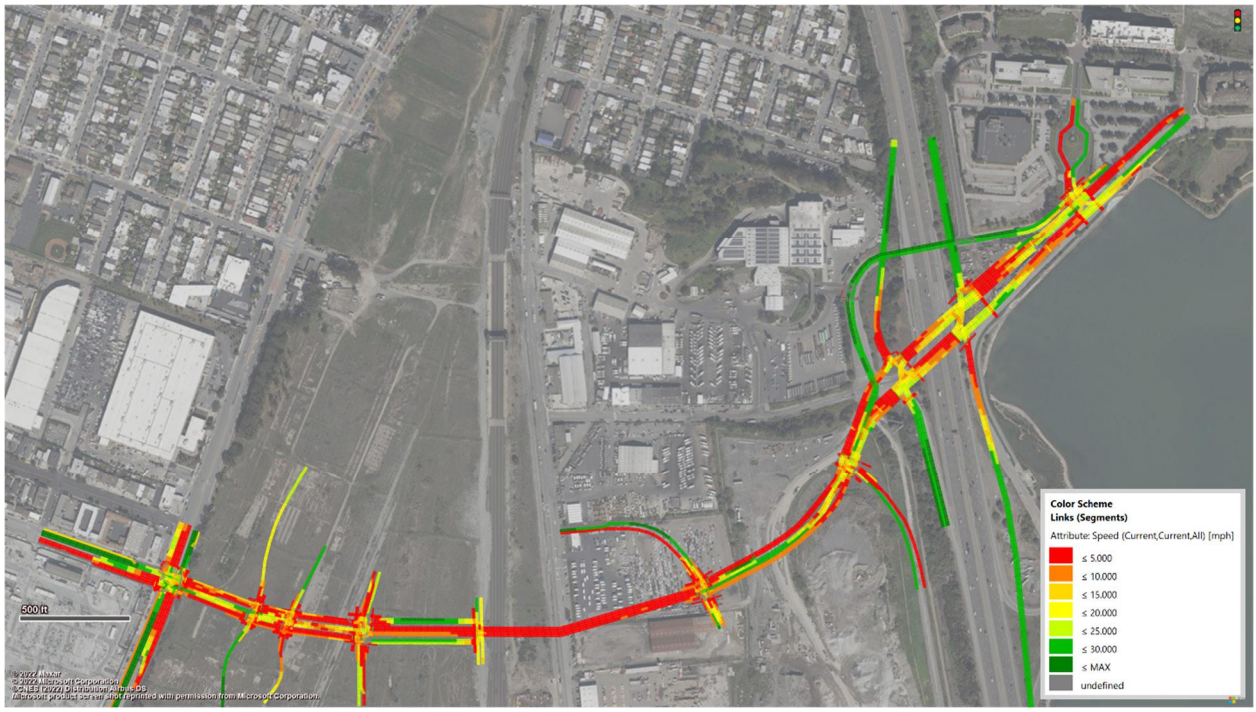


Cumulative Plus Project with Candlestick Interchange - PM Peak Hour Conditions

Interval 1

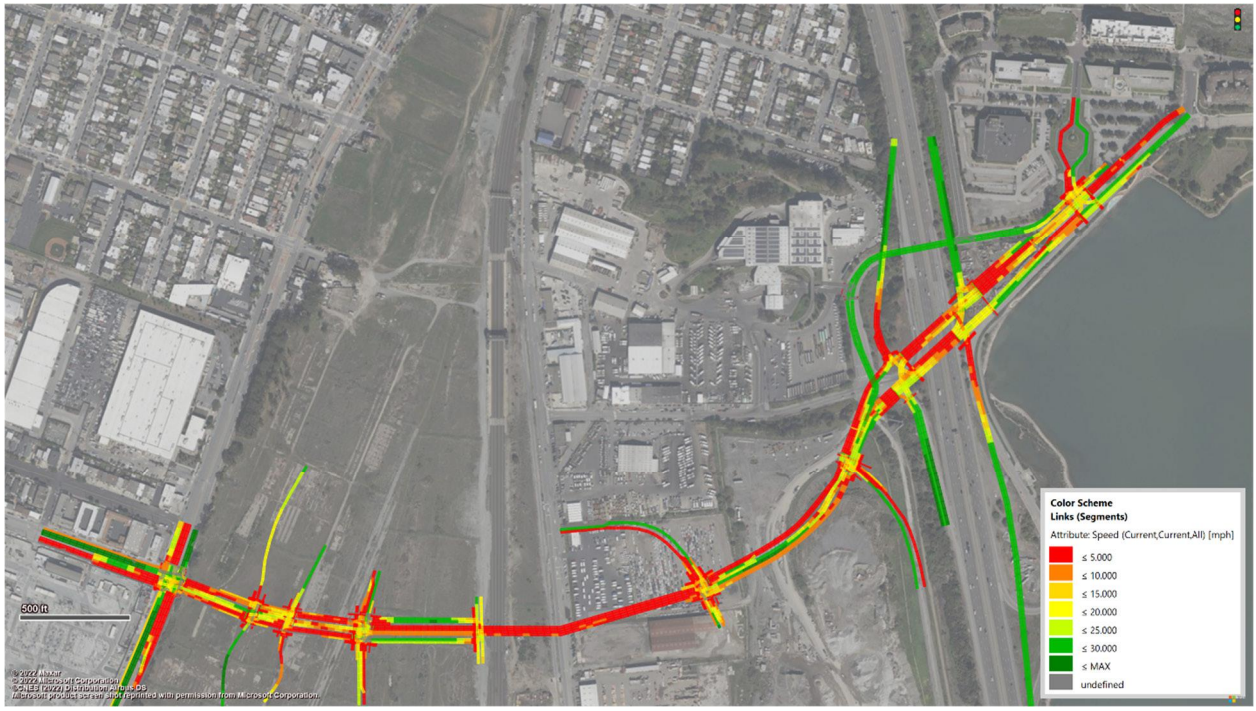


Interval 2



Cumulative Plus Project with Candlestick Interchange - PM Peak Hour Conditions

Interval 3

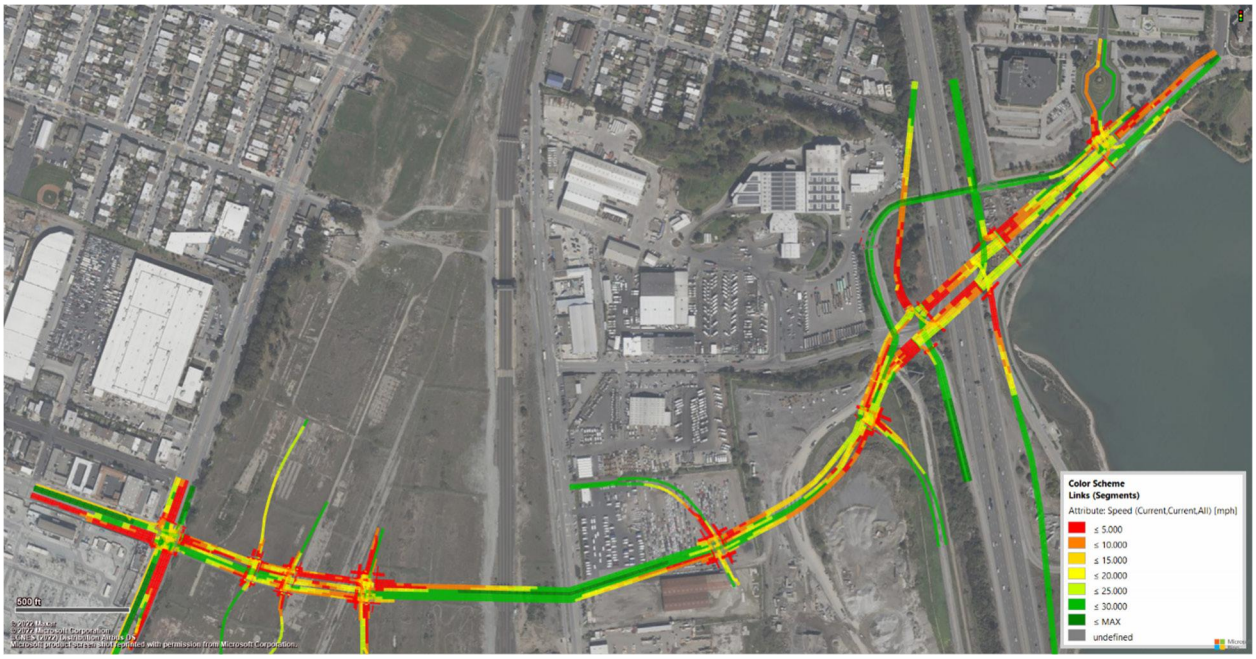


Interval 4

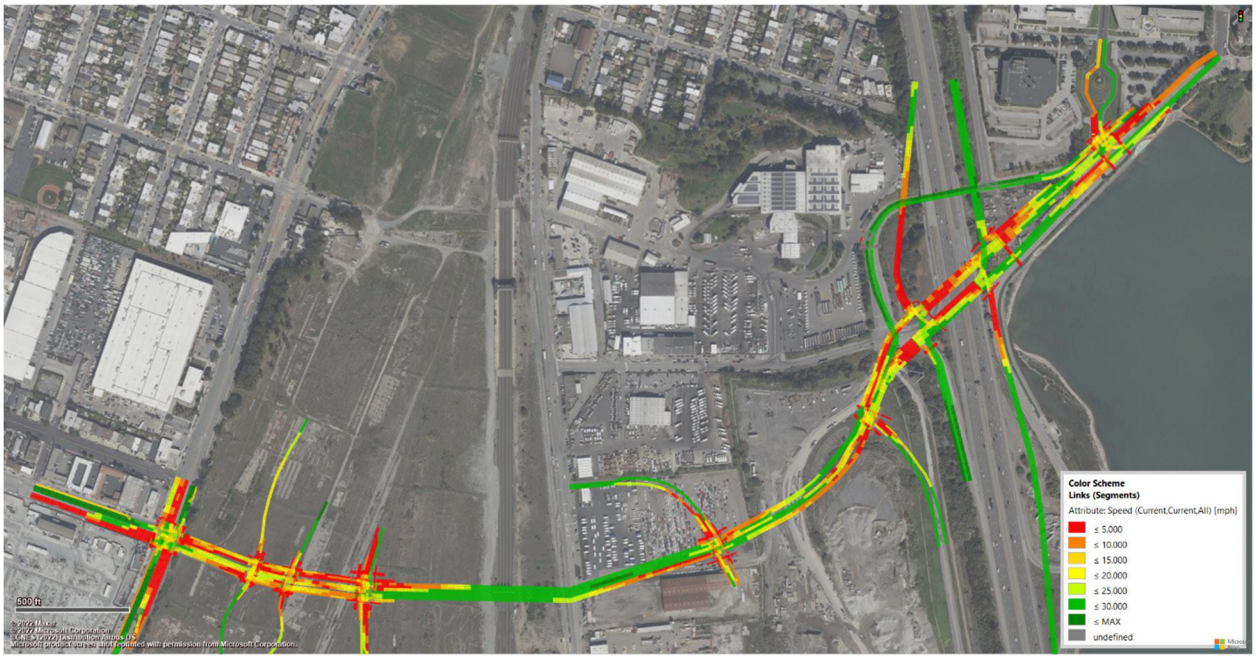


Cumulative Plus Project with Candlestick Interchange (Recommended Improvements) - AM Peak Hour Conditions

Interval 1

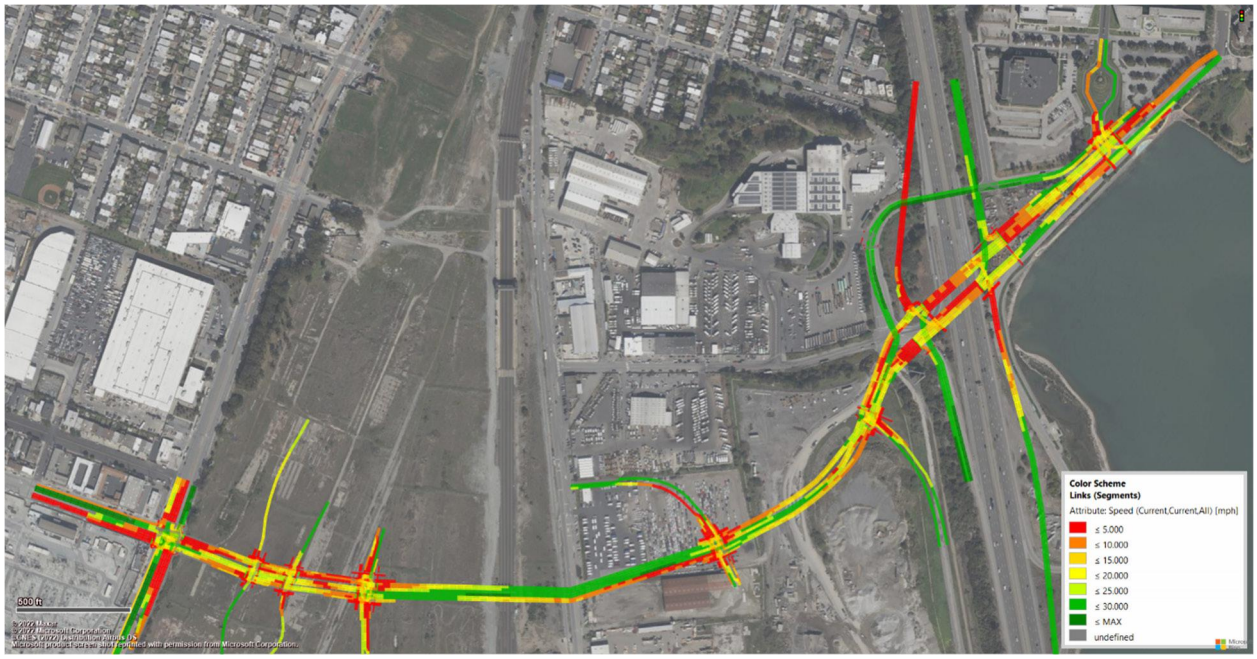


Interval 2

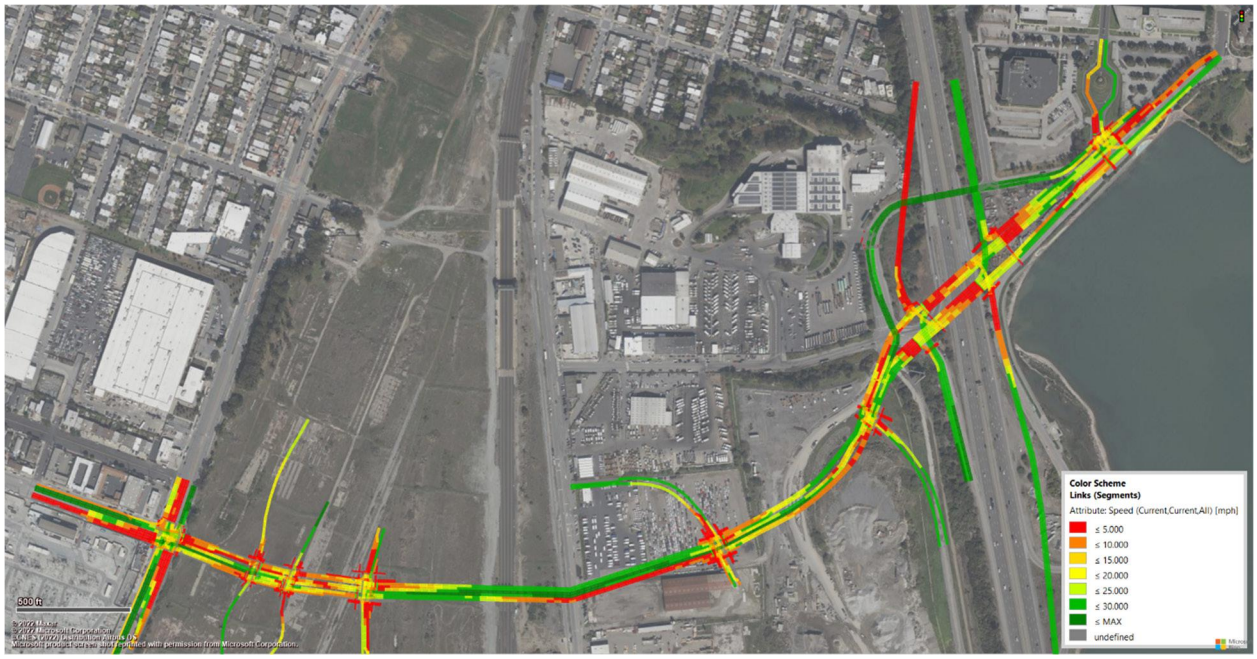


Cumulative Plus Project with Candlestick Interchange (Recommended Improvements) - AM Peak Hour Conditions

Interval 3

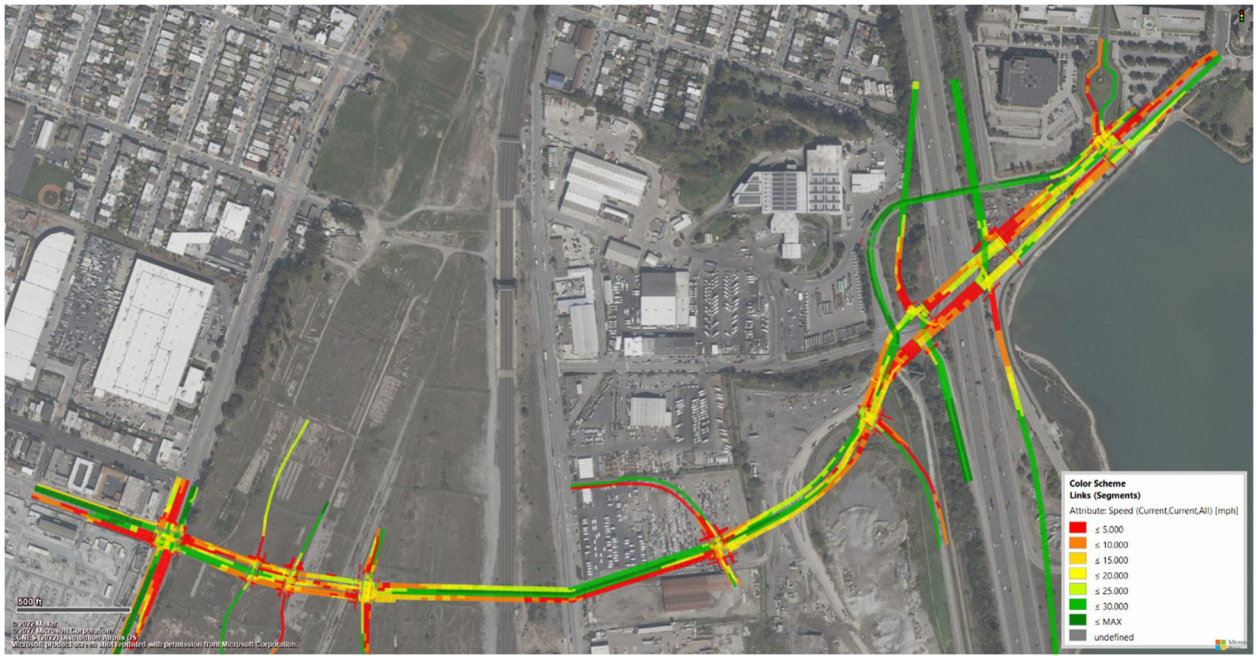


Interval 4

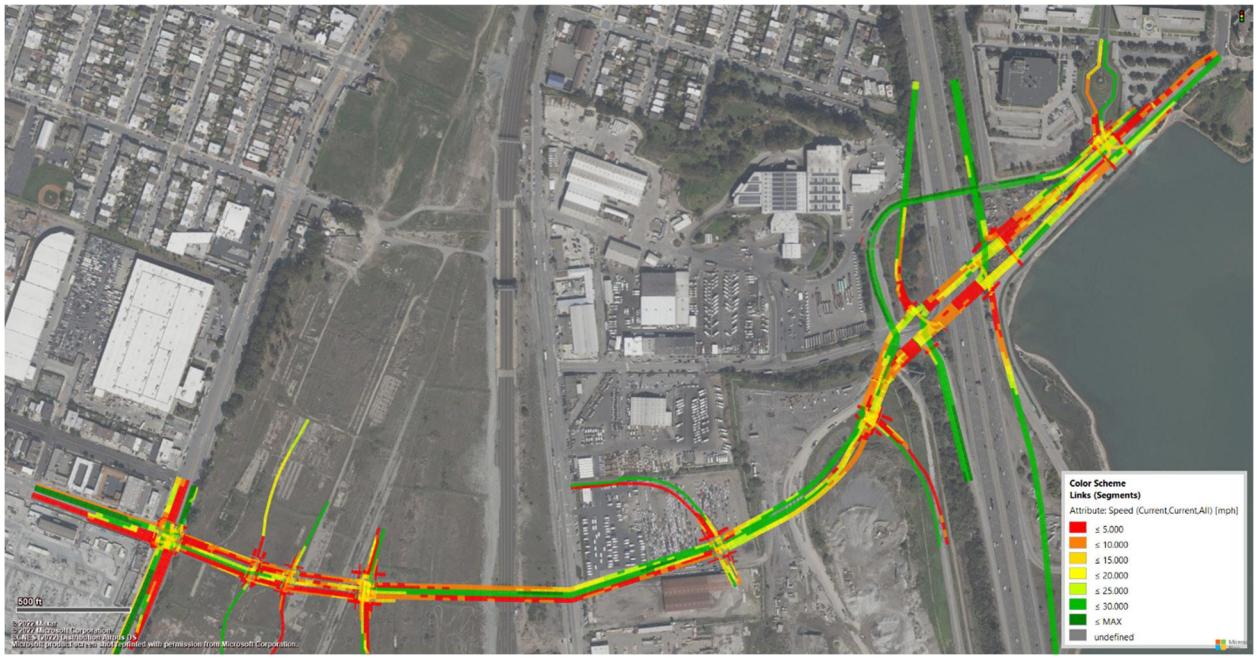


Cumulative Plus Project with Candlestick Interchange (Recommended Improvements) - PM Peak Hour Conditions

Interval 1

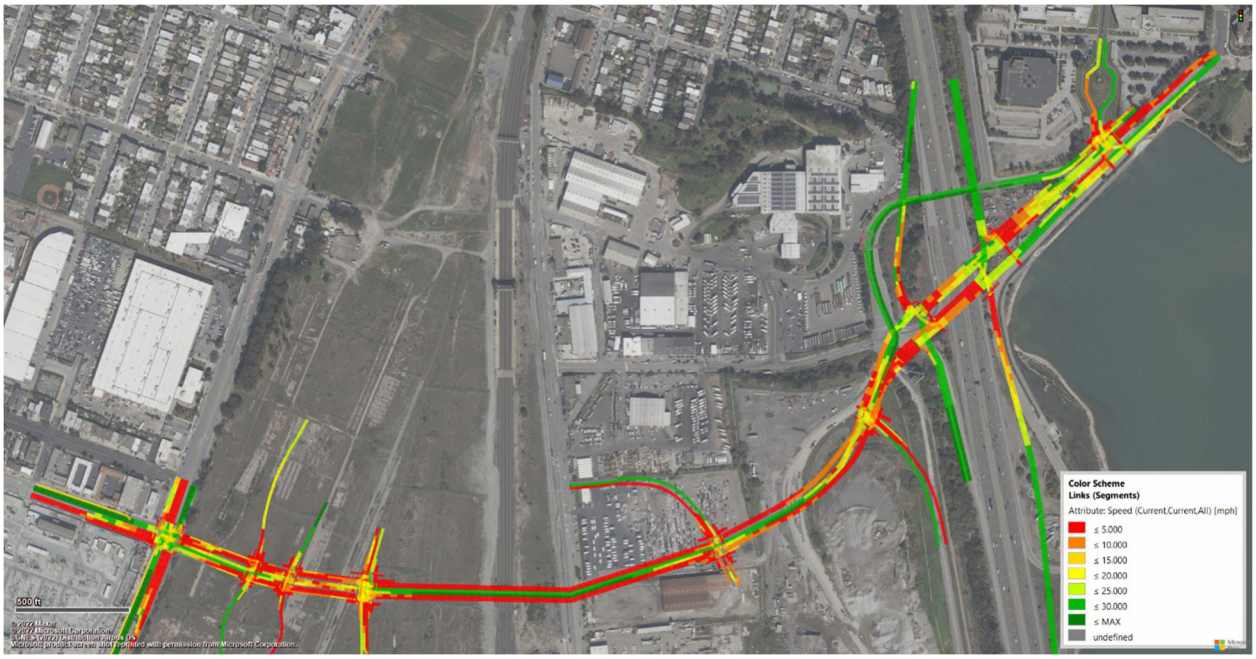


Interval 2

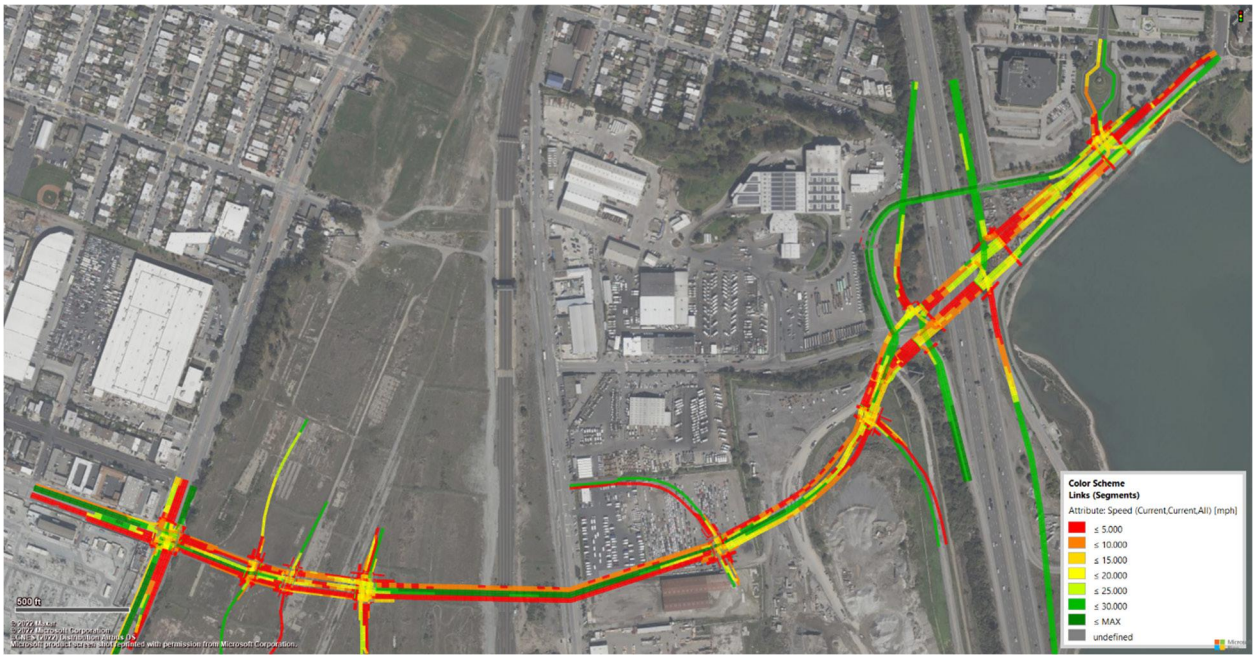


Cumulative Plus Project with Candlestick Interchange (Recommended Improvements) - PM Peak Hour Conditions

Interval 3



Interval 4



Appendix E: Supplemental Design Guidelines

FEHR PEERS

Memorandum

Date: July 2024

To: City of Brisbane

From: Fehr & Peers

Subject: Brisbane Baylands Transportation Impact Study: Supplemental Roadway Design Guidelines

SF19-1036

Purpose

This memorandum identifies transportation facility design guidelines and industry best practices to supplement the design guidelines included in the Brisbane Baylands Specific Plan ("Specific Plan") and other application materials in support of the Brisbane Baylands ("Baylands") development. These supplemental roadway design guidelines are intended to guide the City of Brisbane through the detailed design review of the infrastructure plans for the Baylands development and ensure that relevant standards are incorporated to reduce the potential for hazardous conditions for all roadway users.

Background

The City of Brisbane has adopted the Caltrans Highway Design Manual as their own design standards. The guidance contained within these Supplemental Roadway Design Guidelines provides additional design guidance that can be used at the City's discretion. While Caltrans' Highway Design Manual (HDM) identifies ways in which those standards can be flexible to adapt to different land use contexts, the standards were developed for application on state highways. The network of local streets that are proposed as part of the Baylands development are distinctly different from the state highway system in who they are intended to serve, how road users are intended to be served, and the land use context in which they are centered. The supplemental design guidance below focuses on industry resources that are better suited to align to the conditions and needs for these future city streets.

The Brisbane Baylands Supplemental Roadway Design Guidelines start with Caltrans' *Design Information Bulletin 94 Complete Streets: Contextual Design Guidance* ("DIB-94", January 2024)

that provides guidance and establishes standards for complete streets, which in some cases supersedes the standards in the HDM. [1] The DIB-94 identifies best practice and establishes standards for development of Complete Streets facilities to support the design of comfortable and convenient streetscapes and provides minimum expectations based on context. California's Manual on Uniform Traffic Control Devices (MUCTD) also provides standards and guidance related to the design of roadway facilities that all facilities shall be consistent with.

These Supplemental Roadway Design Guidelines also incorporate proven safety countermeasures from the United States Department of Transportation (USDOT), Federal Highway Administration (FHWA) and other recommendations found in "best practice" guidelines from Caltrans and other national and state organizations. Caltrans has developed extensive guidance on the provision of safe facilities for people walking and bicycling and has endorsed other design guidelines such as the FHWA's Bikeway Selection Guide[2] and those produced by the National Association of City Transportation Officials (NACTO) for selecting all ages and abilities bikeways[3]. Other related Caltrans guidance documents are referenced throughout this memorandum.

Caltrans Highway Design Manual Case Study: Bayshore Boulevard is an example of a facility within the City of Brisbane that was designed and built to be fully consistent with HDM standards. Bayshore Boulevard is designated as a regional arterial and serves primarily as a regional route for vehicles to move quickly through the City. Bayshore Boulevard has also routinely been identified by local decision-makers and residents as a barrier and a nuisance due these features. These supplemental roadway design guidelines intend to bridge the gap between the HDM and the latest standards and guidance from Caltrans and other national standards to support the intended purpose of the new roadways within the Baylands development to prioritize the safe movement of people walking and bicycling over vehicle

In addition, these Supplemental Roadway Design Guidelines address Caltrans' LDIGR Safety Review Practitioners Guide (December 2020)[4], which notes the following issues should be address in review of land use developments:

[1] Caltrans DIB-94: https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib-94-010224-a11y.pdf

[2] Caltrans adoption noted in memorandum *Bikeway Facility Selection Guidance* (June 2020) located here: https://dot.ca.gov/-/media/dot-media/programs/design/documents/dod-bikeway-selection-memo_06302020_signed-a11y.pdf. FHWA guide can be found here: https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf

[3] Caltrans adoption noted in *Active Transportation Emphasis Area Guidance for Corridor Planning* (February 2022). NACTO guide can be found here: https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/

[4] Caltrans LDIGR Safety Review: https://dot.ca.gov/-/media/dot-media/programs/transportation-planning/documents/sb-743/2020-12-22-updated-interim-ldigr-safety-review-guidance-a11y.pdf

Staff should determine site access meets applicable design standards, referencing the Caltrans Highway Design Manual and the National Association of City Transportation Officials bicycle and pedestrian design guides, when applicable. Examples of access management include the following:

- *Sight distance constraints caused by placement of a driveway.*
- *Driveway or intersection spacing.*
- *Queuing onto roadways caused by project access design features such as driveway placement near ramp intersections or missing left turn pockets.*
- *Multimodal conflict points caused by turning vehicles.*
- *Pedestrian and bicycle connections from the state highway to the entrance(s) of the new land use that are incomplete.*

Regionally, Metropolitan Transportation Commission's (MTC) Complete Streets Policy (Resolution 4493) recommends similar guides to those noted above by USDOT, NACTO, and FHWA. A final reference is the City of San Francisco's street design standards, known as the Better Streets Plan[5], given the adjacent location and similar context to the proposed Project. These street design standards were developed based on similar national and state design standards and have been applied for over 10 years to a similar built form as proposed by the Baylands project with respect to density of land uses and the prioritization of safety for people walking, bicycling, driving and riding transit.

Design Considerations

Flexibility and Performance-Based Design

The appropriate street geometry and traffic control devices are influenced by a combination of desired performance, mix of road users, land use contexts, and contextual or physical constraints. Industry resources, standards or regulations either help inform or establish the boundaries for the range of decisions that can be made (e.g., industry practices have established specific warrants to be met to install a traffic signal). This approach of performance-based design while being context sensitive is reflected in the FHWA's *Flexibility in Highway Design*; AASHTO's publication *A Guide for Achieving Flexibility in Highway Design*; and NCHRP Report 785 *Performance-Based Analysis of Geometric Design of Highways and Streets.*

Project Context

Caltrans DIB-94 identifies specific aspects of context that should inform multimodal facility select and design for complete streets and identifies a range of rural to urban place types based on Caltrans Smart Mobility Framework and Main Street, California Guide.[6] The density of land uses

[5] https://sfplanning.org/resource/better-streets-plan
[6] For more information on these guides, visit Smart Mobility Framework and Main Street, California

and design of the Baylands Specific Plan around walking, bicycling, and transit use qualify the Project under the Urban Community and Center City place types, matching the adjacent San Francisco neighborhoods while the surrounding neighborhoods in San Mateo County more closely align with the Suburban place type. As noted in Table 3.2 of DIB-94, pedestrians, bicycles, and transit are the highest priority when considering the design of the roadway network while the needs of automobile travel and trucks should be taken into considerations, but tradeoffs in level of facility must consider accommodating the other modes.

Road Safety

The industry, national, and state-level approach to roadway safety has evolved from a reactive one to adopt a proactive Safe System Approach (SSA). The SSA has been adopted by United States Department of Transportation (USDOT) as well as Caltrans as their respective strategies for improving road safety performance and serves as a foundation for Caltrans' DIB-94.[7]

The SSA has six leading principles intended to guide strategies, policies, programs, projects that are put into action across five different elements. The graphic on the right illustrates the five elements with the six principles summarized around the outer circle.



Source: FHWA

Most relevant to this design guidance are the Safe Speeds and Safe Roads elements. When thinking about those elements through lens of the six principles, considerations such as speed, separation between road users, road user expectations, and visibility begin influencing design decisions and guidance. Those characteristics and attributes are reflected in the corridor and intersection treatments discussed below.

Corridor-wide Treatments

This section details corridor-wide treatments for automobile, pedestrian, bicycle, and transit facilities, including separated pathways such as the Bay Trail, as well as for the proposed Green Streets typology in the Specific Plan.

[7] For more information on these policy statements, visit Caltrans Director's Policy 36 – Road Safety (DP-36) and FHWA Safety System Approach.

Automobile Facilities

Caltrans' DIB-94 includes guidance on the appropriate operating vehicle speeds and lane widths for the Project's context. As shown in Table 4.1 of DIB-94, the appropriate operating vehicle speeds within the Baylands site are 35 miles per hour (mph) and lower, with 25 mph or lower appropriate for areas with high pedestrian volumes, frequent transit stops, schools, senior centers, or areas with restricted sight distances. The Safe Systems approach described above and consideration of Assembly Bill 43 (Friedman, 2021)[8] shall be used when setting speed limits on roadways within the Project. Given that most of the project site is designed for walking and transit use and would qualify as a business activity district in accordance with Assembly Bill 43, 20 or 25 mph would be the prima facie speed limits for most roadways in the project site. Additionally, speed limits of 15 mph are appropriate in certain settings such as in school zones (on roadways within 500 feet of the proposed Baylands School) and on Green Streets (see Green Streets section below). Speed management techniques outlined in the DIB-94 are required to transition between different place types, such as along Bayshore Boulevard from the Suburban place type character around Guadalupe Canyon Parkway to the Urban place type proposed by the Project. In summary, based on this guidance, the design speeds for the Project's roadway network shall be as follows:

- 35 mph on arterials, including Bayshore Boulevard and Geneva Avenue, Tunnel Avenue, Sierra Point Parkway, and Lagoon Road;
- 25 mph on other streets, except Green Local Streets and within 500 feet of the proposed middle school; and
- 15 mph on Green Local Streets at all times and on all streets within 500 feet of the proposed middle school when children are present.

Table 5.3 of the DIB-94 suggests minimum lane widths of 10.5 feet for roadways operating at 35 mph or under for the Urban Areas context to accommodate larger buses and trucks. However, on local roadways that are not intended to routinely serve larger vehicles and have lower traffic volumes, narrower lane widths of 10 feet are appropriate to support the intended slower vehicle speeds for the local context.[9] 10-foot travel lanes provide safety benefits compared to wider travel lanes on roadways with 15 to 25 mph speeds.[10] Therefore, the arterial roadways with 35 mph design speeds noted above and collector roadways that will serve shuttle buses or trucks shall

[8] For more information on Assembly Bill 43, Friedman, Traffic Safety, visit: https://legiscan.com/CA/text/AB43/id/2436617

[9] NACTO, Urban Street Design Guide, Lane Width section, which is accessible here: https://nacto.org/publication/urban-street-design-guide/street-design-elements/lane-width/

[10] John Hopkins and Bloomberg American Health Initiative, Investigation on the Impacts of Lane Width on Traffic Safety: Narrowing Travel Lanes as an Opportunity to Promote Biking and Pedestrian Facilities within the Existing Roadway Infrastructure, November 2023, which is accessible here: https://narrowlanes.americanhealth.jhu.edu/

have minimum lane widths of 10.5 feet[11] while local roadways and green streets shall have lane widths of 10 feet.

The proposed vehicle street cross sections proposed by the Project meet these guidelines, although the Specific Plan does not designate speed limits under 25 mph. Therefore, the locations where 15 mph speed limits shall be required during the roadway design review phase in accordance with the land use context and guidelines presented herein.

Pedestrian Facilities

The Specific Plan cites a standard sidewalk dimension of approximately 12 feet, including a minimum through zone with clear walking pathways of 5 feet in addition to a furnishing and planting zone. Per Table 5.2.1 of DIB-94, sidewalks in an urban area should include a 4-to-8-foot buffer zone (also known as furnishing and planting zone), a 6-to-12-foot through zone, and a 2-to-4-foot frontage zone adjacent to buildings. Therefore, sidewalks in the Baylands Specific Plan shall include a minimum of 6 feet through zone and 12 foot total width for streets with residential or employment frontages and a minimum of 8 feet through zone and 15 foot total width for sidewalks adjacent to schools, community centers, or streets with active ground floor retail, such as Main Street. Sidewalks with a 5 foot through zone are appropriate for Green Streets, which provide shared space for people walking, and roadways such as Frontage Road that will primarily serve vehicle-oriented uses such as loading and parking access. Additional guidance on these zones is presented in Sections 5.2.1 through 5.2.3 of the DIB-94. These guides account for the quality of the pedestrian environment based on land use context and align with the need to provide wider sidewalks in busy pedestrian environments per the Highway Capacity Manual (HCM) 6th Edition approach referenced in Caltrans HDM Section 105.1 Sidewalks and Walkways.

Bicycle Facilities

The FHWA Bikeway Selection Guide (adopted in Caltrans' DIB-94) recommends that on roadways with speeds at or greater than 30 miles per hour, a separated bike lane or shared use path be considered for implementation, and at speeds of 35 miles per hour or greater, a separated bike lane or shared use path be implemented.[12] This guide and Caltrans DIB-94 include figures that details when different bicycle facilities shall be considered, based on daily traffic volumes and roadway speeds, which can be found in **Attachment A.** All bikeway facility widths shall meet or exceed the minimum widths presented in Tables 5.1.1 through 5.1.4 of DIB-94, which represents the standard for bikeway design in California upon adoption of this document.

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[11] For roadways with two lanes in each direction, such as Geneva Avenue, the provision one 11-foot-wide curb lane and one 10-foot-wide inside lane meets this standard as trucks travel primarily in the curbside lane except for short distances to pass or turn left.

[12] FHWA, *Bikeway Selection Guide,* February 2019, Page 23. https://safety.fhwa.dot.gov/ped_bike/tools_solve/docs/fhwasa18077.pdf.

Streets that are proposed to include bike facilities and speed limits greater than 25 miles per hour include Geneva Avenue, Tunnel Avenue, Sierra Point Parkway, and Lagoon Road. Shared use paths with vertical separation or at least eight feet of landscape buffer are proposed on the Geneva Avenue bridge, Sierra Point Parkway, and Lagoon Road. Geneva Avenue (to the east and west of the bridge over Caltrain) would include buffered bicycle facilities with 1.5-foot separation while Tunnel Avenue would have 2.5-foot separation. The FHWA recommends a minimum buffer width of 2 feet[13] and Caltrans DIB-89 presents additional guidance on the design of buffers and vertical separation that the Project bikeway designs shall comply with[14]. The Project does not propose changes to the existing Class II bicycle lanes on Bayshore Boulevard, although the Bayshore Corridor Mobility Plan would include the addition of a Class I multi-use pathway south of Geneva Avenue.[15]

San Francisco Bay Trail and Shared Use Pathways

Shared use pathways shall be used to provide access for people walking and bicycling to or through parks or schools when other protected bicycle facilities and sidewalks are not provided to ensure that all ages and abilities facilities are provided to these key destinations. The Project proposes a network of shared use pathways through parks, including gap closures for the Bay Trail. In addition to this proposed network, the following locations shall include shared use pathways if other all ages and abilities facilities are not provided:

- On Main Street connecting Bayshore Boulevard to Linda Vista Drive to facilitate travel by students between Daly City and the Baylands for school.
- On Valley Drive east of Bayshore Boulevard (currently the fire station entrance) to connect the community fields to the proposed multi-use pathway on Bayshore Boulevard as proposed through the Bayshore Mobility Plan.
- Bay Trail connections to the north and south of the proposed segments, as described further below.

Bay Trail segments near the Project include Class I path segments at Candlestick Point to the north and Class II bicycle lanes on Sierra Point to the south. The Project site contains an existing gap in the Bay Trail network. Although bicyclists can travel west from the Bay shoreline and use

[13] FHWA, *Bikeway Selection Guide,* February 2019, Page 40.
[14] Caltrans DIB-89 at: https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib-89-02-final-a11y.pdf
[15] Although there is a currently buffer for the Class II bicycle lane on Bayshore Boulevard south of Geneva Avenue, there is not a buffer north of Genva Avenue. Figure 6.8.4 of the Baylands Specific Plan (January 19, 2023) indicates that Bayshore Boulevard would have a buffer for the northbound Class II bike lane on the segment of Bayshore Boulevard north of Geneva Avenue, but also indicates on the previous page that no changes are proposed within the proposed right-of-way. If the Project does alter this segment of Bayshore Boulevard, the buffer indicated in this figure shall be designed in a manner consistent with Caltrans DIB-94.

Tunnel Avenue to travel north-south through the Project site, this alignment is not officially designated as part of the Bay Trail.

The Bay Trail corridor is a part of MTC's regional Active Transportation Network, which per MTC's complete street policy should include facilities that are designed for all ages and abilities.[16] The proposed network of shared use pathways that will become part of the Bay Trail shall be designed to meet Bay Trail standards. The following design features shall be included on San Francisco Bay Trail segments and should be included if feasible for the other proposed shared use pathways:

- Provide continuous all ages and abilities connectivity consistent with MTC's regional Active Transportation Network between the existing Bay Trail from south on Sierra Point Parkway to the existing Class I path segments on Harney Way to the north in coordination with other planned projects such as the City of San Francisco's near-term Harney-101 Transit Crossing project[17] or future Candlestick Interchange project and proposed development projects in Sierra Point. Development in Sierra Point will increase demand for multi-modal travel between Baylands and Sierra Point and thus will share responsibility for these features.
- Where the Bay Trail or shared use pathways crosses roadways, provide high-visibility crosswalks and conflict marking for all road users and consider raised crosswalks consistent with Caltrans' DIB-94, Chapter 6 and FHWA guidance. Any crossings shall be designed to include treatments consistent with the FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Locations,* which are referenced below in the Intersection Treatment section.[18] Per the Caltrans' Highway Design Manual, any at-grade intersection along the highway system shall be carefully evaluated for all road-users' safety.[19] Per FHWA's Safe Transportation for Every Pedestrian Countermeasure Tech Sheet, raised crosswalks can be considered for 2 or 3 lane streets with posted speed limits at 30 mph or under and traffic volumes of 9,000 or less.[20]
- Provide pedestrian-scale lighting to make pedestrians, bicyclists, and other non-motorized road users feel safer at night. Appropriate lighting should also be designed and implemented for road crossings to increase the visibility of people walking and biking to motorists.

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[16] These are identified as a part of MTC's Transit-Oriented Communities Policy (Resolution 4530) and Complete Streets Policy (Resolution 4493). MTC Active Transportation network is accessible here: https://mtc.maps.arcgis.com/apps/mapviewer/index.html?webmap=8c0efbb322804b06ba8820f1672bd79f

[17] https://www.sfmta.com/projects/harney-101-transit-crossing-project

[18] United States Department of Transportation, Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, January 2018, Page 16. https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/STEP-guide-improving-ped-safety.pdf.

[19] Caltrans, *Caltran's Highway Design Manual, Chapter 400 – Intersections at Grade.* https://dot.ca.gov/-/media/dot-media/programs/design/documents/chp0400-a11y.pdf.

[20] https://safety.fhwa.dot.gov/ped_bike/step/docs/TechSheet_RaisedCW_508compliant.pdf

Green Streets

The project includes "Green Streets" or shared-use, low-speed roadways. The City of Brisbane General Plan does not have design standards for this street category. According to the FHWA, these streets should encourage low-motor vehicle speeds and low motor vehicle volumes.[21] Because pedestrians, bicyclists, and vehicles are all mixing, the Project shall comply with the design guidelines presented in FHWA's *Accessible Shared Streets* to provide safety for all road users, including the following types of features:

- Clearly demarcated shared zoned, furniture, comfort, and frontage zones
- Gateway features that distinguish the shared street from adjacent conventional streets.
- Provide traffic calming measures, such as vertical deflection (e.g., raised crossings), horizontal deflection (e.g., chicanes), textured paving (e.g., cobbles), as well as the physical and visual narrowing of the field of vision for drivers to encourage slow speeds (defined as between 5 and 15 mph by FWHA).
- Provide frequent and visible signage to alert all road users of the low-speeds and presence of all other road users, including shared street signs and posted speed limits.
- Raised elements, including speed humps or tables, and raised crosswalks, can be used to slow traffic along the roadway.
- Provide adequate spacing between driveways to individual buildings to ensure sight lines are not obstructed for vehicles entering or exiting the driveways on shared streets.

Appropriate traffic volumes and speeds as expressed by FWHA or other agencies with shared streets, such as San Francisco[22], include setting targets for no more than 1,000 vehicles per day with median vehicle speeds of 15 miles per hour or less. The Project shall monitor traffic volumes and speeds on green streets to ensure that daily vehicle volumes average 1,000 vehicles or less and that median vehicle speeds are 15 miles per hour or less. The Project's proposed Green Streets are all one-block long and provide limited access for people driving that do not have a destination on these streets, and therefore these traffic volumes maximums are reasonable based

[21] FHWA, *Accessible Shared Streets,* October 2017. https://www.fhwa.dot.gov/environment/bicycle_pedestrian/publications/accessible_shared_streets/.

[22] SFMTA's *Slow Streets Evaluation 2023* report includes evaluation metrics of maintaining fewer than 1,000 vehicles and vehicle speeds less than 15 miles per hour or less. This report indicates that collisions on Slow Streets have decreased by 48 percent compared to their implementation: https://issuu.com/sfmta_marketing/docs/2023_slow_streets_evaluation_report_20230502

on the Project's design.[23] The Project shall implement additional features consistent FHWA's guide to slow traffic speeds and reduce the potential for cut through traffic if these metrics are not met.

Transit Facilities

SamTrans bus stops within or adjacent the Project shall provide all the amenities recommended in the SamTrans' *Bus Stop Improvement Plan*[24], such as bus shelters, benches, and real-time information. The following are key considerations for bus stop placement, design, and amenities consistent with Caltrans' DIB-94 Chapter 7:

- Provide a paved and ADA accessible sidewalk or path to access the bus stop to and from land uses that generate pedestrian foot traffic.
- Provide high-visibility crosswalks within 50 to 200 feet of bus stops across all adjacent roadways to provide safe and convenient access per Section 6.1 of DIB-94. Preferred crosswalk placement is behind, or upstream, of the bus transit stop to avoid conflict between pedestrians and transit buses and allow the transit buses to merge with traffic more easily. See crosswalk treatments in the Intersections section below. Any crossings shall be designed to include treatments consistent with the FHWA *Guide for Improving Pedestrian Safety at Uncontrolled Locations,* which are referenced below in the Intersection Treatment section.[25]
- Where transit stops interact with bike lanes on corridors with frequent bus service or higher rates of bicycles, transit boarding islands shall be used unless deemed infeasible by the City of Brisbane City Engineer. These facilities provide a dedicated waiting area for passengers while allowing a bike lane along the corridor to be continuous. While this improves safety for bicyclists by not reducing potential conflicts with buses, NACTO also cites reduced dwell times as a benefit to transit operations.[26]

Intersection Treatments

This section details intersection treatments that can reduce the potential for the creation of hazardous conditions. During the infrastructure approval phase, the project applicant shall submit

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[23] The access that these Green Streets provide are lower than any of the Slow Streets in SFMTA's study. The highest number of potential residential units fronting a green street are the streets between blocks B4 and B7 and between blocks B7 and B11 (225 and 245 units respectively, as shown in Table 3.4 and Figure 3.9. Based on the average trip generation rate, including the required TDM plan, for the attached single-family units of 4.64 vehicle trips per day, these streets would have 1,045 and 1,137 vehicle trips per day. All other streets would include less than 1,000 vehicles accessing the abutting land uses.

[24] https://www.samtrans.com/projects/bus-stop-improvement-plan

[25] United States Department of Transportation, Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations, January 2018, Page 16. https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/STEP-guide-improving-ped-safety.pdf.

[26] NACTO, *Side Boarding Island Stop*, 2023. https://nacto.org/publication/transit-street-design-guide/stations-stops/stop-configurations/side-boarding-island-stop/.

intersection warrants, sight distance analyses, and turning templates for trucks, buses, or other design vehicles prior to the approval of any intersection design in a manner consistent with Brisbane Municipal Code Chapters 10.12 and 10.16 and the California MUTCD.

Intersection Controls

Intersection controls shall follow guidance based on the functional classification of the intersecting roadways. Intersection controls are listed based on the higher functional classification and are not duplicated for lower classification roadways. Engineering studies described above can be conducted to deviate from this guidance at the approval of the City of Brisbane City Engineer.

- **Regional Arterials** – Traffic signals shall be provided at all intersections of regional arterials (Bayshore Boulevard and Geneva Avenue) with arterials or collectors. All local or green streets shall be stop controlled when intersecting with regional arterials unless left turns are allowed, in which case the intersection shall be signalized. An example of where left turns are allowed from a local street is the intersection of Geneva Avenue and the Connector Road to Tunnel Avenue.
- **Minor Arterials** – Roundabouts shall be provided at the intersections of Lagoon Road with Tunnel Avenue and Sierra Point Parkway and at Tunnel Road and the Connector Road to Geneva Avenue. Collectors and local cross streets that intersect with Tunnel Avenue and Sierra Point Parkway shall be stop controlled as traffic volumes are expected to be substantially higher on the minor arterials than cross-streets, unless a traffic engineering study demonstrates that a roundabout, traffic signal, or all-way stop controlled intersection is warranted.
- **Collectors** – The intersection of two collectors shall include all-way stop control except for the intersections of Baylands Boulevard / Main Street and Baylands Boulevard / Frontage Road, where a traffic signal shall be installed due to their presence adjacent to major activity generators. Local and green streets shall be stop controlled as side streets when intersecting with collectors, unless a traffic engineering study demonstrates that an all-way stop is warranted.
- **Local Streets** – The intersections of two local streets shall be all way stop controlled except for Roundhouse Circle, where all intersecting streets shall be side street stop controlled unless a traffic engineering study demonstrates that an all-way stop is warranted. Green Streets shall be stop controlled when intersecting with a local street.
- **Green Streets** – Green Streets do not intersect with each other and thus shall follow the guidance listed above.

Additional considerations related to signalized intersections, turning pockets and deceleration lanes, and side-street stop-controlled intersections are presented below.

Signalized Intersections

According to the FHWA, when distance between signals is less than 500 feet, the signals often need to be timed to manage queues rather than to optimize vehicle throughput. When signals are this close together, it can be beneficial to operate the two intersections with one controller.[27] Closely spaced signals also provide the opportunity to coordinate signals to manage vehicle speeds and thereby improve overall road safety performance (e.g., establish a green band for 25 or 35 mph travel). One example of a signalized intersection that is too closely spaced is the intersection of Industrial Way with the new signal at Main Street. Industrial Way therefore shall be eliminated or converted to a side-street stop-controlled intersection that allows right-turn in and out only, with the primary vehicular access to the southern portion of the Roundhouse District provided through Main Street.

Turning Pockets and Deceleration Lanes

Intersections with arterial roadways shall include left-turn pockets for locations where left-turns are allowed, and the turn pockets shall be sized during the infrastructure design phase to ensure vehicles do not extend beyond the turn pocket based on approval of the City of Brisbane City Engineer. The proposed Project allows for left turns from southbound Bayshore Boulevard into the project site at the existing signalized intersection of Geneva Avenue and the new signalized intersections of Main Street and Campus Parkway. Right-turns in and out of the project site are the only movements allowed for the remaining intersections on Bayshore Boulevard with local and green streets. Left-turns would be allowed on the Geneva Avenue extension at Bayshore Boulevard, Park West and Park East streets, and at Sierra Point Parkway, and would be prohibited from Geneva Avenue at Baylands Boulevard, although left-turns would be allowed onto Baylands Boulevard at this location. For other roadways, turn pockets shall be provided to accommodate left-turning movements at signalized intersections to allow for protected turning movements and the safe storage of queued vehicles. Two-way left turn lanes or turn pockets for left turns shall be provided on minor arterials, including Tunnel Avenue and Sierra Point Parkway.

In general, acceleration and deceleration lanes are not recommended for the Project's context. The HDM notes that acceleration lanes should be considered when an existing intersection intersects at less than 75 degrees to accommodate difficult turning movements due to radius or limited visibility and on rural intersections on state highways where the minor street approach is stop controlled, which are not applicable to Bayshore Boulevard. Table 205.2B of the HDM presents designs for deceleration lanes based on speed although the HDM does not include clear thresholds on when deceleration should be provided. The Bayshore Mobility Plan presents additional details of how Bayshore Boulevard can best balance accessibility and connectivity and safety along this corridor.

[27] FHWA, *Traffic Signal Timing Manual.* https://ops.fhwa.dot.gov/publications/fhwahop08024/chapter3.htm

Side-Street Stop Controlled Intersections

Speed differentials between vehicles as well as vehicles and other modes increases risk of severe collisions as well as reduces the amount of time road users have to react to a conflict and avoid a collision. Where side street stop controls exist on Regional and Minor Arterials with speed limits of 35 mph, vehicles turning onto the higher-speed road may feel the need to accelerate rapidly, while vehicles turning onto a lower-speed may decelerate rapidly. Additionally, vehicles turning onto the major street will need to judge a gap in traffic, which can be more challenging when the major street has multiple lanes, higher speeds, and/or roadway curvature. To improve safety at these types of intersections, the following features shall be considered:

- Limit access to right-in and right-out only to limit conflicts and higher speed left-turning movements. The Specific Plan includes this feature when Local and Green Streets intersect with Regional Arterials, except where traffic signals are provided, with a raised median on the major street to prevent left turns into and out of a side street intersection. When implementing a right-in right-out intersection, provide adequate signage to alert drivers what movements are allowed and what movements are prohibited.
- Install signage for vehicles at the stop sign to indicate that Cross Traffic Does Not Stop.
- Install high-visibility crosswalks across the stop-controlled, minor street approach, and install crosswalks across on the major street only if warranted based on MUTCD and the guidance presented in the below *Pedestrian and Bicycle Facilities* section.
- Install "gateway" treatments such as raised crossings, curb extensions, and tight turning radii to limit turning speeds from major to minor street.[28]
- Reduction in the posted speed limit to 35 mph or less with corresponding traffic calming measures like reduction in travel lanes (e.g., road diet), lane narrowing, signal progression to manage speeds, etc. on the major street, such as what is proposed in the Bayshore Mobility Plan.
- Convert the minor street stop-controlled intersection to a roundabout or traffic signal (if warrants are met).

Intersection Multi-Modal Safety Features

The following features include proven safety countermeasures from the FHWA[29] and measures that are included within Caltrans' DIB-94 related to safe intersection design and shall be included as warranted to the satisfaction of the City of Brisbane City Engineer.

[28] NACTO Urban Street Design Guide, https://nacto.org/publication/urban-street-design-guide/intersections/intersections-of-major-and-minor-streets/

[29] https://highways.dot.gov/safety/proven-safety-countermeasures

Crosswalks

Section 6.0 of DIB-94 and HDM Index 105.6 Pedestrian Crossings, CVC Section 275, and CA MUTCD Section 3B.18 Crosswalk Markings provide guidance and requirements for the location and design of crosswalks. See also Caltrans 28 Proven Safety Countermeasures website and the FHWA Guide for Improving Pedestrian Safety at Uncontrolled Crossings Locations for additional guidance for crosswalk enhancements. In general, as described in Section 6.1 of DIB-94, crosswalks shall be marked at all signalized intersections, at non-signalized locations adjacent to bus stops and community destinations such as parks, schools, and active retail frontages. Crosswalks shall be spaced no more than 250 to 500 feet throughout the Baylands Specific Plan to adequately accommodate people's desire lines to reach their destinations. Key features include:

- **High Visibility Crosswalks**: Increases visibility of crosswalk using striped pattern with ladder markings made of high-visibility material, such as thermoplastic tape, instead of paint. This feature shall be marked on all legs of intersections where legal crossings are allowed and should match the width of the sidewalk.
- **Raised Crosswalks**: Per FHWA's Safe Transportation for Every Pedestrian Countermeasure Tech Sheet, these features can be considered for 2 or 3 lane streets with posted speed limits at 30 mph or under and traffic volumes of 9,000 or less.[30] This feature should generally be avoided on truck routes, emergency routes, and arterial streets. This feature shall be included for all driveways, alleyways, Green Streets, and qualifying uncontrolled mid-block crossings, and can be considered for stop or uncontrolled intersections with high pedestrian volumes.
- **Advance Stop Bars:** Increases vehicle yielding compliance at stop-controlled or signalized crosswalks, which reduces vehicle encroachment in the crosswalk. This feature shall be included at marked crosswalks in a manner consistent with advanced stop lines consistent with the national guidance found in Section 3B.16 of the MUTCD[31].
- **Enhanced Signing and Pavement Markings:** Signage includes "*YIELD here for Pedestrians" or "STOP here for pedestrians,"* and striping includes advance stop bars or yield teeth. This feature shall be prioritized for uncontrolled pedestrian or bicycle crossings.

Signal Features

- **Leading Pedestrian Intervals**: A leading pedestrian interval (LPI) gives pedestrians the opportunity to begin crossing at an intersection a few seconds before the vehicles are given a green light, which increases the visibility of pedestrians who are crossing. This feature shall be included at all signalized pedestrian crossings.

[30] https://safety.fhwa.dot.gov/ped_bike/step/docs/TechSheet_RaisedCW_508compliant.pdf
[31] https://mutcd.fhwa.dot.gov/pdfs/2009r1r2/part3.pdf

- **Pedestrian Countdown Signal Heads:** Displays the number of seconds remaining until the steady Don't Walk phase appears, which signals to pedestrians whether they have adequate time to cross the roadway. This feature shall be included at all signalized pedestrian crossings.
- **Bicycle Signal Phase:** Provides a dedicated bicycle signal head and phase for bicyclists. This feature shall be included at all signals with protected bicycle features.
- **Prohibiting Right Turn on Reds:** Improves pedestrian safety by protecting their crossing movement and forcing vehicles to wait for their protected turning movement. This feature shall be included at all signalized pedestrian crossings in areas with high pedestrian volumes or vulnerable users, such as school children.
- **Protected Left Turn Phasing:** Adds a signal phase and head with left arrow to provide a dedicated time for left turning vehicles, reducing the risk of broadside collisions and pedestrian collisions. This feature shall be considered at all signals that allow left-turns.

Other Striping and Design Features

- **Daylighting:** Removing parking or other curb use adjacent to curbs on the approach side of intersections (15 feet or 20 feet for locations with or without a curb extension, respectively) to increase visibility for pedestrians and drivers and minimize conflicts. This feature is required by state law for all marked or unmarked crosswalks, per Assembly Bill 413. [32]
- **Protected Intersection:** Extends protected or buffered bike paths through the intersection and creates a pedestrian bulb out, which shortens the pedestrian crossing distance.[33] This feature shall be included at all intersections on roadways with protected bicycle facilities.
- **Conflict Striping:** Continues bike lane striping through the intersection to alert drivers crossing the bicycle path of the presence of bicyclists.[34] This feature shall be considered at all intersections on roadways with protected bicycle facilities.
- **Pedestrian Scale Lighting:** Illuminates the crosswalk to make pedestrians more visible to drivers and prevents glare. This feature shall be prioritized at crossings on collector or arterials and locations with high traffic volumes or travel speeds.
- **Medians and Pedestrian Refuge Islands**: For crossings of larger distances, these shorten the crossing distance so that the amount of time a pedestrian is in a vehicle line of travel is reduced.

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[32] Assembly Bill 413 legislative text is presented here: https://leginfo.legislature.ca.gov/faces/billNavClient.xhtml?bill_id=202320240AB413

[33] FHWA, *Fact Sheets: FHWA Improving Intersections for Pedestrians and Bicyclists. h*ttps://safety.fhwa.dot.gov/intersection/about/fhwasa22041.pdf

[34] https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/intersection-crossing-markings/

Pedestrian and Bicycle Crossings at Uncontrolled Locations

In addition to the above measures, there are various countermeasures that can improve a pedestrian crossing at uncontrolled locations, including:

- **Pedestrian Hybrid Beacons:** A traffic control device that blinks in specific patterns to alert an oncoming driver of the presence of a pedestrian in the crosswalk.
- **Rectangular Rapid Flashing Beacons:** Rectangular Beacons that flash in a pattern to alert an oncoming driver of the presence of a pedestrian in the crosswalk.

The FHWA *Guide for Improving pedestrian Safety at Uncontrolled Crossing Locations,* included in **Attachment B**,[35] shall be used to determine which pedestrian improvements shall be implemented at uncontrolled locations. This guide includes a table organized by posted speed limit, Average Annual Daily Traffic, and the roadway configuration, to identify the appropriate optional and required countermeasures.

Building Design

This section details building design features that shall be incorporated.

Driveway Design

Vehicle entrances to parking facilities shall comply with the restrictions presented in Section 3.5 of the Specific Plan and shall not be located adjacent to, or facing, plazas, building lobbies or primary entries and must be at least 30 feet from secondary entries. Driveways for vehicular parking and freight or commercial loading shall be narrow as feasible to allow for access and shall be consolidated to reduce conflicts with other roadway users. Residential driveways shall not exceed 10 feet wide for single family, townhome, and low-rise residential buildings unless truck access is required, and shall not exceed 20 feet for larger residential facilities.

Driveway-Pedestrian Conflicts

In order to reduce the number and severity of vehicle-pedestrian conflicts, driveways shall be narrow, and the number of driveways shall be minimized from a single property or group of buildings. The San Francisco Better Streets Plan recommends "restrict[ing] curb cuts on key pedestrian corridors and in civic, commercial, and mixed-use districts…"[36], which reflects the characteristics of Bayshore Boulevard, Geneva Avenue, and streets with ground floor retail such as Main Street where curb cuts shall be restricted where possible.

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[35] United States Department of Transportation, *Guide for Improving Pedestrian Safety at Uncontrolled Crossing Locations*, January 2018, Page 16. https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/STEP-guide-improving-ped-safety.pdf.

[36] https://sfplanning.org/sites/default/files/archives/BetterStreets/docs/Better-Streets-Plan_Final-Adopted-10-7-2010.pdf

Where driveways cross the sidewalk walking zone, a raised crosswalk shall be provided to slow drivers down, alert them of the presence of pedestrians, and maintain continuity in the sidewalk for pedestrians by keeping the sidewalk level with no cross-slope.

Driveway-Bicycle Conflicts

When a driveway crosses a bike lane, NACTO recommends the same conflict striping treatment that the bike lane receives through the intersection.[37] Alternatively, the bicycle path may be raised to sidewalk level to provide the similar benefits as for pedestrians where to slow drivers down and alert them of the presence of pedestrians. Designs shall be approved by the City of Brisbane City Engineer.

Driveway-Vehicle Conflicts

Site distance assessments for driveways shall be conducted for all driveways not located on Green Streets to ensure that any parking, bus stop amenities or other street furniture, or roadway curvature does not impede on driver site distance. Green Streets provide access only to low density residential land uses and are designed for slower speeds through the use of vertical deflection and other measures that restrict the driver view to limit speeds. The design of Green Streets shall follows the FHWA guidance described above to ensure the driveway designs meet the standards for creating a roadway that facilitates low speeds and low volumes by design.

Driveways for suite-specific developments are not to be provided on regional arterials and should be avoided to the extent possible on roadways with posted speeds greater than 25 miles per hour. Where driveways on roadways with posted speeds greater than 25 miles per hour cannot be avoided, such as along Tunnel Avenue or Sierra Point Parkway, driveways be treated with countermeasures similar to Share Green Streets, including signage for exiting vehicles indicating that Cross Traffic Does Not Stop, and the daylighting treatment described above for uncontrolled intersections. To facilitate safe access into East Campus District, given the anticipated traffic volumes on Tunnel Avenue, the Project shall provide a two-way left turn lane or southbound left turn pockets on Tunnel Avenue to facilitate access into the driveways.

Loading Facilities

The following facilities proposed as a part of the Specific Plan shall be included to reduce the potential for loading activities to create hazardous conditions for other roadway users and shall be implemented for the land uses indicated in Tables 6.7 and 6.8 of the Specific Plan:

- **Pick-up/Drop-off (PUDO) Zones:** All qualifying buildings shall designate on-site curbside space or convenient garage space designated to accommodate rideshare, taxi,

[37] https://nacto.org/publication/urban-bikeway-design-guide/intersection-treatments/intersection-crossing-markings/

commercial delivery, and other PUDO activities. The property manager shall monitor these zones to ensure loading activity occurs outside of travel lanes.

- **Delivery Amenities:** All qualifying buildings shall provide a secure space for delivered goods that range in sizes and types such as a delivery locker or concierge. The property manager shall coordinate directly with delivery service providers to facilitate more efficient delivery by establishing a person to manage loading activities and monitor loading activities to ensure they do not impact other travelers.

Each site-specific development project shall demonstrate that it has provided sufficient loading areas in appropriate locations such that loading activities, including loading vehicle queuing, will not block bicycle or pedestrian facilities, roadway travel lanes, or parking garage access. A Driveway and Loading Operations Plan Guidelines and Checklist template can be found in **Attachment C**. For special uses such as schools or community centers, development applications shall estimate the amount of pick-up and drop-off activities and demonstrate how the loading design would accommodate the anticipated passenger loading demand and operate without blocking other roadway users.

Other Supporting Facilities

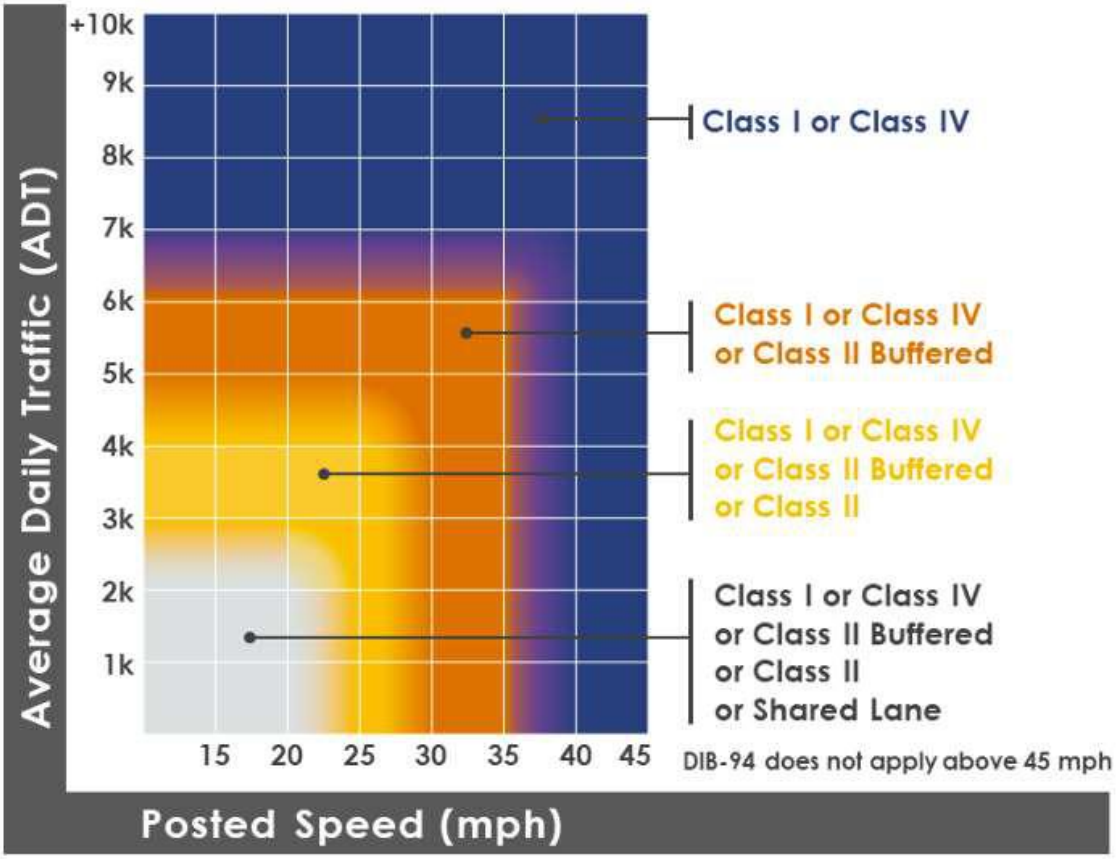
Other facilities that support a low-car lifestyle include convenient secure bicycle parking, bicycle repair, and family TDM amenities. The following facilities proposed as a part of the Specific Plan shall be implemented for the land uses indicated in Tables 6.7 and 6.8 of the Specific Plan:

- **Bike Parking and End of Trip Facilities**: Ample, convenient, and secure bike parking meeting the supports shall be provided on the ground floor or no more than one level below ground floor and shall be adjacent to the primary or secondary entrances to buildings. Bike parking shall include electric outlet access for electric bikes and cargo/extended bikes and shall be designed to accommodate these larger bicycles. Bike repair and wash stations shall be included to enhance the bike parking facilities. Employment land uses shall include lockers and showers.

- **Family TDM Amenities (e.g., storage):** Dedicated space for items such child car seats, strollers, shared cargo bike(s), and collapsible shopping/utility cart(s) for building residents to utilize shall be provided to facilitate family transportation using carshare, ride hail apps, and active transportation. The family TDM amenity spaces shall be located near PUDO, primary or secondary entrances, and/or near carshare parking spaces.

Attachment A: Recommended Bicycle Facilities

Figure 5-A - Recommended Bicycle Facilities for Urban Areas, Suburban Areas, and Rural Main Streets



Source: Figure 5-A of Caltrans DIB-94 at: https://dot.ca.gov/-/media/dot-media/programs/design/documents/dib-94-010224-a11y.pdf

Attachment B: Application of Pedestrian Crash Countermeasures by Roadway Features

Table 1. Application of pedestrian crash countermeasures by roadway feature.

Roadway Configuration	Posted Speed Limit and AADT								
	Vehicle AADT <9,000			Vehicle AADT 9,000–15,000			Vehicle AADT >15,000		
	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph	≤30 mph	35 mph	≥40 mph
2 lanes (1 lane in each direction)	❶ 2 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6	❶ 5 6 7 9	① 5 6 ❼ ❾	❶ 4 5 6 7 9	① 5 6 7 9	① 5 6 ❾
3 lanes with raised median (1 lane in each direction)	❶ 2 3 4 5	❶ ❸ 5 7 9	① ❸ 5 ❼ ❾	① 3 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❼ ❾	① ❸ 4 5 7 9	① ❸ 5 ❼ ❾	① ❸ 5 ❾
3 lanes w/o raised median (1 lane in each direction with a two-way left-turn lane)	❶ 2 3 4 5 6 7 9	❶ ❸ 5 6 7 9	① ❸ 5 6 ❾	① 3 4 5 6 7 9	① ❸ 5 6 ❼ ❾	① ❸ 5 6 ❾	① ❸ 4 5 6 7 9	① ❸ 5 6 ❾	① ❸ 5 6 ❾
4+ lanes with raised median (2 or more lanes in each direction)	❶ ❸ 5 7 8 9	❶ ❸ 5 7 8 9	① ❸ 5 8 ❾	① ❸ 5 7 8 9	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 ❼ 8 ❾	① ❸ 5 8 ❾	① ❸ 5 8 ❾
4+ lanes w/o raised median (2 or more lanes in each direction)	❶ ❸ 5 6 7 8 9	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 7 8 9	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ ❼ 8 ❾	① ❸ 5 ❻ 8 ❾	① ❸ 5 ❻ 8 ❾

Given the set of conditions in a cell,

- # Signifies that the countermeasure is a candidate treatment at a marked uncontrolled crossing location.
- ● Signifies that the countermeasure should always be considered, but not mandated or required, based upon engineering judgment at a marked uncontrolled crossing location.
- ○ Signifies that crosswalk visibility enhancements should always occur in conjunction with other identified countermeasures.*

The absence of a number signifies that the countermeasure is generally not an appropriate treatment, but exceptions may be considered following engineering judgment.

1 High-visibility crosswalk markings, parking restrictions on crosswalk approach, adequate nighttime lighting levels, and crossing warning signs
2 Raised crosswalk
3 Advance Yield Here To (Stop Here For) Pedestrians sign and yield (stop) line
4 In-Street Pedestrian Crossing sign
5 Curb extension
6 Pedestrian refuge island
7 Rectangular Rapid-Flashing Beacon (RRFB)**
8 Road Diet
9 Pedestrian Hybrid Beacon (PHB)**

*Refer to Chapter 4, 'Using Table 1 and Table 2 to Select Countermeasures,' for more information about using multiple countermeasures.

**It should be noted that the PHB and RRFB are not both installed at the same crossing location.

This table was developed using information from: Zegeer, C.V., J.R. Stewart, H.H. Huang, P.A. Lagerwey, J. Feaganes, and B.J. Campbell. (2005). Safety effects of marked versus unmarked crosswalks at uncontrolled locations: Final report and recommended guidelines. FHWA, No. FHWA-HRT-04-100, Washington, D.C.; FHWA. Manual on Uniform Traffic Control Devices, 2009 Edition, (revised 2012). Chapter 4F, Pedestrian Hybrid Beacons. FHWA, Washington, D.C.; FHWA. Crash Modification Factors (CMF) Clearinghouse. http://www.cmfclearinghouse.org/; FHWA. Pedestrian Safety Guide and Countermeasure Selection System (PEDSAFE). http://www.pedbikesafe.org/PEDSAFE/; Zegeer, C., R. Srinivasan, B. Lan, D. Carter, S. Smith, C. Sundstrom, N.J. Thirsk, J. Zegeer, C. Lyon, E. Ferguson, and R. Van Houten. (2017). NCHRP Report 841: Development of Crash Modification Factors for Uncontrolled Pedestrian Crossing Treatments. Transportation Research Board, Washington, D.C.; Thomas, Thirsk, and Zegeer. (2016). NCHRP Synthesis 498: Application of Pedestrian Crossing Treatments for Streets and Highways. Transportation Research Board, Washington, D.C.; and personal interviews with selected pedestrian safety practitioners.

Source: https://www.fhwa.dot.gov/innovation/everydaycounts/edc_5/docs/STEP-guide-improving-ped-safety.pdf.

Attachment C: Driveway and Loading Operations Plan (DLOP)

Applicability

A driveway and loading operations plan is required for most multi-family, mixed-use, and commercial developments within the Brisbane Baylands Specific Plan area. Table 1: Driveway and Loading Operations Plan (DLOP) Components, further describes the applicability of preparing a DLOP by project type.

Pre-Entitlement: Development Review Process

The Project Sponsor shall prepare a DLOP that documents a development project's compliance with the Brisbane Baylands Supplemental Roadway Design Guidelines. Specifically, the DLOP must include all applicable components described below in Table 1.

The City of Brisbane Community Development Department will review each DLOP prior to or in conjunction with project approvals. The Community Development Department will include the requirement for a DLOP as a Condition of Approval (COA) of the development project. The Community Development Department will review the plan again administratively prior to the Department's approval of a development project's tentative and final maps (or alternative map action), and prior to issuance of a site or building permit. The Community Development Department will deem a DLOP complete and approve the plan if it includes all components applicable to the development project based upon development project characteristics and the component applicability shown in Table 1 below.

Following DLOP approval, the Project Sponsor shall commit to appointing a transportation coordinator (or position whose function includes the role of transportation coordinator) to provide oversight and be responsible for the management and implementation of the project's DLOP when the building becomes operational.

Operations: Monitoring and Reporting

Building operations or appointee shall submit to the City supporting documentation described in Table 1 below for each applicable component. Unless otherwise noted, eighteen (18) months after receiving certificate of occupancy, the transportation coordinator or appointee must provide documentation within 30 days.

Project Metrics:

	Existing	Net Change	New Total
Street Frontage(s) (Street Names)			
Residential Units (Total)			
Retail/Commercial GSF (note ground floor vs. elsewhere; Hotel)			
Public Parking			
Office GSF			
Other (e.g. medical, cultural, etc.) GSF			
On-Street Vehicle Parking (linear feet) & Street Name			

Project Description:

Provide a description of the proposed project.

FEHR PEERS

Component A: Trash/Recycling/Compost Collection Design and Management

The Project Sponsor shall provide convenient off-street trash, recycling, and compost storage room(s) for the project and a procedure for collection. Building operations or an appointee shall implement these procedures.

Applicability: All projects **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Identify location, layout and dimensions of the storage room(s) on plans and written description of commitment to implement operational procedures. Attach supporting documents as needed.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Sheet no, Date): _____

Operations: Monitoring and Reporting

Instructions: Identify location and dimensions of the storage room(s) on record drawings and provide a written summary of operational procedures. Attach supporting documents as needed.

Agency/Schedule: Community Development/Prior to issuance of certificate of occupancy.

Response:

Plan Set Reference (Sheet no, Date): _____

Component B: Operations Queue Abatement

Building operator or appointee shall prevent vehicle queues by using proactive abatement methods such as: redesign of off-street facilities; locating curb cuts at least six feet (6'-0") from an intersection of two (2) public rights-of-way; expanding the driveway throat; careful placement of street furniture and trees; or other driveway and loading operations plan components in this table (e.g., an attendant).

Applicability: All projects **Included:** ☐ Yes ☐ N/A

Development Review

Instructions: Project Sponsor shall identify location and dimensions of driveways on plans and provide documentation of commitment to implement other driveway and loading operations plan components as specified above.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Monitoring and Reporting

Instructions: Project Sponsor or appointee shall identify location and dimensions of driveways on record drawings, and documentation for other driveway and loading operations plan components as specified above.

Agency/Schedule: Community Development/Prior to issuance of certificate of occupancy.

Acknowledgement/Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Component C: Color Curb / Parking Regulation Modification

The Project Sponsor shall submit a written request for a color curb change to Public Works. Color curbs can be an effective way to regulate on-street parking through use restrictions (passenger loading, commercial deliveries) and time limits. Passenger loading zones shall meet ADA design standards.

Applicability: Any project where the loading demand is not met off-street **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Identify location, dimensions, signage location, and color curb designation(s) on plans. Include sign specification drawings, including rendering of code-compliant signage and dimensions (including hardware and fixtures).

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Operations: Monitoring and Reporting

Instructions: Ongoing monitoring and reporting will be outlined at the discretion of Public Works

Agency/Schedule: Public Works

Acknowledgement/Response:

Component D: Coordination with For-Hire Vehicle Companies

The Project Sponsor shall submit a request to for-hire vehicle companies that passenger loading zones are incorporated into for-hire vehicle companies' (including transportation network companies) mobile phone technology application device to guide passengers and drives for passenger loading activities.

Applicability: All Multi-Family High, Multi-Family Mid, TOD Commercial, Hospitality, and Campus Mid projects. Townhome projects at the discretion of Community Development Department.

Included: ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Project Sponsor shall provide a description of the commitment to coordinate with for-hire vehicle companies.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Operations: Monitoring and Reporting

Instructions: Building operator or appointee shall provide a copy of the request and responses from for-hire companies.

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Component E: Off-Street Facility Attendant

The Project Sponsor shall commit to employ attendant(s) for the project's off-street facilities, as applicable. An attendant's job function can be included in another role/position (i.e., Transportation Coordinator, building operations/HOA representative), so long as the role/position can meet the obligations outlined for an attendant below.

The location and hours of operations for the attendant shall consider potential conflict points between maneuvering vehicles and public right-of-way users; the time and days for greatest loading demand, including potential for loading demand to exceed loading capacity, or when large truck deliveries may occur; and the highest demand on the public right-of-way adjacent to the off-street facility.

Applicability: All Multi-Family High, Multi-Family Mid, TOD Commercial, Hospitality, and Campus Mid projects. **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Identify location of attendant station on plans; general hours of operation for attendant, or designee (if known).

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Operations: Monitoring and Reporting

Instructions: The building operator shall confirm in writing with the department that the proposed staff, hours of operation, and location have been implemented. If the role of attendant(s) was contracted out, the building operator shall provide the department with a letter from the contractor.

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Component F: Driveway Operational Safety

The Project Sponsor shall provide notifications and information to users of the project site regarding driveway operational safety. Examples include maximum vehicle size and height for the driveway, restricted ingress and egress movements between the driveway and public rights-of-way, one prioritization of inbound over outbound movements.

Applicability: All Multi-Family High, Multi-Family Mid, TOD Commercial, Hospitality, and Campus Mid projects. **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Submit written description of commitment to implement notifications and information.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Operations: Monitoring and Reporting

Instructions: Building operator shall provide copies of notifications and information provided to users.

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Component G: Signage and Warning Devices at Driveway

Project sponsor shall: (1) provide "Garage Full" signage near the off-street facility entrance. The project sponsor shall ensure signage indicates "Full" if the off-street facility is fully occupied or if full occupancy is imminent (e.g. in the next 10 minutes); (2) install signage at the off-street facility to alert drivers or other public-right-of-way users (e.g., caution sign that alert vehicle drivers of people walking or bicycling that may be behind the vehicle or in the vehicle drivers' blind spots during driveway access or egress); and (3) install audible visual warning devices at locations where the off-street facility interfaces with public right-of-way to alert other public right-of-way users of vehicles entering or exiting the off-street facility. The audio device shall issue alerts above the surrounding noise levels by approximately 5 decibels.

Applicability: All Multi-Family High, Multi-Family Mid, TOD Commercial, Hospitality, and Campus Mid projects. **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Identify location of signage and audible visual warning devices on plans. Provide Sign Specification Drawings, including rendering of typical code-compliant signage and dimensions (including hardware and fixtures). Provide a copy of the manufacturer's specifications sheet for the audible visual warning device.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Operations: Monitoring and Reporting

Instructions: Identify location of signage and audible visual warning devices on record drawings. Provide a description of their size and usage. Provide photos of the installed elements.

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Component H: Coordination System

The Project Sponsor shall ensure implementation of a loading coordination program for scheduling project loading delivery vehicles so that they may identify and direct these vehicles to convenient (within 250 feet of the site) loading spaces that are available at the time of the vehicle's arrival.

Applicability: All Multi-Family High, Multi-Family Mid, TOD Commercial, Hospitality, and Campus Mid projects. **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Provide description of commitment to implement loading coordination program.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Operations: Monitoring and Reporting

Instructions: Building operations shall provide a **6-month** delivery log of the average number of deliveries, locations, times of days, and days of week and a map identifying location of convenient loading spaces

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Component I: Off-Peak Deliveries

Building operations or appointee shall schedule deliveries during hours when volumes of public right-of-way users along the project site frontage are lower (e.g., between 10 a.m. and 3 p.m. and 7 p.m. and 7 a.m.).

Applicability: All Multi-Family High, Multi-Family Mid, TOD Commercial, Hospitality, and Campus Mid projects. **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Provide description of commitment to implement off-peak deliveries and, if known, anticipated hours.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Operations: Monitoring and Reporting

Instructions: Provide a **6-month** delivery log of numbers, locations, times of days, and days of week; location of convenient loading spaces on plans.

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Component J: Large Truck Access

The Project Sponsor shall identify potential locations of convenient on-street loading spaces (within 250 feet of the site) that could accommodate large trucks that the off-street loading facility cannot accommodate and procedures to reserve these spaces from the City of Brisbane. The Project Sponsor shall also identify procedures for guiding large trucks to convenient on-street loading spaces. Building operations or appointee shall implement these procedures.

Applicability: All TOD Commercial, Hospitality, and Campus Mid projects. **Included:** ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Provide a description of commitment to implementing procedures and, if known, a map of or plan identifying anticipated on-street loading spaces.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Operations: Monitoring and Reporting

Instructions: Provide a **6-month** log of number of deliveries, locations, times of day, and days of week for large trucks; location of convenient loading spaces on plans; the procedures.

Agency/Schedule: Public Works/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Component K: Delivery Supportive Amenities

The Project Sponsor shall provide delivery supportive amenities such as electronic fob, parcel lockers, delivery box, or common carrier locker systems. These systems allow carriers to deliver goods during all hours without the need for human intervention at the receiving end such as the business or residence. Examples include the property owner:

- providing a key or electronic fob to loading vehicle operators, which enables the loading vehicle operator to deposit the goods inside the business or residence or in a secured area that is separated from the business or residence; and
- installing lockers in locations that users of the development can share and use (e.g., component K, delivery supportive amenities).

Applicability: All Multi-Family High, Multi-Family Mid, TOD Commercial, Hospitality, and Campus Mid projects. Townhome projects at the discretion of Community Development Department.

Included: ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Identify location of proposed delivery supportive amenities on plans. Provide description of commitment to implement a delivery supportive amenity program.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Operations: Monitoring and Reporting

Instructions: Identify location of delivery supportive amenities on record drawings. Provide description and photos of adopted delivery supportive amenities.

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Component L: Vehicle Turntable

The property owner shall install a vehicle turntable. The property owner shall include operation and maintenance procedures for the turntable, including schedule recommendations for routine maintenance. The transportation coordinator shall implement the turntable operation and maintenance plan.

Applicability: Projects that must provide 3 or more off-street freight loading spaces or that seek exemptions to the off-street freight loading vehicle space requirements. Turning templates indicate expected vehicle types which cannot reasonably access the off-street loading facility without a turntable.

Included: ☐ Yes ☐ N/A

Pre-Entitlement: Development Review

Instructions: Identify location and dimensions of turntable on plans; description of commitment to implement procedures.

Agency/Schedule: Community Development/Prior to or in conjunction with project approval.

Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Operations: Monitoring and Reporting

Instructions: Identify location and dimensions of turntable on record plans. Provide a copy of the operational procedures and maintenance requirement; provide a **6-month** log of maintenance.

Agency/Schedule: Community Development/18 months after receiving certificate of occupancy, documentation must be provided within 30 days.

Acknowledgement/Response:

Plan Set Reference (Plan Set, Sheet no, Date): _____

Driveway and Loading Operations Plan Updates

To revise an existing driveway and loading operations plan the property owner may submit a new building permit for that purpose.

The transportation coordinator shall submit the revised driveway and loading operations plan and supporting documentation with their building permit application to the City. The revised driveway and loading operations plan will then be subject to approval by the City and to the monitoring and reporting requirements and timelines described above.

A revised driveway and loading operations plan shall not be required for changes proposed by another property owner or public agency (e.g., a new protected bicycle lane, a new off-street loading facility operated by a separate property owner).

Appendix F: Bayshore Mobility Study

FEHR PEERS

Memorandum

Date: November 2024

To: City of Brisbane

From: Fehr & Peers

Subject: Bayshore Mobility Plan: Conceptual Design Recommendations

SF23-1288

The purpose of the Bayshore Mobility Plan is to create a vision for the future of Bayshore Boulevard in the City of Brisbane. The goals of the Bayshore Mobility Plan are to improve the existing corridor in the following ways:

- **Enhancing connectivity for residents and land uses abutting Bayshore Boulevard** such as the Sierra Point Trailer Park on the westside of Bayshore Boulevard just north of San Bruno Avenue.
- **Increase connectivity between the Baylands and the existing City of Brisbane** for people traveling along and crossing Bayshore Boulevard.
- **Reducing the prominence of regional through-traffic along Bayshore Boulevard,** making it more of a street serving Brisbane residents.
- **Redesigning Bayshore Boulevard as a multi-modal corridor** to increase the level of comfort and safety for all roadway users including automobiles, emergency response vehicles, transit vehicles, trucks, bicycles, and pedestrians in accordance with General Plan Policy C.1 to "provide for comfortable and safe travel within the community to shopping, employment, and recreation, as well as to transit" and the recommendations of the 2022 Complete Streets Safety Assessment.
- **Improve the look of the corridor**, providing opportunities for landscaping, gateway features, wayfinding, and other features that increase the prominence of the roadway as a route local route for Baylands residents rather than a regional cut-through route.

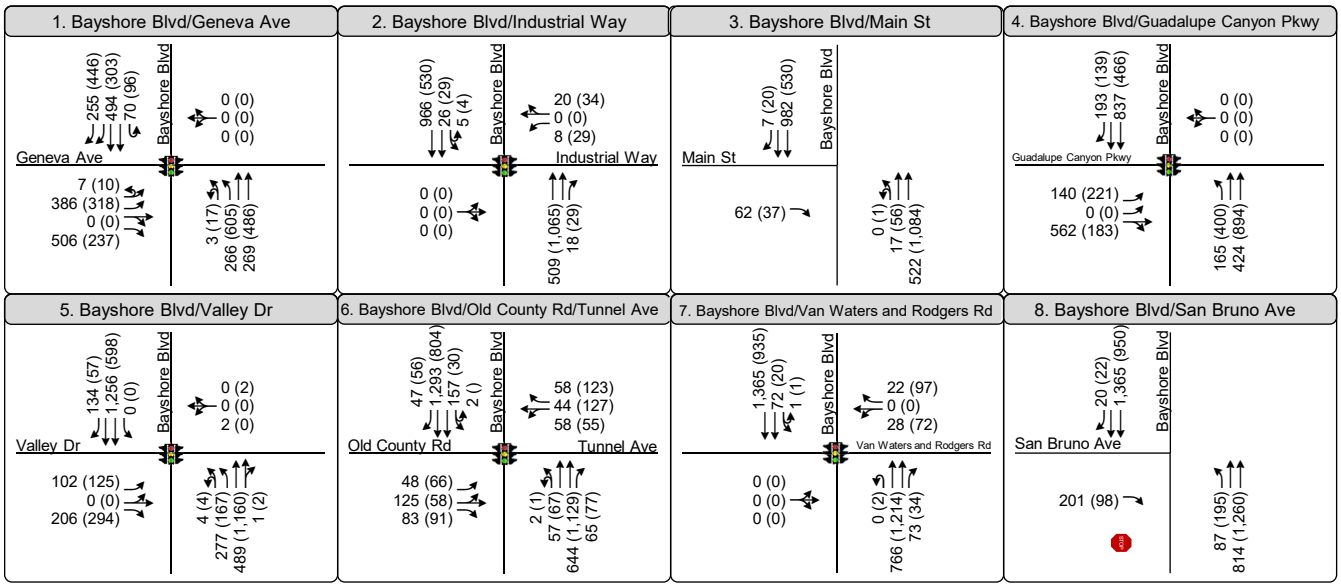
This memorandum presents an introduction to the Bayshore Mobility Plan, the existing and baseline context, regulatory framework, recommended conceptual design for the Bayshore Mobility Plan, and an assessment of the Plan based on metrics developed from Brisbane's General Plan and City staff input. This memorandum is intended to serve as an appendix for incorporation into the *Brisbane Baylands Transportation Impact Assessment* (Baylands TIA).

Introduction

The study area for the Bayshore Mobility Plan includes the corridor of Bayshore Boulevard ("corridor") from Geneva Avenue to San Bruno Avenue as shown in **Figure 1**. Bayshore Boulevard is a four-lane arterial roadway that runs north-south, with Class II bike lanes in each direction and a posted speed limit of 45 miles per hour (mph) on this segment. The corridor accommodates transit (SamTrans routes 24, 49, 292, and 397) and has bus stops at most major intersections along the corridor. Bayshore Boulevard used to be operated and maintained by Caltrans before the construction of US 101 to the east. It was designed to move vehicles efficiently through the area and therefore has a higher-than-average rate of cut-through traffic. Bayshore Boulevard is designated as a truck route and serves heavy vehicles generated by the light industrial, distribution, and warehousing land uses in Crocker Park in addition to truck trips to/from US-101 through Brisbane.

The study area was selected with City staff to focus on the corridor that is entirely under the jurisdiction of the City of Brisbane. Responsibility for Bayshore Boulevard outside the study area is shared with neighboring jurisdictions and therefore is not included in the Bayshore Mobility Plan. The Baylands Specific Plan ("Baylands") along the corridor's eastern edge (from the border with San Francisco to just north of Valley Drive) proposes changes to the transportation features and land use context along Bayshore Boulevard. The Bayshore Mobility Plan is the City's plan to reimagine the portion of Bayshore Boulevard within the City's control from its current purpose as a regional arterial that primarily serves traffic traveling through Brisbane to one that better meets the needs of existing and future local residents, employees, and visitors. The Baylands Specific Plan would include a 640-acre mixed-use community constructed on what is currently underdeveloped land on the east and west sides of the Caltrain corridor. The west side of Baylands will be directly adjacent to Bayshore Boulevard and envisions a mix of housing and commercial development that connects to the existing street grid north of Main Street. The Baylands Specific Plan would add up to 2,200 new residential units and approximately seven million square feet of commercial space, and thus would increase activity and travel by all modes on and across Bayshore Boulevard. This includes increases in travel by people walking and bicycling and vulnerable roadway users, such as travel by school-aged children to the proposed Baylands School serving the Bayshore School District near Main Street and Bayshore Boulevard.





Study intersection information is from *Appendix A: Existing Traffic Conditions Memo* of the Baylands TIA. Intersection numbers match that study. Brisbane Technology Park is not a study intersection in the Baylands TIA, and therefore no intersection ID, lane configuration, or traffic volumes are presented on this figure.is presented on this figure.

Figure 1

Bayshore Mobility Plan Study Area

Existing and Baseline Conditions

Existing Conditions

Bayshore Boulevard is a four-lane regional arterial that parallels U.S. 101 between Cesar Chavez Boulevard in San Francisco and South San Francisco, where it becomes Airport Boulevard. Bayshore Boulevard is managed by Brisbane south of Geneva Avenue, Daly City between Geneva Avenue and the city/county border just south of Sunnydale Avenue, and San Francisco north of the city/county border. The intersection of Bayshore Boulevard and Geneva Avenue lies in both Daly City and Brisbane but is managed by Daly City. The road is designated as a Congestion Management Program (CMP) route in both San Francisco and San Mateo Counties, and connects Brisbane to San Francisco, Daly City, and South San Francisco. North of the study area, Bayshore Boulevard also provides a direct connection from Brisbane to the Third Street corridor in San Francisco. Bayshore Boulevard currently serves primarily as a route for regional traffic through Brisbane based on a study of existing travel patterns (See *Appendix A: Existing Traffic Conditions Memo* of the Baylands TIA for additional detail). The results of the analysis found that:

- Approximately two-thirds to three quarters of existing weekday travel and over 80 percent of existing weekend trips on Bayshore Boulevard are cut-through trips.
- 33 to 36 percent of all trips on Bayshore Boulevard are between San Francisco and cities to the south of Brisbane, representing the highest peak hour cut-through trip pattern.
- 17 percent of all trips on Bayshore Boulevard are between Daly City and cities to the south of Brisbane.

Figure 1 shows a map of the study area and the existing turning movement volumes and lane configurations at each intersection along Bayshore Boulevard. The intersection numbers, traffic volumes, and lane configurations are from *Appendix A: Existing Traffic Conditions Memo* of the Baylands TIA. Other existing automobile features include on-street parking on the west side of Bayshore Boulevard in two locations. Parallel parking is allowed in front of the 7 Mile House and angled parking is allowed south of the adjacent southbound bus stop. Between San Bruno Avenue and Van Waters and Rodgers Road a mix of parallel and angled parking is permitted along the west side of the boulevard.

Table 1 provides a summary of the multi-modal transportation features at each intersection in the study area. Transit service is provided through SamTrans fixed route bus service and Brisbane shuttle service provided by Commute.org. The SamTrans routes 292, 397, 24, 29, and 49 have stops on Bayshore Boulevard, providing connections to schools and regional transit connections, including Sunnydale Muni Station and Caltrain and BART Stations. North of the study area in San Francisco, Muni T-Third Street light rail operates in the median of Bayshore Boulevard. There are Class II bike lanes along Bayshore Boulevard throughout the study area with six-foot-wide striped bike shoulders and rumble strips, although the bike lanes drop at intersections noted in **Table 1**.

Table 1: Existing Multi-Modal Features at Study Area Intersections

Baylands TIA Report ID[1]	Intersecting Roadway	Transit, Pedestrian, and Bicycle Features on Bayshore Boulevard
9	Geneva Avenue	**Transit** – Far side bus stops in the southbound direction (in study area) and northbound direction (north of study area). **Pedestrian** – Sidewalk on the west side of Bayshore from Geneva Avenue to the existing bus stop. Striped standard crosswalks on all legs **Bicycle** – Class II bike lanes in both directions.
10	Industrial Way	**Transit** – Bus stops are located on the north side of the intersection for both directions. **Pedestrian** – Sidewalk on the east side of Bayshore from Industrial Way to existing northbound bus stop. Striped standard crosswalks on south and east legs of intersection. **Bicycle** – Class II bike lanes in both directions, with shared markings in northbound right-turn lane.
11	Main Street	**Transit** – No bus stop. **Pedestrian** – No sidewalks or marked crosswalks. **Bicycle** – Class II bike lanes in both directions, with shared markings in southbound right-turn lane
N/A[2]	Brisbane Technology Park Driveway	**Transit** – No bus stops. **Pedestrian** – Sidewalk on west side of Bayshore, south of driveway. No marked crosswalks. **Bicycle** – Class II bike lanes in both directions, with shared markings in southbound right-turn lane.
12	Guadalupe Canyon Parkway	**Transit** – Far side bus stops in each direction **Pedestrian** – Sidewalk on the west side of Bayshore north to Brisbane Technology Park Driveway and south to the southbound bus stop. Sidewalk on east side from crosswalk to northbound bus stop. Marked standard crosswalks on north and west legs of intersection. **Bicycle** – Class II bike lanes in both directions, with shared markings in southbound right-turn lane.
13	Valley Drive	**Transit** – Far side bus stops in each direction. **Pedestrian** – Sidewalk on the west side of Bayshore south to the southbound bus stop. Sidewalk on the east side to the northbound bus stop. Marked standard crosswalks on all legs of intersection. **Bicycle** – Class II bike lanes in both directions.
14	Old County Road / Tunnel Avenue	**Transit** – Bus stops located on south leg for each direction. **Pedestrian** – Sidewalk on the east side of Bayshore south to the northbound bus stop. Marked standard crosswalks on all legs of intersection **Bicycle** – Class II bike lanes in both directions
15	Van Waters and Rodgers Way	**Transit** – Bus stops located on south leg for each direction. **Pedestrian** – No sidewalks. Marked standard crosswalk on south leg of intersection. **Bicycle** – Class II bike lanes in both directions.
16	San Bruno Avenue	**Transit** – No bus stops. **Pedestrian** – No sidewalks or marked crosswalks. **Bicycle** – Class II bike lanes in both directions.

Notes:

1. Study intersection information is from *Appendix A: Existing Traffic Conditions Memo* of the Baylands TIA. Intersection numbers match that study.
2. Brisbane Technology Park is not a study intersection in the Baylands TIA, and therefore no intersection ID is presented on this table. This driveway is included as it is the only full access driveway in the study area.

Source: Fehr & Peers, 2024

Baseline Conditions

The Baylands Specific Plan will result in changes to the existing volumes and intersection geometry of the corridor. These changes include increased vehicle and pedestrian/cyclist volumes along the corridor, new intersections south of Geneva Avenue, and the extension of Geneva Avenue and Main Street east of Bayshore Boulevard. The Bayshore Mobility Plan includes the Baylands Specific Plan in the baseline conditions as the Bayshore Mobility Plan is designed to address the potential for hazardous conditions described in Recommendation 3b of the Baylands TIA. **Table 2** shows the total forecasted volumes for each study segment during the AM and PM Peaks from the Baylands TIA (all scenarios include the Baylands Specific Plan).

Table 2: Average Annual Daily Traffic Segment Forecasts with Baylands Specific Plan

Segment		AADT[1]			
Northern Limit	Southern Limit	Existing	Mid-term	Cumulative without Candlestick Interchange	Cumulative with Candlestick Interchange
Geneva Avenue	Main Street	19,346	28,100	25,300	24,700
Main Street	Guadalupe Canyon Parkway	17,362	33,200	34,200	35,400
Guadalupe Canyon Parkway	Valley Drive	17,362	33,200	34,200	35,400
Valley Drive	Old County Road	17,362	33,200	34,200	35,400
Old County Road	San Bruno Ave	22,903	31,700	34,200	35,400

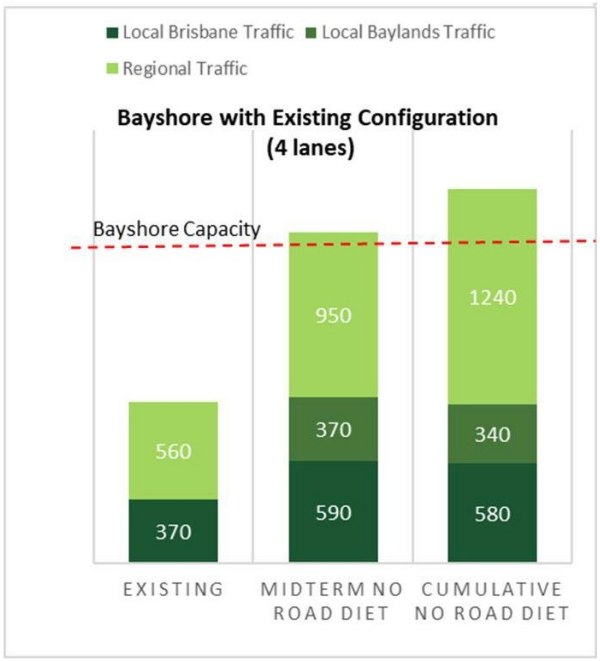
Notes:
1. AADT forecasts are from Baylands TIA and represent the traffic conditions accounting for local and regional growth by the years 2035 (mid-term conditions in TIA) and 2040 (cumulative conditions in the TIA). 2035 conditions include Phase 1 of the Baylands Specific Plan, all land uses proposed for the west side without a Geneva Avenue bridge over Caltrain, while 2040 conditions include full buildout of the Baylands Specific Plan, including the Geneva Avenue extension and the US-101 Harney/Candlestick interchange.

Source: Fehr & Peers, 2024

These traffic volume forecasts assume the roadway's design remains consistent with existing conditions. **Figure 2** presents the PM peak hour traffic demand on northbound Bayshore Boulevard, South of Main Street, to illustrate the relative traffic contributions generated by Baylands, other Brisbane locations, and those without an origin or destination within Brisbane (regional traffic). As indicated, the growth in regional traffic would cause traffic demand on Bayshore to exceed the capacity in future year scenarios. Traffic changes with the Bayshore

Mobility Plan are presented in the *Concept Assessment* section of this memorandum. While the Bayshore Mobility Plan does not explicitly plan for the potential realignment of Tunnel Avenue from Old County Road to Valley Drive associated with the California High Speed Rail Project, the Plan provides flexibility to accommodate the Tunnel Avenue connection at either Old County Road or Valley Drive.

Figure 2: Bayshore Contributions without Bayshore Mobility Plan



Regulatory Framework

The project team reviewed relevant City and Countywide plans and policies to ensure a design would be consistent with City standards. Additional state, regional, and local plans and policies are presented and evaluated for consistency within the Baylands TIA.

Brisbane General Plan

The Brisbane General Plan, adopted in 1994, is the blueprint for development in the City and addresses all aspects of development, including land use, housing, traffic, natural resources, open space, safety, and noise. The Circulation Element was amended in September 2015 and January

2020. The amendment identifies that Bayshore Boulevard, with Highway 101, serves as "the main transportation corridor to, through, and within the City."[1] The amendment also notes:

> Bayshore Boulevard functions primarily as a regional roadway through the City of Brisbane. Peak hour congestion along Highway 101 causes traffic to be diverted from the freeway onto Bayshore Boulevard through the City of Brisbane as motorists attempt to avoid congested freeway traffic. Depending on the time of day and location, regional through traffic makes up 60 to 80 percent of traffic on Bayshore Boulevard. On a daily basis, only 10 to 15 percent of all trips on Bayshore Boulevard are generated from Brisbane's residential neighborhoods and 15 to 20 percent are generated by Brisbane's employment centers. The majority of traffic on Bayshore Boulevard within Brisbane is between San Francisco and cities to the south, with a smaller amount (approximately 15 percent of all trips) traveling between Daly City and the cities to the south.
>
> A principal challenge for the City is maintaining vehicular mobility for Brisbane residents and businesses along Bayshore Boulevard. As large-scale developments occur in cities to the north and south of Brisbane, regional through traffic and congestion on Bayshore Boulevard is projected to increase. It is also important that Bayshore Boulevard provide safe access and egress for sites located along its frontage while maintaining its ability to move vehicles through the City. Another issue is providing for safe and comfortable access for bicyclists and pedestrians. In 2008 and 2011, bikeways were completed on both sides of Bayshore Boulevard, in part with funding obtained by the City through the California Transportation Development Act. These bikeways include 6 foot wide striped bike shoulders and rumble strips, which have enhanced their function within the regional bikeway network and have helped address bicycle access and safety.

Applicable circulation goals, policies, and programs related to the related to the Bayshore Mobility Plan are included below.

Roadway Performance

- **Policy C.1** Design the City's roadway system to emphasize mobility for Brisbane residents and businesses, accommodate bicycle and pedestrian in addition to vehicular movement, and provide for comfortable and safe travel within the community to shopping, employment, and recreation, as well as to transit and the Highway 101 freeway.
    - Program C.1.a Consult with Caltrans, the Metropolitan Transportation Commission, San Francisco Transportation Authority, San Mateo County Transportation Authority,

[1] City of Brisbane, *Circulation Element General Plan*, Amended January 2020. https://www.brisbaneca.org/sites/default/files/fileattachments/community_development/page/2401/006_chaptervi-circulationelement.pdf.

C/CAG, and others to develop and fund programs including physical improvements, enhanced use of transit, and transportation demand management, to maximize the ability of the 101 freeway to accommodate regional through traffic.

- Program C.1.b Develop design plans for Bayshore Boulevard, the Geneva Avenue extension, and interchanges along the 101 freeway that address the effects of regional through traffic within Brisbane and enhances mobility for Brisbane residents and businesses through a combination of roadway and intersection, transit, bicycle, and pedestrian facility improvements that would not cause a substantial increase in vehicle miles travelled (VMT) on Bayshore Boulevard or other routes through the City. As part of this design plan, evaluate (1) whether changes in design speeds along Bayshore Boulevard could improve mobility within the City; (2) the feasibility of shifting a portion of regional through traffic from Bayshore Boulevard onto other routes, such as Sierra Point Parkway by extending that roadway north to the 101 freeway interchange at Beatty Avenue, and (3) appropriate routing of trucks to and from the Crocker Park area.
- Program C.1.c Prepare, adopt, and implement a mobility improvement fee program to fund the multi-modal improvements called for in the design plan for Bayshore Boulevard and interchanges along the 101 freeway.
- Program C.1.d Rather than undertake multiple traffic impact analyses to evaluate individual intersections along Bayshore Boulevard, Geneva Avenue, and at intersections along the 101 freeway, require new development projects that would generate 50 or more peak hour trips at any intersection along Bayshore Boulevard, Geneva Avenue, or at intersections along the 101 freeway to comply with the design plan developed pursuant to Program C.1.c and either provide physical improvements consistent with the plan or pay established traffic impact fees as directed by the Public Works Director.

- **Policy C.2** The level of service objective for principal and minor arterial streets within the City is LOS "D."
- **Policy C.3** Design turning movements and traffic signal timing at intersections so as to avoid the queueing of vehicles at intersection from backing up and adversely affecting operations at another intersection. Design turning movements and traffic signal timing at freeway interchanges cause queueing of vehicles from the intersection onto the freeway mainline.

Street Standards

- **Policy C.8** Implement established City street standards to provide for adequate traffic flow and safe vehicular, bicycle, and pedestrian movement along both existing and new streets.

- **Policy C.17** Maintain traffic flow and continue to improve arterial streets to accommodate vehicular, bicycle, and pedestrian movement.

Complete Streets

- **Policy C.21** The City shall provide for the development of Complete Streets consistent with Government Code Sections 65040.2 and 65302 and subsequent applicable Complete Streets legislation) to meet the needs of all users of "streets, roads and highways". Such users include bicyclists, children, youth, families, persons with disabilities, motorists, movers of commercial goods, pedestrians, users of public transportation, seniors, and first responders.
- **Policy C.22** Integrate Complete Streets infrastructure and design features, such as sidewalks, bikeways and transit stops, into street design and construction to create safe and inviting environments for people to walk, bicycle and use public transportation.
- **Policy C.23** Seek to retrofit existing roadways to create Complete Streets.
- **Policy C.24** For new multifamily, mixed use or commercial development projects subject to discretionary review that would affect the public right-of-way, incorporate and implement Complete Streets elements at each stage of the development process as determined reasonable and practicable by the City.

Bicycles & Pedestrians

- **Policy C.26** Continue to connect Brisbane's bikeway and pedestrian system to the County and regional networks.
- **Policy C.28** Maximize bicycle access to all areas of the City, as practicable.
    - Program C.28.a Identify areas of the City where bikeways may be constructed, as both recreational and transportation amenities, with the aim of connecting all areas of the City with a network of bikeways.
    - Program C.28.b Design and install bikeways to meet best current engineering practices.
- **Policy C.29** Provide for the safety of bicyclists by dedicating bikeways where practicable, by installing appropriate signing and striping, and by maintaining the pavement.
    - Program C.29.a Install as many bikeways as can safely be accommodated and are economically feasible.
- **Policy C.30** Require new development and redevelopment to plan for and construct bikeways and/or bicycle parking facilities, as determined reasonable and practicable by the City.

- **Policy C.31** All new arterial streets and any existing arterials that are improved should provide for bicycle transportation.
- **Policy C.32** Provide or require bicycle parking facilities at major destination points.
- **Policy C.33** Provide public information on bicycle transportation.
- **Policy C.34** Maximize safe pedestrian facilities and access to all areas of the City, as reasonable and feasible.
- **Policy C.35** Require pedestrian amenities with new development and expansion of existing uses, as appropriate.

Transit

- **Policy C.36** Seek opportunities to install and improve transit facilities, establish multi-modal connections and increase the service network.

City/County Association of Governments of San Mateo County Countywide Local Roadway Safety Plan (C/CAG LRSP)

C/CAG adopted the LRSP in June 2024 with the goal to improve safety on roadways across San Mateo County.[2] This plan identified areas that are most in need of design improvements and provided a list of priority location maps which show the different priorities areas within a vicinity broken down by travel mode and road type. Every intersection on Bayshore Boulevard is identified in Table 4 Priority Locations, with Bayshore Boulevard and Main Street, San Bruno Avenue, and Old County Road / Tunnel Avenue as the top three locations for safety interventions in the City of Brisbane. The LRSP identifies a set of engineering countermeasures that should be implemented across the city and for specific intersections of Bayshore Boulevard. While the LRSP does not identify a suite of countermeasures specifically for this corridor, it identifies the corridor as a Motor Vehicle Emphasis, a Bicycle Emphasis, and Pedestrian Emphasis, and therefore should receive countermeasure treatments that target all the above modes. The Engineering Countermeasure Toolbox can be found in Table 5 on page 24 of the LRSP. The Bayshore Mobility Plan is intended to address the priority areas identified for Bayshore Boulevard and recommends the implementation of the recommended countermeasures that are feasible for the corridor.

Complete Streets Safety Assessment

A portion of this corridor was studied in 2022 as part of a Complete Streets Safety Assessment ("CSSA"). The CSSA is a 2022 safety assessment conducted by the Safe Transportation Research and Education Center ("SafeTREC") at University of California, Berkeley. Staff from SafeTREC conducted a benchmarking analysis of the City's practices, policies, and programs, and a team of three complete streets safety experts from Fehr & Peers conducted a walking audit and produced

[2] https://ccag.ca.gov/wp-content/uploads/2024/04/28717_CCAG-Countywide-LRSP-Brisbane-Chapter.pdf

recommendations for improvements along the corridor from San Bruno Avenue to Old County Road. The final recommendations of the study proposed a road diet along this section of the corridor and a separated multi-use path along the west side of the roadway, among other improvements. The Bayshore Mobility Plan includes the recommendations made in the CSSA and expands the study area north from Old County Road to Geneva Avenue.

Brisbane Baylands Transportation Impact Study: Supplemental Roadway Design Guidelines

The Supplemental Roadway Design Guidelines are a companion to this document by identifying transportation facility design guidelines and industry best practices to supplement the design guidelines included in the Baylands Specific Plan. The Supplemental Roadway Design Guidelines presents information on the relationship between vehicle speeds and roadway design on safety and provides a guide on how to apply the relevant standards and safety countermeasures recommended by Caltrans, United States Department of Transportation (USDOT), Federal Highway Administration (FHWA), and other national and state organizations.

Concept Development and Assessment Approach

Fehr & Peers designed the Bayshore Mobility Plan in coordination with City staff based on the goals outlined at the top of this memorandum. Fehr & Peers assessed consistency with these goals through the metrics described in this section, which were developed based on the City of Brisbane's General Plan Program C.1.b, the CEQA findings presented in Chapter 7 of the Baylands TIA, and consultation with City staff. The results of this assessment are presented at the end of this memorandum after the *Recommended Conceptual Design* section.

Enhance Connectivity for Bayshore Residents

This goal focuses on the travel needs of Bayshore residents and land uses directly abutting Bayshore Boulevard, primarily the Sierra Point Trailer Park on the westside of Bayshore Boulevard just north of San Bruno Avenue. This segment of the corridor was studied as a part of the 2022 CSSA and the travel needs of these residents were addressed through recommendations from that study, which are reiterated here with minor modifications for consistency with the rest of the corridor's conceptual designs.

Increase Connectivity between Baylands and the existing City of Brisbane

This goal focuses on increasing connectivity for multi-modal travel along and across Bayshore Boulevard and ensuring that the Bayshore Mobility Plan would accommodate the needs of all roadway users according to the General Plan policies described in the Regulatory Framework. This includes people walking, bicycling, driving, or riding transit, and the movements of trucks, transit vehicles, or emergency vehicles along the corridor. This goal also addresses the potential for the

Baylands Specific Plan to provide inadequate off-site connections for people walking and bicycling, as described as a part of Recommendation 3b in Chapter 7 of the Baylands TIA.

Connectivity for people walking, bicycling, driving, and riding transit is evaluated based on the closure of existing network gaps between existing City of Brisbane neighborhoods and the Baylands Specific Plan. Connectivity for people driving is based on changes to vehicle access associated with the Bayshore Mobility Plan. Additional metrics on the quality of the multi-modal connections and safety are presented under the goal to "Redesign Bayshore Boulevard as a Multi-Modal Corridor".

Accommodation of trucks and emergency vehicles are evaluated based on design accommodations for large vehicles (design vehicle is a California Legal Truck) traveling between Crocker Park or other truck-generating land uses to other destinations within or outside the City.

Reduce the Prominence of the Regional Function of Bayshore Boulevard

Evaluation of this goal, as outlined in General Plan Program C.1.b, focuses on understanding whether the Bayshore Mobility Plan would reduce regional traffic volumes and speeds on Bayshore Boulevard and whether the Bayshore Mobility Plan would result in a substantial increase in vehicle miles traveled (VMT) or traffic on other routes through the City.

Specific metrics used for evaluating this goal include the amount and percentage of regional traffic volumes using Bayshore Boulevard, the design speeds of Bayshore Boulevard, and the changes to VMT. Related to VMT, the Bayshore Mobility Plan would qualify for a categorical exemption from CEQA because it is a pedestrian and bicycle facility per Public Resources Code Section 21080.25. The Bayshore Mobility Plan meets the relevant criteria, such as being located in an urbanized area and in an existing public right-of-way, and it would not demolish affordable housing units nor increase automobile capacity. Therefore, this memorandum assesses VMT to evaluate whether the Bayshore Mobility Plan is consistent with the intent of Public Resources Code Section 21080.25 and General Plan Program C.1.b.

Redesign Bayshore Boulevard as a Multi-Modal Corridor

This goal focuses on redesigning Bayshore Boulevard for multi-modal travel by increasing the level of comfort and safety for all roadway users in accordance with General Plan Policy C.1 to "provide for comfortable and safe travel within the community to shopping, employment, and recreation, as well as to transit". This goal also addresses roadway safety priority locations identified in C/CAG's LRSP and the potential for the Baylands Specific Plan to create hazardous conditions at the interface of the proposed Project local roadways with Bayshore Boulevard as described as a part of Recommendation 3b in Chapter 7 of the Baylands TIA.

Specific metrics used for evaluating this goal include crash modification factors used for roadway safety evaluation and the level of traffic stress for people walking and bicycling. The Crash

Modification Factors Clearinghouse, as cited in C/CAG's LRSP, provides information on Crash Modification Factors (CMFs) that compute the expected decrease in collisions based on specific countermeasures that are implemented. The level of traffic stress (LTS) is a metric used to assess the perceived safety and comfort of a roadway for people walking and bicycling. It evaluates the degree of stress experienced by people walking and bicycling based on factors such as traffic volume, vehicle speed, roadway design, and the presence of physical infrastructure. LTS typically ranges from low stress (LTS 1) to high stress (LTS 4), with lower LTS indicating safer and more comfortable conditions for people walking and bicycling. Particularly for vulnerable roadway users, such as school kids trying to safely travel to school, the level of traffic stress is crucial for assessing the suitability of routes for students who walk or bike.

Other metrics used for evaluating this goal for people driving include vehicle queues leaving Central Brisbane via Guadalupe Canyon Parkway, Valley Drive, Old County Road, and San Bruno Avenue. As noted in the General Plan, given the substantial affect that regional traffic has on Bayshore Boulevard, the City does not have a LOS objective for intersections along Bayshore Boulevard (GP Policy C.2) so this measure focuses on the change to vehicle queues between intersections (GP Policy C.3).

Improve the Look of the Corridor

This goal focuses on providing opportunities for landscaping, gateway features, wayfinding and other features that increase the prominence of the roadway as a route local route versus a regional cut-through route.

Recommended Conceptual Design

The Bayshore Mobility Plan's recommended conceptual design for Bayshore Boulevard would start south of the intersection of Bayshore Boulevard and Geneva Avenue and extend to the intersection of San Bruno Avenue. The following sections present corridor-wide and intersection-specific design features that shall be incorporated as a part of the Bayshore Mobility Plan to meet the requirements of General Plan Policy C.1.b and Recommendation 3b of the Baylands TIA. The Supplemental Roadway Design Guidelines provide additional information about corridor and intersection treatments to ensure consistency with applicable local, state, and national roadway design standards.

Corridor-Wide Design Features

A set of standard corridor treatments is recommended to provide consistency for the corridor and to fulfill the goals of the Bayshore Mobility Plan. The standard corridor treatments shown in **Table 3** guide the redesign of the corridor between Geneva Avenue and San Bruno Avenue and reflect the study goals, past studies, and conversations with City staff. **Attachment A** presents a toolbox with images and more detailed descriptions of the recommended treatments. These treatments

include those recommended as a part of the 2022 CSSA and Table 5 of the 2024 C/CAG LRSP for the City of Brisbane. The City of Brisbane could continue these corridor treatments beyond the geographic limits of the Bayshore Mobility Plan in the future in coordination with South San Francisco for the segment south of San Bruno Avenue or Daly City and San Francisco for the segment north of Geneva Avenue.

Table 3: Standard Corridor Treatments

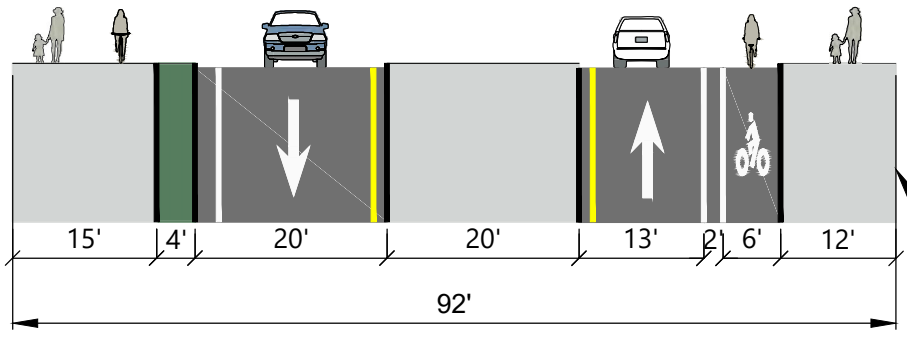
Category	Standard Corridor Treatments
Geometric Design	• Road diet to reduce travel lanes from four to two lanes with median and turn pockets • Addition of Class I multi-use pathway, with a minimum width of 12 feet and preferred width of 16 feet for a sidewalk level facility per Table 5.1.1 of Caltrans DIB-94[1] • Removal of most channelized free right-turn lanes • Protected multi-use pathway / bicycle facilities at intersections • Signage and striping recommendations from LRSP • Improved lighting, including pedestrian-scale lighting along sidewalks and multi-use path • Speed feedback/warning signs
Traffic Signal Considerations	• Signal Coordination to maintain vehicle speeds at posted speed limit • Protected Left Turn Phasing at all intersections • Leading Pedestrian Intervals at crosswalk locations • Prohibit right turn on red
Emergency Access and Operations	• Traffic signal priority / emergency vehicle pre-emption • Queue jumps to provide room to pass vehicles at intersections • Breaks in the medians and buffers to provide room to pass vehicles between intersections
Transit Access and Operations	• Traffic signal priority for transit vehicles • Bus boarding islands, 12-foot minimum bus stop pull out areas, and queue jumps

Notes:
1. Caltrans' *Design Information Bulletin 94 Complete Streets: Contextual Design Guidance* ("DIB-94", January 2024)

Source: Fehr & Peers, FHWA, Caltrans

Figure 3 presents three typical cross sections along the corridor that incorporate the lane reduction and other treatments listed in **Table 3**. These three cross sections include two representative mid-block configurations and one location on the approach to an intersection with a transit stop. **Figure 4** through **Figure 7** present plan view conceptual geometric designs for the entire Bayshore Boulevard corridor included in this study (referred to as the recommended "conceptual design" throughout this memorandum). During the infrastructure approval phase, the project applicant shall prepare detailed construction drawings prior to the approval of any roadway segment in a manner consistent with Brisbane Municipal Code Chapters 10.12 and 10.16.

PG&E STATION



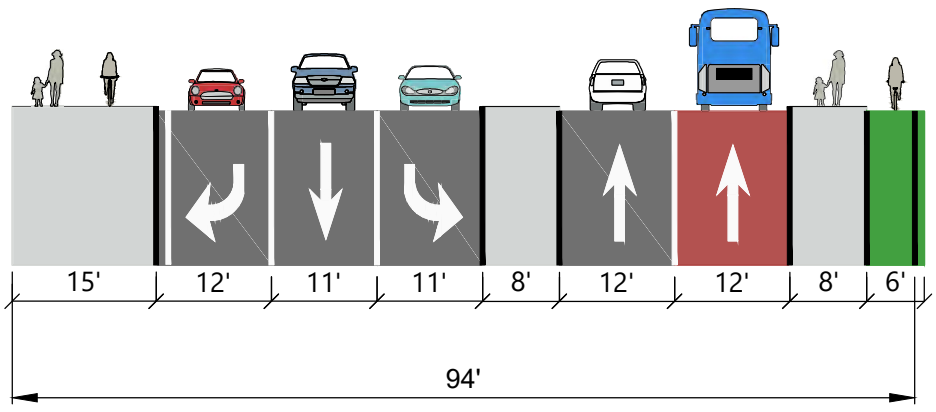
BAYLANDS DEVELOPMENT:
ROUNDHOUSE DISTRICT

BAYSHORE BLVD

CROSS SECTION A

All sidewalks in Baylands development will provide minimum through zone of 5 or 6 feet, with 4 to 7 feet of furnishing and planting zone between through zone and roadway.

VALLEY DRIVE
BUSINESSES

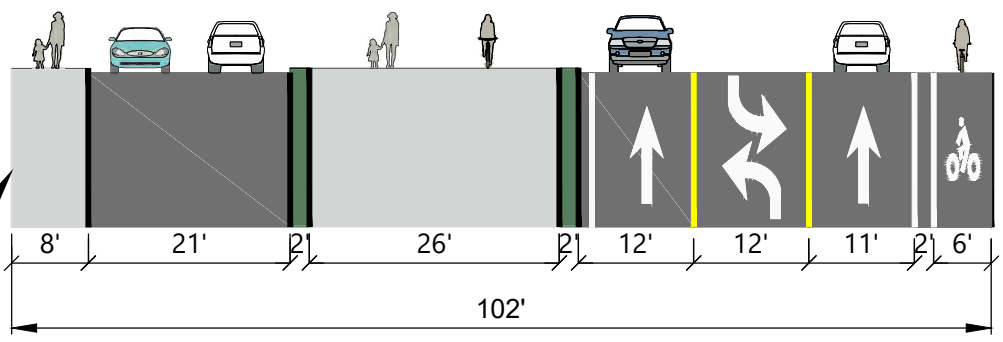


BAYLANDS DEVELOPMENT:
COMMUNITY BALL FIELDS

BAYSHORE BLVD

CROSS SECTION B

SIERRA POINT
TRAILER PARK



VAN WATERS AND
RODGERS ROAD BUSINESS

Parking and sidewalk configuration abutting Sierra Point Trailer Park subject to review and approval by City Engineer.

BAYSHORE BLVD

CROSS SECTION C

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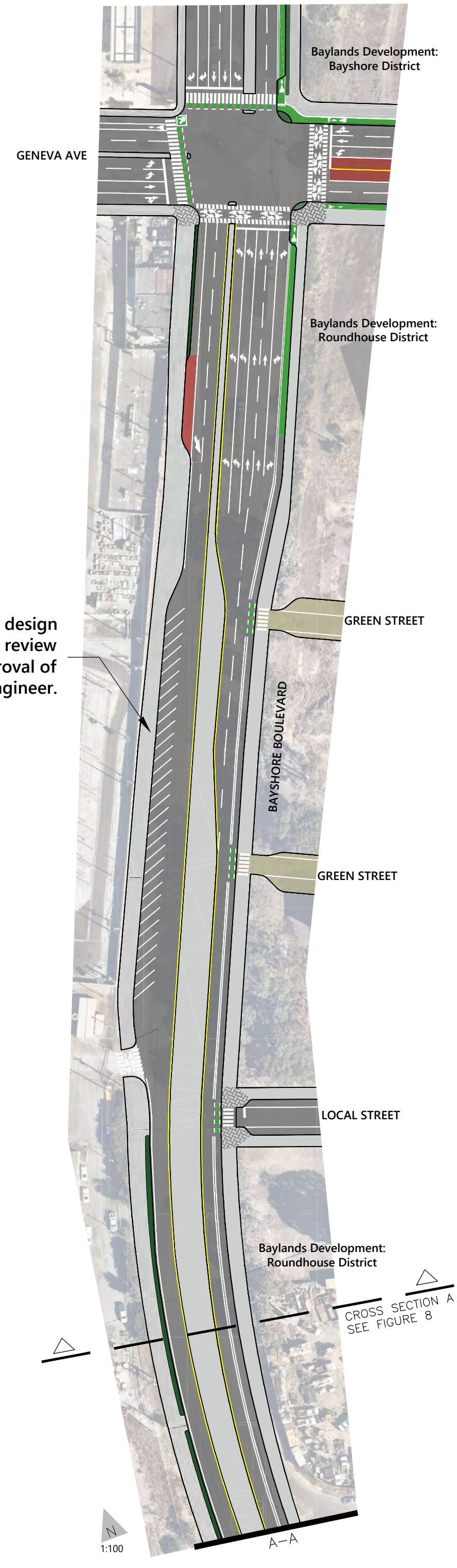
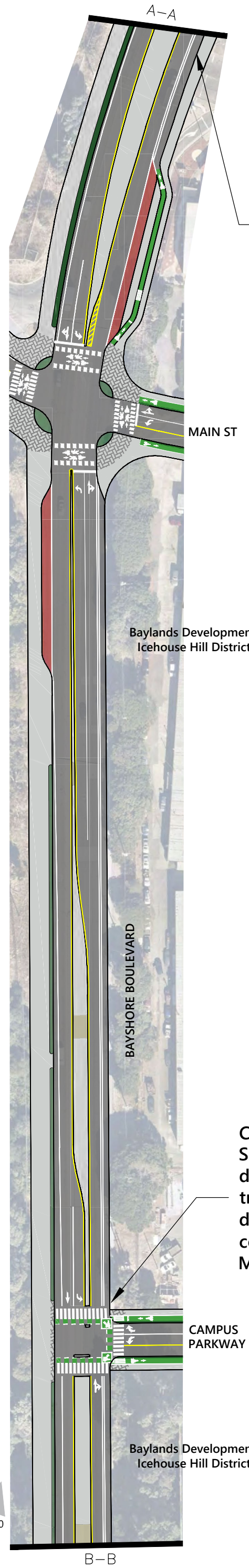
Nov 19, 2024

Bayshore Boulevard Mobility Plan
Representative Cross Sections
Figure 3



Parking design subject to review and approval of City Engineer.



Close existing intersection with Industrial Way. Consolidated access to be provided through redesigned Main Street intersection.

Coordinate with SamTrans to determine wether transit stops are desired. If so match configuration from Main Street.

Bayshore Boulevard Mobility Plan
Geneva Avenue to Campus Parkway
Figure 4

CONCEPTUAL - NOT FOR CONSTRUCTION

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B—B

BAYSHORE BOULEVARD

Icehouse Hill

DRIVEWAY

1:100

C—C

C—C

GUADALUPE
CANYON
PARKWAY

BAYSHORE BOULEVARD

Icehouse Hill

1:100

D—D

Bayshore Boulevard Mobility Plan
Guadalupe Canyon Parkway

Figure 5

CONCEPTUAL - NOT FOR CONSTRUCTION

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D–D

BAYSHORE BOULEVARD

Baylands Development:
Community Ball Fields

CROSS SECTION B
SEE FIGURE 8

VALLEY
DRIVE

East leg of Valley Drive to be designed to accommodate emergency service pre-emption and separated pedestrian and bicycle facilities for access to future community fields.

N
1:100

E–E

E–E

BAYSHORE BOULEVARD

OLD
COUNTY
RD

TUNNEL
AVE

N
1:100

F–F

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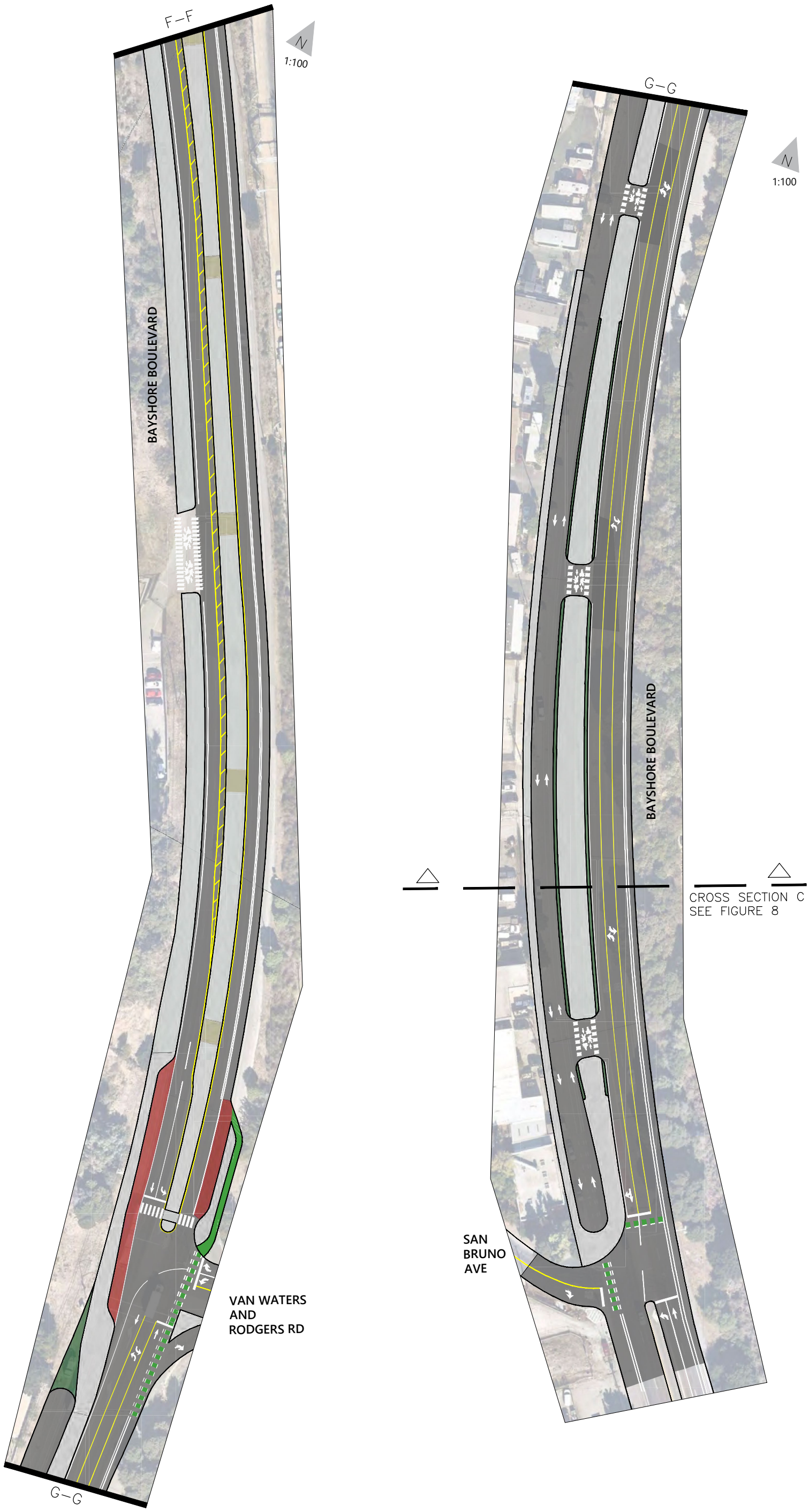
Nov 19, 2024

Bayshore Boulevard Mobility Plan
Valley Drive and Old Country Road/Tunnel Avenue
Figure 6



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Bayshore Boulevard Mobility Plan
Van Waters and Rodgers Road and San Bruno Avenue
Figure 7

CONCEPTUAL - NOT FOR CONSTRUCTION

Geometric Design

The most substantial geometric design treatment includes the removal of a travel lane in each direction, commonly known as a "road diet." Removing the travel lanes allows the City of Brisbane to reduce vehicle speeds and the prominence of the roadway for regional travelers and encourages these drivers to use US-101 instead. This treatment also allows for a variety of safety and accessibility enhancements for all roadway travelers as presented in **Figure 3** through **Figure 7**.

Roadway safety treatments include those that directly address six crash trend emphasis areas identified in the C/CAG LRSP for the City of Brisbane[3], as follows:

- The road diet supports the reduction of the design speed for the corridor to 35 miles per hour to be consistent with other arterials in the Baylands Specific Plan and address the *High-Speed Roadways* and *Motor Vehicle Speed Related Roadway Segment Crashes* crash trend emphasis areas. Changing the design speed reduces the risk of fatal or severe collisions and the desirability of the corridor for regional through traffic.[4] Reducing Bayshore Boulevard from two lanes to one lane in each direction also reduces the need for lane changes by people driving, thus reducing conflicts that can lead to collisions or inhibit traffic flow.
- The Bayshore Mobility Plan would include improved lighting and multi-modal facilities, including pedestrian scale lighting along sidewalks and multi-use paths, to address the *Pedestrian/Bicycle Safety*, *Vulnerable Age Groups*, and *Nighttime/Low Light Safety* crash trends.
- As explored further in the Intersection-Specific Designs section, the Bayshore Mobility Plan would add access controls and reduce the differential in speeds between vehicles traveling through an intersection and vehicles turning onto local streets to address the crash trend at *Unsignalized Intersections on Arterials and Collectors*.

With the right of way space resulting from the lane removal, the Bayshore Mobility Plan includes a Class I multi-use path along the west side of the corridor to improve citywide accessibility. The Class I multi-use path not only expands mobility options by providing a connection for people walking that does not currently exist but also improves the experience for people cycling. By

[3] C/CAG's LRSP for the City of Brisbane included the following crash trend emphasis areas: Pedestrian/Bicycle Safety, Nighttime/Low Light Safety, Unsignalized intersections on arterials/collectors, Vulnerable Age Groups, Motor Vehicle Speed Related Roadway Segment Crashes, High-Speed Roadways (35+ mph), and Alcohol Involvement. The Bayshore Mobility Plan addresses all these trends except the Alcohol Involvement.

[4] As noted in C/CAG's LRSP, "Countywide crashes on roadways with posted speeds 40mph or higher had an average crash severity per mile 13 times higher than along roadways with posted speeds of 25 mph or less" and "unsafe speed was the most commonly cited primary crash factor". In Brisbane, "Too fast for conditions" was the top-cited violation among motor vehicle crashes.

physically separating cyclists from vehicular traffic, the path reduces the level of traffic stress and provides a safer environment for active transportation, thereby promoting walking and cycling as viable modes of travel for individuals of all ages and abilities.[5] The existing northbound bicycle lane and striped buffer zone will remain to provide more direct access for confident bicyclists traveling in the northbound direction.

The Bayshore Mobility Plan also removes all channelized free right-turn lanes in the southbound direction to reduce conflicts for individuals of all ages and abilities on the Class I multi-use pathway. Channelized free right-turn lanes are often associated with heightened safety concerns due to their design that allows faster turning movements through conflict zones with people walking and bicycling, particularly for those in vulnerable age groups. Where channelized free right-turn lanes are to remain to facilitate large truck turning movements in the northbound direction, they shall be designed in a way to slow vehicle speeds (See: FHWA's guidance on Well Designed Right-Turn Slip Lanes).

Traffic Signal Considerations

The Bayshore Mobility Plan emphasizes the implementation of standard safety improvements at all signalized intersections, including features such as protected turn phasing, improved signage, protected pedestrian and bicycle crossings, and signal synchronization for a design speed of 35 mph. The traffic signals will need to be retimed to reflect the new configuration and the traffic signals shall include emergency and transit signal priority measures to enable emergency and transit vehicles to get priority when approaching signals. Traffic signal priority technology will reduce the likelihood of delay for emergency or transit vehicles while removing the need for emergency vehicles to travel through an intersection while the light is red for their approach. Bayshore traffic signals were recently upgraded with new technology that could be leveraged for future Intelligent Transportations Systems such as the features described in this Plan.

Emergency Access and Operations

Per California Vehicle Code (CVC) 21806, drivers must yield the right-of-way to emergency vehicles and remain stopped until the emergency vehicle passes. In general, this means that emergency vehicle access would not be significantly impacted by roadway changes where drivers are able to pull over. Bottlenecks typically occur at intersections where the roadway capacity is most constrained, which could result in vehicle queues that slow or block emergency vehicles if adequate space is not available to pass. The Bayshore Mobility Plan allows emergency vehicles to bypass congestion at intersections through the following features:

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[5] Caltrans' recommends the design of facilities to provide comfort for people bicycling of all ages and abilities in the guide *Active Transportation Emphasis Area Guidance for Corridor Planning* (February 2022), which refers to the NACTO guide found here: https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/

- **Signal Priority:** Traffic signals would incorporate the traffic signal pre-emption technology that would allow emergency vehicles to trigger a green light as they approach an intersection. This would stop cross traffic from conflicting with the emergency vehicle and allow vehicles ahead of a emergency vehicle to move through the intersection and find space to pull over.
- **Queue Jumps:** Each intersection along Bayshore Boulevard could feasibility include an additional lane that would allow for bus / emergency vehicle queue jumps that would allow emergency vehicles to pass vehicle queues at intersections. This includes right-turn pockets where they are present. The Bayshore Mobility Plan conceptual design includes queue jumps at the intersections with the highest volumes of cross traffic and transit stop pull out areas, including Guadalupe Canyon Parkway, Valley Drive, Old County Road (SB direction only), Van Waters and Rodgers Road (SB direction only). The northbound directions at Old County Road and Van Waters and Rodgers Road would retain existing channelized free right-turn lanes that provide additional space for passenger vehicles to pull over. Other intersections that do not have queue jumps in the conceptual design because of the lack of transit stops (Campus Parkway and San Bruno Ave) or are designed specifically to minimize the distance for people walking and bicycling across Bayshore Boulevard due to the location on the safe routes to school route (Main Street). If requested by the City of Brisbane emergency service providers and approved by the City Engineer, queue jumps could be incorporated at these other locations.

To prioritize emergency access between intersections, the Bayshore Mobility Plan includes breaks every 250 feet in the center median and multi-use path to allow for emergency vehicles to navigate around bottlenecks or congestion for short distances, if needed. Emergency vehicles would have several options for navigating around congestion as follows:

- In the northbound direction, private vehicles could pull over into the buffered bike lane to allow emergency vehicles to pass. Emergency vehicles could also cross into the southbound lane for short stretches if private vehicles are unable to adequately pull over.
- In the southbound direction, private vehicles could pull over into the striped shoulder to allow emergency vehicles to pass. Emergency vehicles could also cross into the northbound travel lane or the multi-use pathway for short stretches if private vehicles are unable to adequately pull over. The multi-use pathway would typically be 16 to 18 feet wide, thus providing adequate space for emergency vehicles to travel on for short distances if gaps in the northbound travel lane are blocked .

To allow for access by emergency vehicles, the center median and the buffer with the multi-use pathway shall be designed with vegetation that allows for clear sight lines between emergency vehicles and other roadway or pathway users.

Transit Access and Operations

The Bayshore Mobility Plan accommodates transit operations through the following design features:

- **Signal Priority:** The Plan recommends the implementation of Transit Signal Priority (TSP), which enhances transit reliability by minimizing delays at intersections. By extending green lights or shortening red lights when a transit vehicle approaches, TSP reduces wait times for passengers and helps buses adhere more closely to their schedules. This not only improves reliability but can also attract more riders by offering faster and more predictable travel times.
- **Stop Amenities:** Bus stops shall include dedicated loading zones on bus boarding islands and all the amenities recommended in the SamTrans' *Bus Stop Improvement Plan*[6], such as bus shelters, benches, and real-time information. On the west side of the corridor (southbound), these boarding islands will be adjacent to the Class I path, and on the east side of the corridor (northbound), these boarding islands will separate bicyclists from vehicles, buses, and pedestrians.
- **Far Side Bus Stops:** Bus stops would primarily be located on the far side of the intersection to take advantage of the TSP and reduce conflicts with vehicles turning right off Bayshore Boulevard. Near side stops in the northbound direction at Tunnel Avenue and in the southbound direction at Van Waters and Rodgers Road are included due to the unique geometries of these intersections. A northbound near side stop at Tunnel Avenue provides a direct connection to the park and ride lot in the southwest corner of the intersection. A southbound near side stop at Van Waters and Rodgers Road is likely required due to the frontage lane south of the intersection.
- **Pull-Out Areas and Queue Jumps:** Given the single travel lane, high traffic volumes, and the City's desire to maintain clearance within intersections for emergency access, intersections would include 12 foot minimum bus pull out areas for buses to load and unload. Additional roadway space to accommodate transit queue jumps are included in the conceptual design at intersections noted in the Emergency Access and Operations section. If requested by SamTrans and approved by the City Engineer, queue jumps could be incorporated at additional locations.

[6] https://www.samtrans.com/projects/bus-stop-improvement-plan

Intersection-Specific Designs

A set of standard intersection treatments is recommended for each intersection to provide consistency for the corridor to fulfill the goals of the Bayshore Mobility Plan. This set includes the treatments shown in **Table 4**. During the infrastructure design phase, the project applicant shall submit intersection warrants, sight distance analyses, and turning templates for trucks, buses, or other design vehicles prior to the approval of any intersection design in a manner consistent with Brisbane Municipal Code Chapters 10.12 and 10.16. The following sub-sections present the conceptual features for each intersection along Bayshore Boulevard. Given the conceptual nature of this design, options to provide flexibility for emergency service providers and transit agencies to meet their goals are provided where appropriate for each intersection. The Brisbane's City Engineer would be responsible for approving any final roadway designs based on the Brisbane Municipal Code and subsequent engineering studies.

Table 4: Standard Intersection Treatments

Standard Intersection Treatments	
Signal Treatments	• Pedestrian and bicycle signal heads • Protected left turn phasing at all intersections • Leading pedestrian intervals at crosswalk locations • Signal coordination to maintain vehicle speeds at posted speed limit • Prohibit right turn on red when vulnerable populations may be crossing as described in the Supplemental Roadway Design Guidelines • Protected bicycle movements for right-turns where traffic volumes exceed 150 vehicles • Emergency vehicle pre-emption and transit-signal priority
Striping Treatments	• Advance stop bars • High-visibility crosswalks • Conflict markings for bicycles • Two-stage turn boxes for relevant bicycle movements
Hard Infrastructure	• Tighten curb radii to slow vehicle turning speeds while allowing truck turning movements at locations with large numbers of trucks • Removal of channelized free right-turn lanes to reduce conflicts with the west side multi-use path • Queue jumps for emergency vehicles and transit services • Curb extensions to reduce the crossing distance for pedestrians • Raised pedestrian crossings for local streets into Baylands

Source: Fehr & Peers, FHWA

Geneva Avenue

Figure 8 presents the conceptual design for Bayshore Boulevard at Geneva Avenue. The road diet for Bayshore Boulevard would start south of the intersection of Bayshore Boulevard and Geneva Avenue. Thus, the north leg of the intersection would remain in its current configuration, with the addition of project frontage features proposed on the east side of the street in the Baylands Specific Plan. The east leg would match Geneva Avenue Specific Plan cross sections and the west leg would retain Daly City's existing lane configuration and geometry. The south leg of the intersection would match the proposed configuration by the Baylands Specific Plan, except for the addition of the multi-use Class I path on the west side of Bayshore Boulevard and the road diet starting approximately 300 feet south of Geneva Avenue. The City of Brisbane could in the future continue Bayshore Mobility Plan corridor treatments through the intersection of Geneva Avenue in coordination with the cities of Daly City and San Francisco.

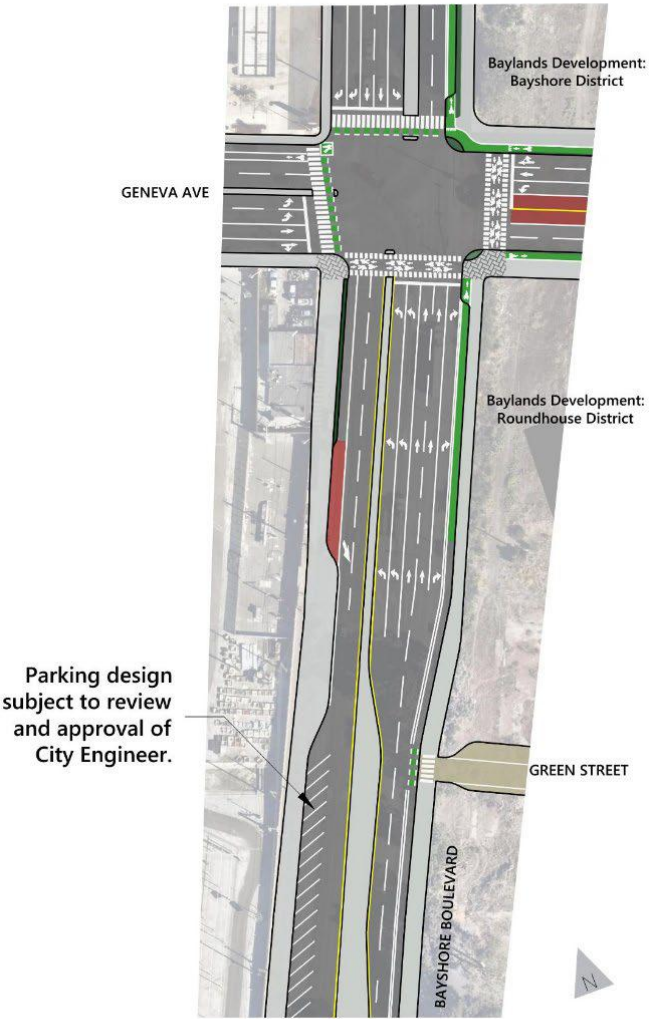


Figure 8: Geneva Avenue Conceptual Design

Protected pedestrian and bicycle crossings are provided on the east and south legs of the intersection to facilitate travel between the Class IV facilities on Geneva Avenue and the Class I pathway on Bayshore Boulevard. Crosswalks and painted bicycle striping are provided on the north and west legs to allow people to reach the existing Class II bicycle facilities on Geneva Avenue. The existing bus stop and on-street parking on the west side of Bayshore Boulevard south of Geneva Avenue in front of the 7 Mile House would remain. The signal timing would provide protected turn phases for turning movements and the bus lanes to support the movement of buses between the west and east legs of Geneva Avenue.

Baylands Local and Green Streets

The conceptual design for the local and green streets into Baylands would match the proposed designs presented in the Baylands Specific Plan and include the recommendations for raised crosswalks and right-in and right-out access from the Supplemental Roadway Design Guidelines.

Main Street and Industrial Way

Figure 9 presents the conceptual design for Bayshore Boulevard at Main Street. The existing intersection at Industrial Way would be eliminated. Industrial Way would be provided with a side-street-stop controlled intersection from Main Street. This configuration would require shifting the west leg of Main Street south to avoid a skewed intersection. The channelized free right-turn lanes would be removed to reduce turning speeds at conflict points for the Class I pathway on the west leg of the intersection.

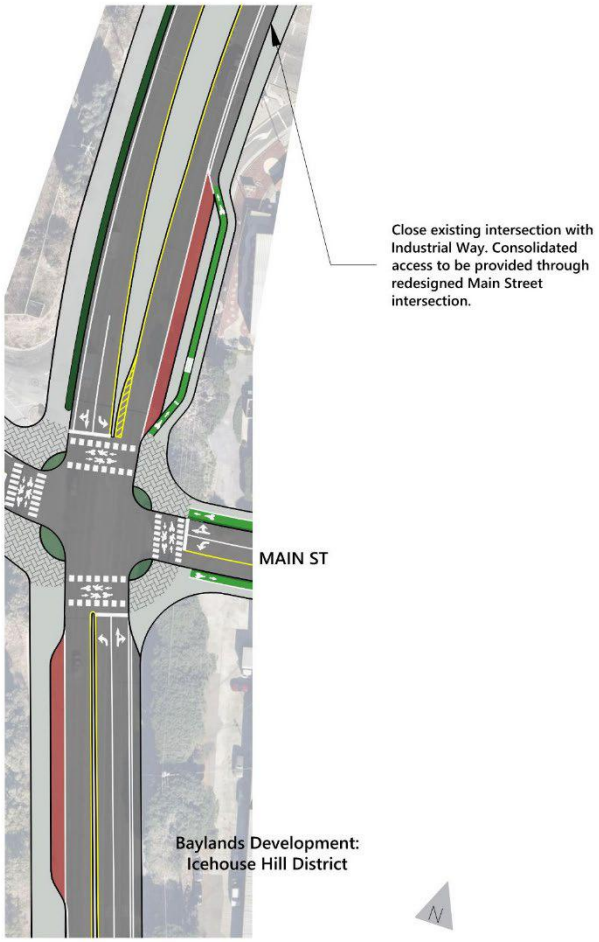


Figure 9: Main Street and Industrial Way Conceptual Design

A Class I path would be provided on the north side of Main Street to provide a connection to the Bayshore Heights neighborhood of Daly City. Protected pedestrian and bicycle crossings would be provided on all legs of the intersection to facilitate travel from the Class IV facilities on the east leg of Main Street and the Class I pathways on Bayshore Boulevard and on the west leg of Main Street. Reconfigured transit stops would be located on the far- side of the new intersection and provide bus pull outs and amenities consistent with SamTrans' *Bus Stop Improvement Plan*, including a northbound bus island so the Class II bikeway can travel behind the stop. Queue jumps are not shown in the conceptual design to minimize the crossing distance for school children across Bayshore Boulevard. Queue jumps and right turn pockets could be incorporated within the Bayshore Boulevard and Baylands Specific Plan footprints if requested by SamTrans or emergency service providers and approved by the City Engineer.

Campus Parkway

Figure 10 presents the conceptual design for Bayshore Boulevard at the proposed Baylands Specific Plan intersection of Campus Parkway. The intersection would be signalized with protected pedestrian and bicycle crossings on the north and east legs of the intersection to facilitate travel from the Class IV facilities on Campus Parkway to the Class I pathways on Bayshore Boulevard. The Specific Plan does not propose to add bus stops at this location. However, bus stops with amenities consistent with SamTrans' *Bus Stop Improvement Plan* and queue jumps could be incorporated within the Bayshore Boulevard and Baylands Specific Plan footprints if requested by SamTrans and approved by the City Engineer.

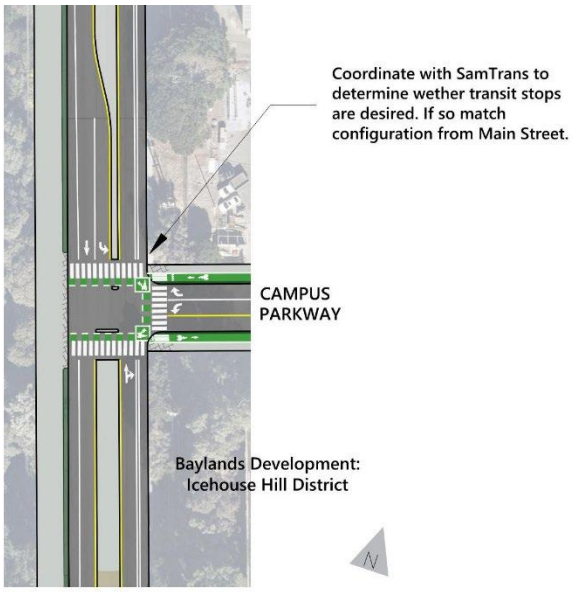


Figure 10: Campus Parkway Conceptual Design

Brisbane Technology Park

Figure 11 presents the conceptual design for Bayshore Boulevard at Brisbane Technology Park. The Bayshore Mobility Plan would add a crossing for the new multi-use pathway across the Brisbane Technology Park driveway. The Brisbane Technology Park driveway is an existing side-street stop-controlled intersection that allows left-turns, with turn pockets and deceleration lanes provided for northbound left turns, southbound right turns, and separate eastbound left- and right-turns lanes. Trucks frequently need to access Brisbane Technology Park and therefore the turning radii are designed to accommodate their movements.

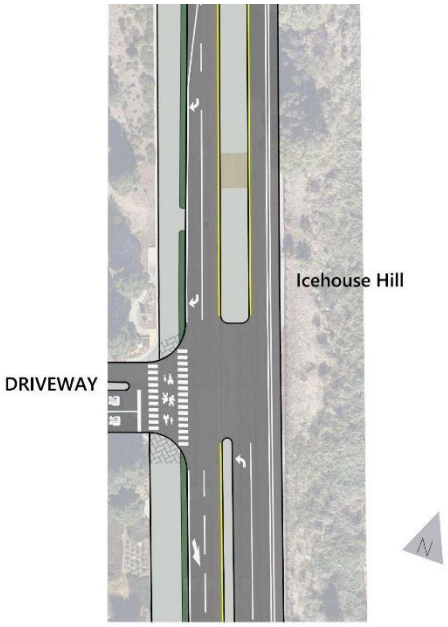


Figure 11: Brisbane Technology Park Conceptual Design

As noted in the Supplemental Roadway Design Guidelines for these intersection types, "speed differentials between vehicles as well as vehicles and other modes increases risk of severe collisions as well as reduces the amount of time road users have to react to a conflict and avoid a collision. Where side street stop

controls exist on Regional and Minor Arterials with speed limits of 35 mph, vehicles turning onto the higher-speed road may feel the need to accelerate rapidly, while vehicles turning onto a lower-speed may decelerate rapidly. Additionally, vehicles turning onto the major street will need to judge a gap in traffic, which can be more challenging when the major street has multiple lanes, higher speeds, and/or roadway curvature."

The Bayshore Mobility Plan conceptual design presented here maintains existing vehicle access and includes the following countermeasures recommended in Supplemental Roadway Design Guidelines and identified in the C/CAG's 2024 LRSP for the City of Brisbane to reduce the potential for fatal and severe injury crashes at unsignalized locations:

- Reduction in the posted speed limit to 35 mph or less with corresponding traffic calming measures like reduction in travel lanes (e.g., road diet), lane narrowing, signal progression to manage speeds, etc. on the major street.
- Install signage for vehicles and users at the multi-use pathway at the stop sign to indicate that Cross Traffic Does Not Stop.
- Install high-visibility crosswalks across the stop-controlled, minor street approach.
- Install "gateway" treatments, including reduction of eastbound lanes from one to two lanes and tightening the turning radii to limit turning speeds from major to minor street and limit exposure to people on the multi-use pathway crossing the driveway.

Other countermeasures listed in the Supplemental Roadway Design Guidelines that could be implemented at this location at the discretion of Brisbane's City Engineer based on the engineering studies identified above (e.g., intersection warrants, sight distance analyses, and turning templates) could include:

- Limiting access to right-in and right-out only to limit conflicts and higher speed left-turning movements by extending the median through the intersection.
- Removing the deceleration lane to further narrow the roadway and reflect the reduction in speed limits at this location.
- Installing other "gateway" treatments such as a raised crossings or a median refuge on the driveway so that vehicles would cross the multi-use pathway at sidewalk level to slow turn movements beyond.
- Converting the intersection to a roundabout or traffic signal.

Guadalupe Canyon Parkway

Figure 12 presents the conceptual design for Bayshore Boulevard at Guadalupe Canyon Parkway. The channelized free right-turn lanes would be removed to reduce turning speeds at conflict points for the Class I pathway on the west leg of the intersection. Existing vehicle access would be maintained although one of the two eastbound left turn lanes would be removed because there will only be one receiving lane on northbound Bayshore Boulevard. The crosswalk across Bayshore Boulevard would move from the north leg to the south leg of the intersection so that pedestrians would go at the same time with right-turning vehicles rather than the faster moving left-turning vehicles. Crosswalks across Guadalupe Canyon Parkway and Bayshore Boulevard would be enhanced to high-visibility crosswalks. The transit stops would remain as far side bus stops and would be designed with queue jumps, bus pull outs, and amenities to match the SamTrans' *Bus Stop Improvement Plan*. Queues jumps for emergency vehicles and transit vehicles would be provided via the southbound right-turn pocket and a dedicated northbound queue jump shown in red in **Figure 12.**

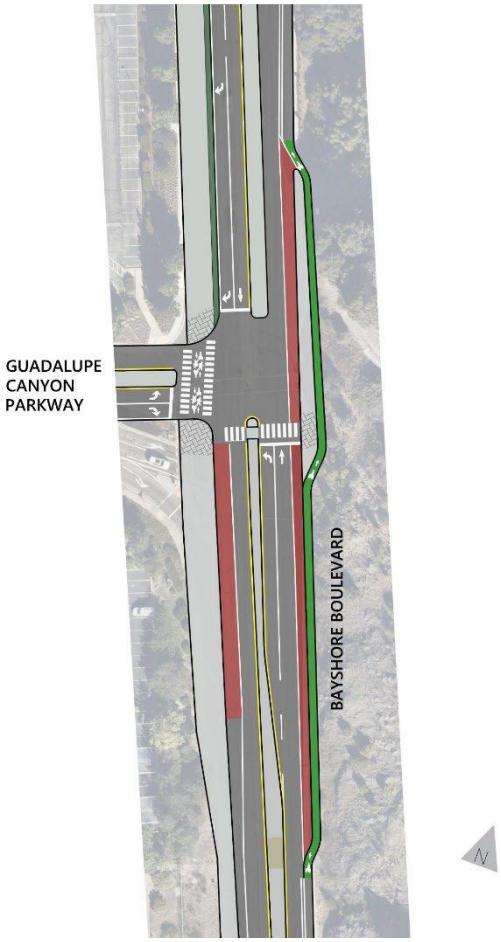


Figure 12: Guadalupe Canyon Parkway Conceptual Design

Valley Drive

Figure 13 presents the conceptual design for Bayshore Boulevard at Valley Drive. The channelized free right-turn lanes would be removed to reduce turning speeds at conflict points for the Class I pathway on the west leg of the intersection. Existing vehicle access would be maintained although the shared eastbound left turn lane would be converted to a through-only lane to provide only one lane for left-turning vehicles. This configuration matches the one receiving lane on northbound Bayshore Boulevard. Valley Drive provides the primary access for trucks from Crocker Park and fire trucks onto Bayshore Boulevard and therefore the turning radii are designed to accommodate their movements.

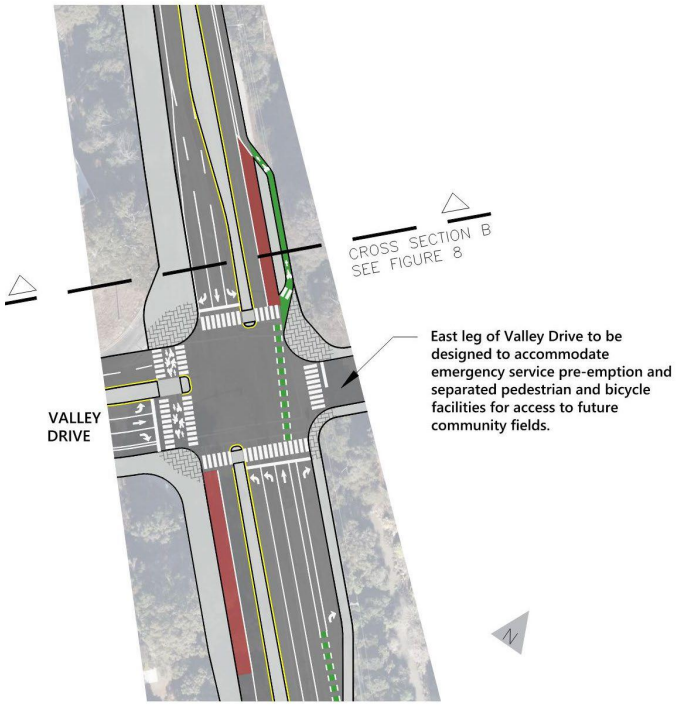


Figure 13: Valley Drive Conceptual Design

Existing crosswalks would be enhanced to high-visibility crosswalks. In addition to the Class I pathway on the west side of the intersection, a new sidewalk on the east side of Bayshore Boulevard would provide a complete pedestrian network between Valley Drive to Tunnel Avenue. While a sidewalk is not included on the east side of Bayshore Boulevard north of Valley Drive due to the lack of destinations for people walking, the segment south of Valley Drive is included to provide a complete pedestrian system within the center of Brisbane between Valley Drive and Old County Road / Tunnel Avenue. The transit stops would be designed with bus pull outs and with amenities to match the SamTrans' *Bus Stop Improvement Plan*. The right-turn pockets could serve as queues jumps for emergency vehicles and transit vehicles and would align with the far side transit pull out areas to facilitate a direct line through this intersection.

The east leg of Valley Drive would incorporate features to accommodate the mix of emergency service providers, trucks, and people traveling the future community fields through emergency vehicle pre-emption and separated pedestrian and bicycle facilities. The design of this approach would be similar to this design if Tunnel Avenue moves to this location due to CA High-Speed Rail.

Tunnel Avenue and Old County Road

Figure 14 presents the conceptual design for Bayshore Boulevard at Tunnel Avenue and Old County Road. This intersection was included in the Included in the 2022 Complete Streets Safety Assessment and the conceptual design matches that plan. The channelized free right-turn lanes would be removed on the west side of the intersection to reduce turning speeds at conflict points for the Class I pathway. The channelized free right-turn lanes would remain on the east side of the intersection given the angle of the intersection approach to Tunnel Avenue and the lack of a conflicting Class I pathway. Existing vehicle access would be maintained and all crosswalks would be enhanced to high-visibility crosswalks.

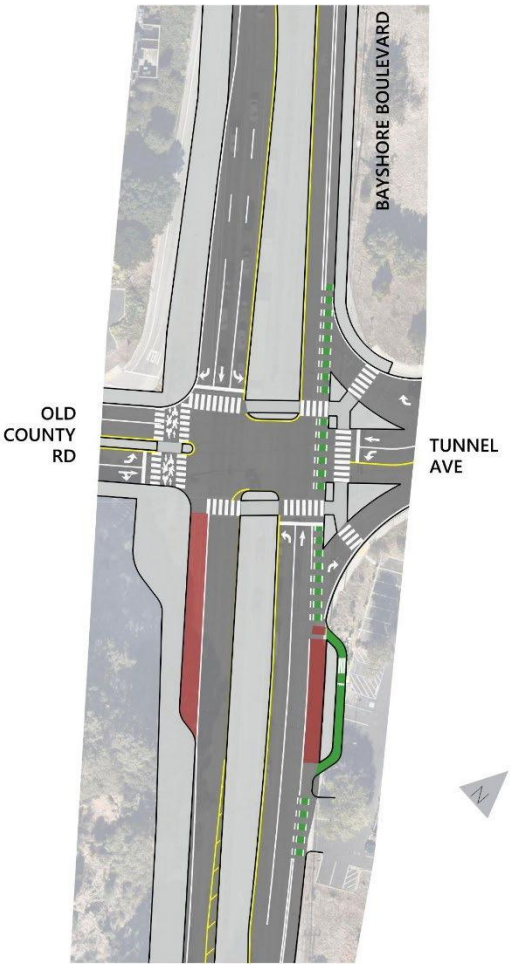


Figure 14: Tunnel Avenue and Old County Road Conceptual Design

The transit stops would remain in their current locations and be designed with bus pull outs and with amenities to match the SamTrans' *Bus Stop Improvement Plan*. This includes a near side stop in the northbound at Tunnel Avenue to provide a direct connection to the park and ride lot in the southwest corner of the intersection. The southbound right-turn pocket could serve as a queue jump for emergency vehicles and transit vehicles by aligning with the far side transit pull out. A northbound queue jump is not provided due to the channelized free right-turn lane but could be incorporated within the Bayshore Boulevard footprint if requested by SamTrans or emergency service providers and approved by the City Engineer.

Van Waters and Rodgers Road

Figure 15 presents the conceptual design for Bayshore Boulevard at Van Waters and Rodgers Road. This intersection was included in the Included in the 2022 Complete Streets Safety Assessment and the conceptual design matches that plan, except where noted. A new high-visibility crosswalk on the north leg of the intersection would replace the existing crosswalk on the south leg. The channelized free right-turn lane from westbound Van Waters and Rodgers Road to northbound Bayshore Boulevard would be removed to provide room for a relocated northbound far side bus stop that aligns with the new crosswalk. Shifting the crosswalk and bus stop to the north leg of the intersection would improve pedestrian safety by removing conflicts between pedestrians and faster moving vehicles turning left onto southbound Bayshore Boulevard or turning right in a channelized free right-turn lane. The channelized free right-turn lane from northbound Bayshore Boulevard to eastbound Van Waters and Rodgers Road would remain to ensure large vehicles can access the warehousing and distribution facilities on Van Waters and Rodgers Road.

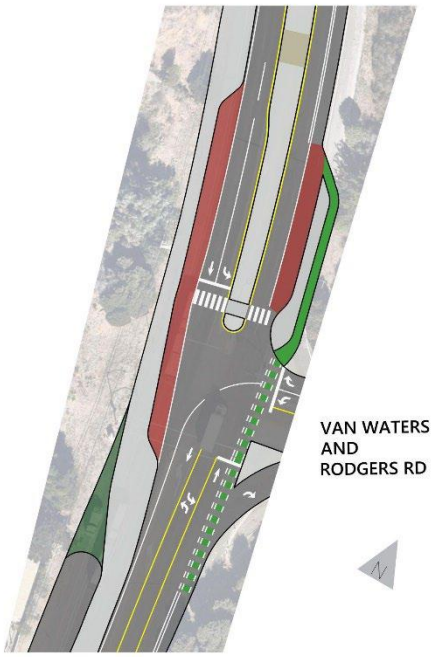


Figure 15: Van Waters and Rodgers Road Conceptual Design

The southbound bus stop would shift to the near side of the intersection with added amenities to match the SamTrans' *Bus Stop Improvement Plan* due to geometric constraints posed by the access road and parking lane for the Sierra Point Trailer Park that would start south of this intersection. A southbound receiving lane through the intersection would allow emergency or transit vehicles to bypass queues on southbound Bayshore Boulevard. A northbound queue jump is not provided due to the channelized free right-turn lane that is required to provide access for large trucks onto Van Waters and Rodgers Road.

San Bruno Avenue

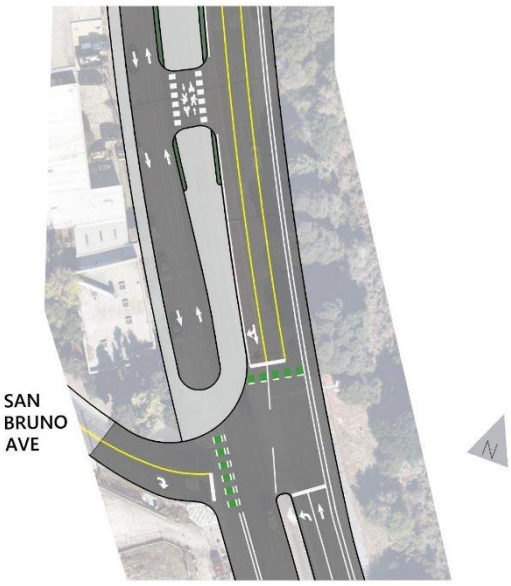


Figure 16: San Bruno Avenue Conceptual Design

Figure 16 presents the conceptual design for Bayshore Boulevard at San Bruno Avenue. This intersection was included in the Included in the 2022 Complete Streets Safety Assessment and the conceptual design matches that plan, except where noted. The City of Brisbane has existing plans to fund the signalization of San Bruno Avenue. The Bayshore Mobility Plan would not change existing turning movements, including right-turn access only from San Bruno Avenue. This intersection represents the southern edge of the Bayshore Mobility Plan and therefore the road diet and multi-use path would end at San Bruno Avenue. South of the intersection, the roadway would transition to match the existing roadway geometry with two lanes in each direction and the existing Class II facilities on both sides of the corridor. People bicycling would be able to continue south on the existing Class II bicycle lanes. People bicycling northbound would use the two-stage turn queue box at San Bruno Avenue to cross Bayshore Boulevard to reach the Class I multi-use path. The continuation of the multi-use path and the redesign of Bayshore Boulevard south of San Bruno Avenue would require coordination with the City of South San Francisco on plans for Airport Boulevard as a part of a future project.

Concept Assessment

This section presents an assessment of the Bayshore Mobility Plan according to the goals and metrics described in the *Concept Development and Assessment Approach* section.

Enhance Connectivity for Bayshore Residents

The Bayshore Mobility Plan would enhance connectivity for land uses directly abutting Bayshore Boulevard, primarily the Sierra Point Trailer Park on the westside of Bayshore Boulevard just north of San Bruno Avenue, through two primary means. First, there is a gap in the pedestrian and bicycle network connecting the Sierra Point Trailer Park to Central Brisbane as identified in the 2022 CSSA. Central Brisbane is only one-half mile to one mile away from the Sierra Point Trailer Park, an easy walking or bicycling distance for able bodied people. However, the only existing option is to walk or bike on the shoulder of Bayshore Boulevard. The recommended Class I multi-use pathway would close the gap to Central Brisbane and allow people walking and bicycling to access SamTrans stops or the rest of the City in a low-stress environment. Second, the addition of a frontage lane would allow people accessing the parking along Bayshore Boulevard, such as for Sierra Park Trailer Park, to avoid needing to wait for a gap in Bayshore Boulevard traffic to back out of parking spaces or exit the individual driveways. This access improvement would create local street access for people that currently must access their properties directly onto a regional arterial.

Increase Connectivity between Baylands and the existing City of Brisbane

Connectivity between Baylands and the existing City of Brisbane is described below for people walking, bicycling, riding transit, and driving. The ability for large vehicles, such as trucks and emergency vehicles, to maneuver into and out of Brisbane is described as well.

Multi-Modal Connectivity

Figure 17 illustrates how the Bayshore Mobility Plan would close network gaps and thus improve connectivity for people walking and bicycling between the Baylands and the existing City of Brisbane and Daly City neighborhoods. The Bayshore Mobility Plan would close the existing sidewalk gaps on Bayshore Boulevard south of Geneva Avenue (as illustrated on Figure 12 of the Baylands TIA) and thus allow people to walk between Baylands and existing Brisbane neighborhoods to the east of Bayshore Boulevard. The multi-use pathway would also provide a new protected bicycle facility for people bicycling between the Baylands and these neighborhoods.

Figure 17: Multi-Modal Connectivity Changes



The intersections of Geneva Avenue, Main Street, and Campus Parkway would provide protected intersection features to help improve comfort, safety, and connectivity for people crossing Bayshore Boulevard to and from the Baylands. The multi-use pathway, improved crossings, and transit stop enhancements would improve connectivity for people riding transit along Bayshore Boulevard. The Main Street connection via the Main Street pathway presented in Recommendation 3b of the Baylands TIA would help school children from Daly City reach the new Baylands School located on Main Street. This new connection would help fulfill safe routes to school best practices, as described in the Baylands Safe Routes to School Study.[7] Additional metrics on the quality of the multi-modal connections and safety is presented under the goal to "Redesign Bayshore Boulevard as a Multi-Modal Corridor".

Automobile Connectivity

The Bayshore Mobility Plan would maintain automobile access where it would exist under Baseline Conditions with the Baylands Specific Plan, except at the following locations:

- Industrial Way at Bayshore Boulevard would be closed to avoid the closely spaced intersections with the proposed full signalized intersection at Main Street, which is approximately 300 feet to south of the existing intersection. Automobile access would not substantially change as the new signal at Main Street would provide access to the Industrial Way properties.
- Sierra Point Trailer Park access would be managed through a frontage road that would provide local access. This would replace the current configuration where local drivers from the properties abutting Bayshore Boulevard need to back up directly onto Bayshore Boulevard. Drivers would be able to enter and exit the frontage road between Van Waters and Rodgers Road and San Bruno Avenue, therefore automobile access would not be substantively changed for these properties.

Automobile access would be maintained similar to existing or baseline conditions at all other locations on the corridor, including for minor driveways not discussed in detail elsewhere. Therefore, automobile connectivity would not substantively change with the Bayshore Mobility Plan.

Large Vehicles

The Bayshore Mobility Plan would accommodate the movement of trucks and emergency vehicles by providing adequate curb turning radii for the California Legal Truck at locations with high truck traffic, such as the Brisbane Technology Park Driveway, Valley Drive, Tunnel Avenue, and Van Waters and Rodgers Road. Fire department vehicles would use Valley Drive to enter and exit Bayshore Boulevard and accommodate these turns. The final roadway designs shall include

[7] Baylands Safe Routes to School Study (Fehr & Peers, August 2024)

turning templates to demonstrate compliance for these movements. For movements at other roadways with large truck volumes and tight turning radii due to askew intersections, such as at Tunnel Avenue and at Van Waters and Rodgers Road, the channelized free right-turn lane would remain to facilitate this movement. Therefore, the Bayshore Mobility Plan would accommodate the movements of trucks between large truck generating area like Crocker Park and other destinations within or outside the City.

Reduce the Prominence of the Regional Function of Bayshore Boulevard

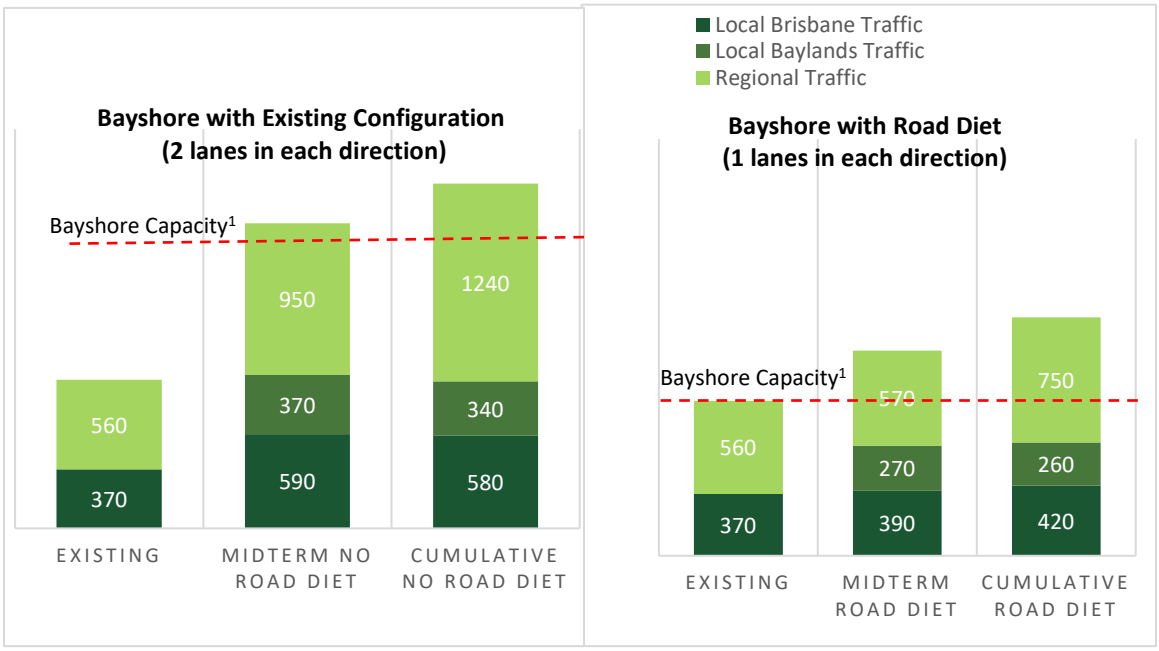
The Bayshore Mobility Plan recommended conceptual design would reduce regional traffic volumes and speeds while not resulting in a substantial increase in vehicle miles traveled (VMT) or traffic on other routes through the City, as presented below.

Regional Traffic Volumes and Speeds

The Bayshore Mobility Plan would reduce the design speed of the roadway from 45 mph to 35 mph to match other arterial roadways through design features such as reduced number of lanes and reduced lane widths.

Figure 18 presents the PM peak hour traffic demand on northbound Bayshore Boulevard, South of Main Street, to illustrate the relative traffic contributions generated by Baylands, other Brisbane locations, and those without an origin or destination within Brisbane (regional traffic) with and without the Bayshore Mobility Plan ("Road Diet" in figure). As illustrated on **Figure 18,** regional traffic volumes on Bayshore Boulevard would go down due the Bayshore Mobility Plan, with approximately 500 fewer vehicles, or a 40 percent drop, on this segment. This indicates that the Bayshore Mobility Plan would encourage drivers to use US-101 for regional travel rather than traveling through Brisbane. Additional information about study area roadway volume to capacity ratios is presented in **Attachment B**.

Figure 18: Bayshore Contributions with and without Bayshore Mobility Plan



Notes:

1. Bayshore Boulevard's roadway capacity represents approximately 1,000 vehicles per hour per lane, given the typical range of roadway capacities of 900 to 1300 passenger vehicles per hour per lane in an urban environment depending on factors such as street classification, land use, and traffic control measures per the *Highway Capacity Manual*, 7th Edition (Transportation Research Board, 2022).

Source: Fehr & Peers, 2024

Vehicle Miles Traveled

As shown in Chapter 6 *Analysis Results* of the *Brisbane Baylands Transportation Impact Assessment*, the Baylands Specific Plan as a whole would not increase regional travel without the Bayshore Mobility Plan. OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA*[8] provides additional information about the types of projects that would or would not likely lead to a substantial or measurable increase in vehicle travel. The Bayshore Mobility Plan does not the add through lanes on existing or new highways, which is the primary feature that would likely lead to a measurable and substantial increase in vehicle travel according to OPR. The Bayshore Mobility Plan includes the following features presented in OPR's list that would not lead to a substantial or measurable increase in vehicle travel:

- Reduction in number of through lanes,

[8] Technical Advisory on Evaluating Transportation Impacts in CEQA http://opr.ca.gov/docs/20190122-743_Technical_Advisory.pdf

- Installation, removal, or reconfiguration of traffic control devices, including Transit Signal Priority (TSP) features,
- Timing of signals to optimize vehicle, bicycle, or pedestrian flow,
- Installation or reconfiguration of traffic calming devices,
- Addition of new or enhanced bike or pedestrian facilities on existing streets/highways or within existing public rights-of-way, and
- Addition of Class I bike paths, trails, multi-use paths, or other off-road facilities that serve nonmotorized travel.

Therefore, following the guidance presented in OPR's *Technical Advisory on Evaluating Transportation Impacts in CEQA,* the Bayshore Mobility Plan would not be expected to substantially increase VMT or induce additional automobile travel. Fehr & Peers used the City's peak hour sub-area model to supplement this finding by determining whether traffic on other roadways in the City of Brisbane would substantially increase due to diversions of regional traffic associated with the Bayshore Mobility Plan. As presented in **Table 5**, the Bayshore Mobility Plan would not substantially increase vehicle travel within the sub-area given the parallel routes of U.S. 101 for regional travelers and Tunnel Road and Sierra Point for local travel. Therefore, the Bayshore Mobility Plan would not lead to a substantial or measurable increase in VMT, nor would it substantially increase automobile travel on other local roadways within the City of Brisbane in a manner consistent with the City of Brisbane's General Plan Program C.1.b.

Table 5: City of Brisbane Vehicle Miles Traveled with Bayshore Mobility Plan

Geography	Cumulative Plus Project Buildout 2040 With Interchange		Cumulative Plus Project Buildout 2040 With Interchange and Bayshore Mobility Plan	
	AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Brisbane Sub-Area Model	169,171	167,467	169,245	167,670
Change	--	--	<0.1%	0.1%

Notes:
1. VMT results from City of Brisbane sub-area model, which is extracted from the C/CAG Travel Demand Model.

Redesign Bayshore Boulevard as a Multi-Modal Corridor

Evaluation of this goal includes roadway safety metrics, a level of traffic stress evaluation for people walking and bicycling, and automobile queues.

Multi-Modal Safety

The Bayshore Mobility Plan includes a series of corridor treatments and intersection treatments to address the priority locations noted in Figures 4 and 8, and Table 5 of C/CAG's LRSP for the City

of Brisbane. Intersection specific improvements are presented above in the Recommended Conceptual Design section. As noted in **Table 3** and **Table 4** of this memorandum, the corridor and signalized intersections would include the relevant roadway segment and intersection level crash reduction features listed in C/CAG's LRSP. This report presents comprehensive information on the crash reduction potential for these types of features and their effect on improving multi-modal roadway safety. By including these features, the Bayshore Mobility Plan would address existing safety issues and accommodate the increase in multi-modal travel generated by the Baylands Specific Plan. The Bayshore Mobility Plan would also address the potential for hazardous conditions at new intersections connecting local streets to Bayshore Boulevard by lowering the design speeds and implementing the features described for these locations as noted in the Baylands Supplemental Roadway Design Guidelines.

Multi-Modal Level of Traffic Stress

Bayshore Boulevard currently rates as LTS 4, a high-stress environment for people walking and bicycling, due to the high vehicular speeds and lack of protection from high traffic volumes. The vehicle volumes used for the LTS analysis are from the midterm plus Baylands project scenario from the Baylands TIA to reflect opening day conditions.[9] Given the overall similarity in outcomes of LTS calculations for people walking and bicycling, this quantitative LTS analysis is based on factors that influence the LTS for people bicycling. The primary difference between the two methodologies is that LTS for people walking accounts for the presence of sidewalks while LTS for people bicycling accounts for existing bicycle facilities, including bike lanes, separated bike paths, or shared roadways with designated bike markings. The presence and quality of these bicycle facilities directly influence the perceived safety and comfort of cycling, and thus the LTS, on a particular route.

The Bayshore Mobility Plan would reduce the level of stress for people walking and bicycling by providing a multi-use pathway with a raised curb, planted buffer where space allows, and protected intersection features to meet Caltrans standards for a facility that supports travel for individuals of all ages and abilities.[10] **Figure 19** presents the LTS analysis for the roadways within and adjacent to and Baylands Specific Plan with the Bayshore Mobility Plan. As shown in **Figure 19**, the Baylands Specific Plan project provides an internal low stress network that would be connected to low stress facilities on Bayshore Boulevard and Main Street with implementation of protected facilities as a part of Recommendation 3b of the Baylands TIA. Bayshore Boulevard north of Geneva Avenue would remain at a high-stress level due to the lack of protection for people bicycling and walking,

[9] Cumulative plus Baylands conditions would not substantially change this analysis given that the buildout of Phase 1 on the westside of Caltrain tracks would be complete, and thus there would not be substantial changes to volumes on the roadways within the project site. Arterial roadways would continue to operate in a similar manner with respect to the level of traffic stress for people walking and bicycling.

[10] Caltrans' recommends the design of facilities to provide comfort for people bicycling of all ages and abilities in the guide *Active Transportation Emphasis Area Guidance for Corridor Planning* (February 2022), which refers to the NACTO guide found here: https://nacto.org/publication/urban-bikeway-design-guide/designing-ages-abilities-new/

although the Baylands Specific Plan would provide wide sidewalks with a buffer on the east side of the street to reduce the stress for that specific user group. Geneva Avenue in Daly City would also remain as high-stress due to high traffic volumes and speeds and lack of protection in the future. Reducing the level of traffic stress on Bayshore Boulevard north of Geneva Avenue, Geneva Avenue, or Bayshore Boulevard south of San Bruno Avenue would require coordination with Daly City, San Francisco, and South San Francisco to identify strategies to incorporate low stress designs for people walking and bicycling into these roadways.

Figure 19: Level of Traffic Stress with Baylands Specific Plan Phase 1 and the Bayshore Mobility Plan



**LTS for roadways in Brisbane within Phase 1 of the Baylands Specific Plan and on Bayshore Boulevard, Main Street, and Geneva Avenue within a block of the Specific Plan Area are shown for simplicity purposes. Bayshore Boulevard and Main Street include Class I pathways for both roadways.*

Automobile Queues

As noted in the City's General Plan, given the substantial effect that regional traffic has on Bayshore Boulevard, the City does not have a LOS objective for intersections along Bayshore Boulevard (GP Policy C.2). Therefore, this goal assesses whether the Bayshore Mobility Plan could reduce mobility for people driving to and from Central Brisbane neighborhoods by evaluating whether vehicles queues approaching Bayshore Boulevard would extend back to other intersecting streets from Bayshore Boulevard (per GP Policy C.3). The specific metrics include intersection approach queues leaving Brisbane via Guadalupe Canyon Parkway, Valley Drive, Old County Road, and San Bruno Avenue.

Table 6 presents the peak hour vehicle queues at each roadway exiting Central Brisbane to determine which scenarios would exceed the storage length and not comply with General Plan Policy C.3. Vehicle queues would exceed the storage length at Valley Drive without the Bayshore Mobility Plan due to the large increase in regional traffic demand on Bayshore Boulevard. While the Bayshore Mobility Plan would reduce the amount of regional traffic using Bayshore Boulevard, some regional traffic would continue to cause delay for local drivers as presented in the "Reduce the Prominence of the Regional Function of Bayshore Boulevard" goal above. The Bayshore Mobility Plan would result in queues exceeding the storage length at one new study intersection (Guadalupe Canyon Parkway) due to the shift for some of the forecasted regional traffic growth from Geneva Avenue to Guadalupe Canyon Road to reach southbound Bayshore Boulevard. Vehicle queues would increase somewhat at Old County Road and San Bruno Avenue (due to the addition of the signal under this scenario) but would not exceed the storage length. **Attachment B** presents the traffic operations results.

Table 6: Peak Hour Vehicle Queues Exiting Brisbane

Intersection with Bayshore Boulevard[1]	Storage Length[2]	Cumulative Plus Baylands[1]		Cumulative Plus Baylands and Bayshore Mobility Plan	
		AM Peak Hour	PM Peak Hour	AM Peak Hour	PM Peak Hour
Guadalupe Canyon Parkway	400	240	240	Exceed Storage	Exceed Storage
Valley Drive	360	Exceed Storage	Exceed Storage	Exceed Storage	Exceed Storage
Old County Road	1,240	330	260	680	330
San Bruno Avenue[3]	700	-	-	700	660

Notes:

1. Eastbound vehicle queues at each intersection leaving Brisbane used as a proxy to illustrate how the Bayshore Mobility Plan could affect delay for people leaving Central Brisbane via automobile.
2. Storage lengths calculated based on next nearest downstream public intersection to determine compliance with General Plan Policy C.3
3. A traffic signal is included in the Bayshore Mobility Plan but not under cumulative conditions analysis. The intersection is assumed to remain as the existing side-street stop-controlled configuration.

Source: Fehr & Peers, 2024.

The changes to vehicle queues that are presented in Table 6 are not anticipated to substantially change automobile access for people living and working in the City of Brisbane. While the queues on Guadalupe Canyon Road would extend beyond the next upstream signalized intersection at North Hill Drive, upstream signals at North Hill Drive or Mission Blue Drive could be used to meter the regional traffic shifting from Bayshore Boulevard to Guadalupe Canyon Road. This could prioritize circulation from North Hill Road, the Brisbane Technology Park, or Mission Blue Drive to reach Bayshore Boulevard. The signal timing plans used in this queuing analysis are optimized for the highest volumes for this analysis, which typically are on the Bayshore Boulevard through movements. Therefore, the City Engineer could further optimize the signal timing patterns to reduce delays and queues for Brisbane drivers at the study intersections. Given the uncertainty inherent with forecasting future year traffic conditions, the City Engineer would adjust the signal timing as these traffic patterns change over time.

Improve the Look of the Corridor

The Bayshore Mobility Plan would provide continuous features for the length of the corridor that would allow for a change in the look of the corridor from a regional oriented roadway design to maximize automobile throughput to a local serving multi-modal corridor. The median and buffer to the Class I multi-use pathway would allow for landscaping, gateway, wayfinding features that could create a welcoming entry into the City of Brisbane and the opportunity to accentuate the different land use contexts that are present along the corridor. The Bayshore Mobility Plan does not provide specific strategies on the types of landscaping, gateway, and wayfinding features but facilitates this strategy to be developed in alignment with the Baylands Specific Plan, City staff, and community members.

Conclusion

The Bayshore Mobility Plan presents a vision for the future of Bayshore Boulevard in the City of Brisbane that would seek to address the following goals for the City of Brisbane:

- Enhance connectivity for Bayshore residents;
- Increase connectivity between Baylands and the existing City of Brisbane;
- Reduce the prominence of the regional function of Bayshore, making it more of a Brisbane City street;
- Redesign Bayshore Boulevard as a multi-modal corridor;
- Generally improve the look of the corridor.

Table 7 presents a summary of the outcomes of the Bayshore Mobility Plan in achieving these goals. The Bayshore Mobility Plan would balance competing needs for local roadway travelers to fulfill these goals with improvements to roadway safety, level of traffic stress, multi-modal connectivity, and transforming the nature of the roadway from a regionally serving arterial to a

locally-oriented roadway. As with any roadway network changes, there are trade-offs inherent in the conceptual design, with increased vehicle queues at some locations where vehicle demand is expected to continue to exceed the capacity of these locations. While the traffic forecasting models used to estimate future volumes can account for many factors, such as regional land use and transportation network changes and changes to roadway capacity along the corridor, the extent to which regional drivers shift to other routes or modes are part of the inherent uncertainty associated with forecasting future regional traffic demand as outlined in the Baylands TIA.

As noted in the City of Brisbane General Plan, while the City of Brisbane cannot control the growth in regional traffic demand through the City, the City of Brisbane has the policy to create a vision to achieve the goals presented in this memorandum. This Plan presents that vision and conceptual plan for the corridor and achieves many of these goals in a manner that is feasible within the constraints of the City of Brisbane's public right-of-way. As is typical for any conceptual planning study, the corridor design will be refined through the engineering and construction stages to ensure the final designs meet the design principles and relevant standards presented in this document.

Table 7: Summary of Bayshore Mobility Plan Evaluation

Goal and Metrics	Bayshore Mobility Plan	Summary
Enhance Connectivity for Bayshore Residents		Connectivity for Bayshore residents would improve
Increase Connectivity between Baylands and the existing City of Brisbane		
Multi-Modal Connectivity		Improved access to destinations for people walking, bicycling, and riding transit
Automobile Connectivity		No substantial change to automobile access
Large Vehicles		No substantial change to access for large vehicles
Reduce the Prominence of the Regional Function of Bayshore Boulevard		
Regional Traffic Volumes and Speeds		Some regional traffic would shift to other routes
Vehicle Miles Traveled		VMT would not substantially change
Redesign Bayshore Boulevard as a Multi-Modal Corridor		
Multi-Modal Safety		Existing safety issues from LRSP and potential hazards from Baylands TIA addressed
Multi-Modal Level of Traffic Stress		LTS for people walking and bicycling improved
Automobile Delay and Queues		Delay and queues associated with regional traffic would worsen
Improve the Look of the Corridor		Opportunity to create consistent local vision

Notes: Evaluations for goals with sub-metrics are show just for the metrics.

 = Positive effect of Bayshore Mobility Plan

 = No substantial effect of Bayshore Mobility Plan

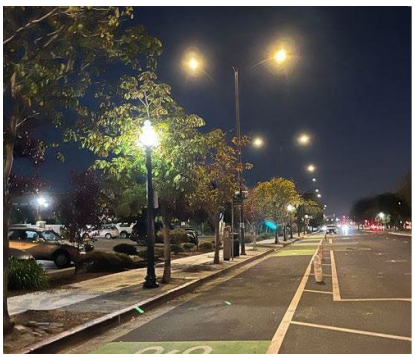
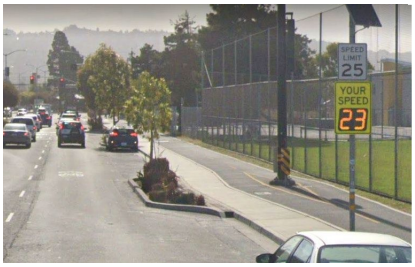
 = Negative effect of Bayshore Mobility Plan

Source: Fehr & Peers

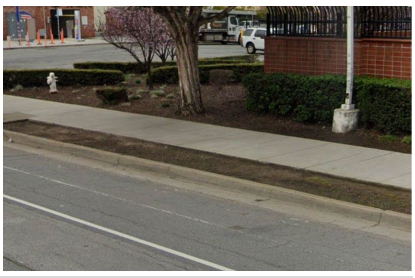
Attachment A

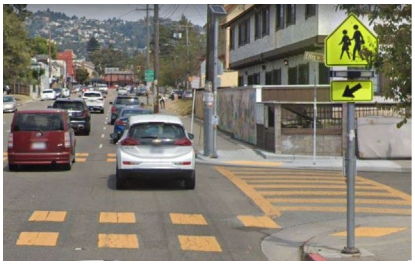
The following table presents a description and examples of the toolbox of features included in the Bayshore Mobility Plan. Additional information on the safety benefits of various measures, and other roadway safety enhancements, are described in Table 5 Engineering Countermeasure Toolbox in C/CAG's LRSP section for the City of Brisbane.[11]

Table A-1: Intersection, Pedestrian, and Bicycle Treatment Toolbox

Corridor Treatments	Description	Example	Example Image
Improved Lighting	Improves safety during nighttime conditions by (1) making drivers more aware of the surroundings at an intersection, which improves drivers' perception-reaction times, (2) enhancing drivers' available sight distances, and (3) improving the visibility of non-motorists.	Berkeley, CA	
Lane Narrowing	Reduces lane widths to encourage motorists to travel at slower speeds.	Daly City, CA	
Speed Feedback Signs	A dynamic speed warning sign notifies drivers of their current speed, usually followed by a reminder of the posted speed limit.	Albany, CA	
Intersection Treatment	**Description**	**Example**	**Example Image**
Two-Stage Turn Queue Box	Marked space at an intersection to facilitate bicycle turning.	San Francisco, CA	

[11] https://ccag.ca.gov/wp-content/uploads/2024/04/28717_CCAG-Countywide-LRSP-Brisbane-Chapter.pdf

Intersection Crossing markers	Roadway striping that indicates the intended path of cyclists through an intersection.	Seattle, WA	
Bike Signals (and Bike Signal Phase)	Fully separated signal phase for bicyclists with associated light.	Washington, DC	
Median Refuge Island	Dedicated space for pedestrians or cyclists to wait to cross a wide roadway with several lanes of traffic.	Bellevue, WA	
Protected Intersection	The design of an intersection or corner that separates pedestrians and bicyclists from vehicles.	Richmond, CA	
Pedestrian Treatments	**Description**	**Example**	**Example Image**
Sidewalks *Partially Existing*	Provides a separated and continuous facility for people to walk along the roadway.	Brisbane, CA	
Advance Stop Bars	A horizontal stripe painted ahead of the crosswalk at stop signs and signals to indicate where drivers should stop. An advanced stop bar improves safety by reducing	South San Francisco, CA	

	instances of vehicles encroaching on the crosswalk.		
Curb Extensions	A widening of the sidewalk, typically at an intersection, that shortens the crossing distance and enhances the pedestrian experience.	South San Francisco, CA	
Leading Pedestrian Intervals	Gives pedestrians the opportunity to enter an intersection 3 - 7 seconds before vehicles are given a green indication. With this head start, pedestrians can better establish their presence in the crosswalk before vehicles have priority to turn left or right.	San Francisco, CA	
High Visibility Crosswalks	Increases visibility of crosswalk using striped pattern with continental or ladder markings made of high-visibility material, such as thermoplastic tape.	South San Francisco, CA	
Rectangular Rapid Flashing Beacons	Flashing beacons that increase visibility of marked crosswalks and provide motorists a cue to slow down and yield to pedestrians.	Berkeley, CA	

Bike Lane Separation Type	Description	Example	Example Image
Striped Buffer *Existing*	Painted striping on the roadway to create a horizontal separation between bicyclists and vehicles.	San Francisco, CA	

Soft-Hit Flexible Posts *Existing*	Often used in conjunction with a striped buffer. Provides a vertical element to a buffer which creates a visual cue to vehicles.	San Francisco, CA	
Concrete Separation	Concrete barriers provide a permanent barrier between automobile travel lanes and bike lanes.	San Francisco, CA	
Parking Protection	Parked cars provide a barrier between automobile travel lanes and bike lanes.	Berkeley, CA	
Landscaping Protection	Decorative plantings and/or curbs provide a permanent barrier between automobile travel lanes and bike lanes.	Temple City, CA	
Rumble Strips *Existing*	Alerts drivers that they've left roadway and crossed into the bike lane by causing the car to "rumble."	Brisbane, CA	
Transit Improvements	**Description**	**Example**	**Example Image**
Bus Boarding Island	Provides separation between bike lane and bus stops.	San Francisco, CA	

Attachment B

The Volume to Capacity (V/C) ratio is the amount vehicular demand on a roadway divided by the theoretical capacity of the roadway. If the V/C ratio is greater than 1, the demand is greater than the capacity; if the V/C ratio is equal to 1, the demand equals the capacity; and if the V/C ratio is less than 1, the demand is less than the capacity. **Figures B-1** and **B-2** present the volume to capacity ratios from the City of Brisbane sub-area model under Cumulative Plus Project (Baylands Specific Plan) conditions with the recommended roadway improvements presented in the *Brisbane Baylands Transportation Impact Assessment*, including the Brisbane Bayshore Mobility Plan. As shown in these figures, while Bayshore Boulevard would operate over capacity due to the regional traffic growth, other City of Brisbane roadways, such as Tunnel Avenue, Sierra Point Parkway, or San Bruno Avenue would not exceed their capacity. Tunnel Avenue and Sierra Point Parkway would experience some diverted regional or local traffic from Bayshore Boulevard due to the reduction in travel lanes. San Bruno Avenue would not see additional traffic growth due to the Bayshore Mobility Plan.

Figure B-1: AM Peak Hour Volume to Capacity Ratios

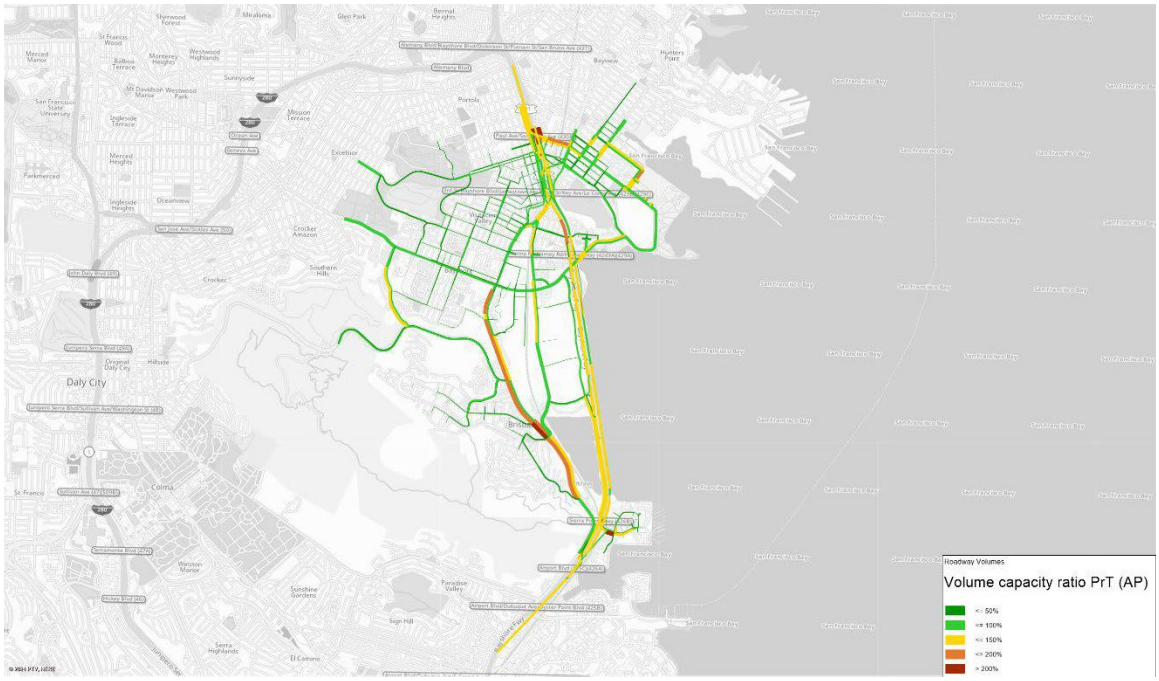
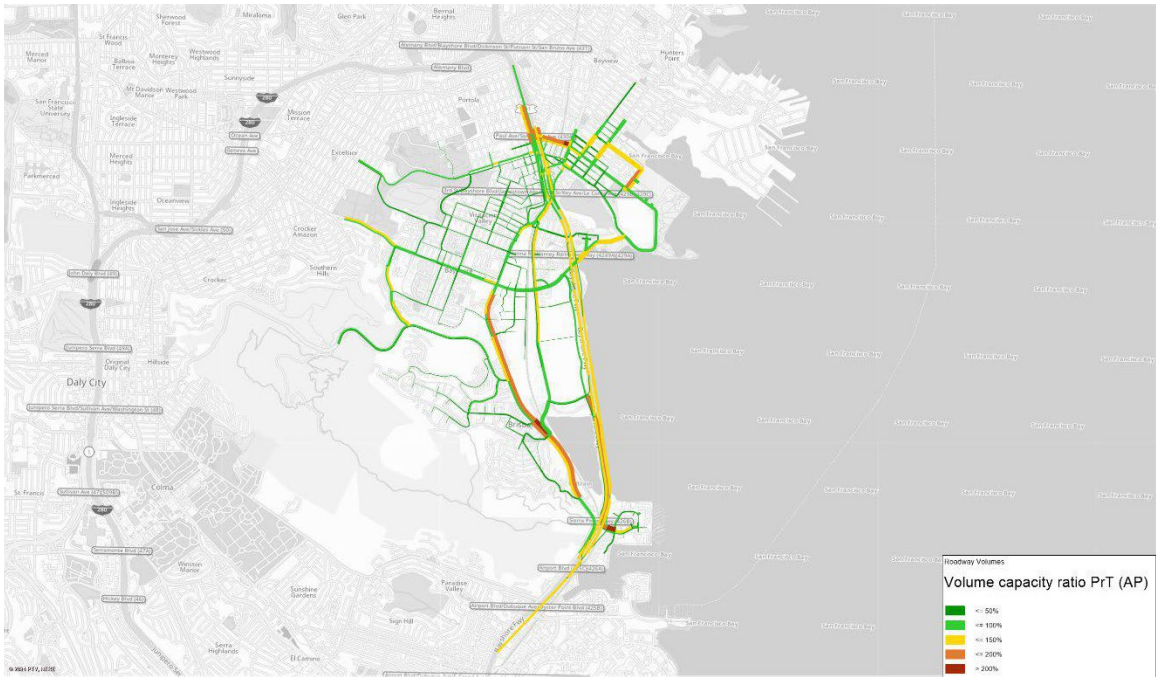


Figure B-2: PM Peak Hour Volume to Capacity Ratios



Intersection Queues from Visum Outputs

		CPP No Mitigation						CPP w Bayshore Mobility Plan					
		AM			PM			AM			PM		
	Storage Length	95th Queue	Queue Length	Exceed Storage or max queue length	95th Queue	Queue Length	Exceed Storage or max queue length	95th Queue	Queue Length	Exceed Storage or max queue length	95th Queue	Queue Length	Exceed Storage or max queue length
Guadalupe Canyon Parkway	400	9.55	239	240	9.52	238	240	47.45	1,186	Exceed Storage	46.82	1,171	Exceed Storage
Valley Drive	360	24.48	612	Exceed Storage	40.90	1,023	Exceed Storage	34.52	863	Exceed Storage	79.11	1,978	Exceed Storage
Old County Road	1240	13.19	330	330	10.55	264	260	27.39	685	680	13.07	327	330
San Bruno Avenue	700	0.00	-	-	0.00	-	-	27.95	699	700	26.41	660	660

Notes:

Assumption of 25 ft per vehicle

Values from Visum outputs in highlighted cells. Queues are max movement per approach for the eastbound approach at each intersection.

D.11. Cumulative Plus Project with Candlestick Interchange - AM Peak Hour

Intersection No. 12. Bayshore Boulevard / Guadalupe Canyon Parkway

Node 609: Bayshore Blvd & Guadalupe Canyon Pkwy

D.11. Cumulative Plus Project with Candlestick Interchange - AM Pea

Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	21.86
Average LOS	C
V/C	0.71
Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	1504	643	220	1008	599	815
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	376	161	55	252	150	204
Adjusted Volume	1504	643	220	1008	599	815

Volume and Adjustments by Lane Group

Approach	N		S		W	
Lane Group	C	R	L	C	L	R
ID	17938	17939	17936	17937	17940	17941
Lanes	T T	R	L	T T	L L	R
Control Type	No Left	No Left	Prot	No Left	Prot	No Left
V, Volume	1504	643	220	1008	599	815
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	1.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W		
Lane Group	17938	17939	17936	17937	17940	17941	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	
N, Number of Lanes	2	1	1	2	2	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	0.952	1.000	1.000	0.952	0.971	1.000	
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	0.952	1.000	
fRT, Right Turn Adjustment	1.000	0.850	1.000	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane							
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W		
Lane Group	17938	17939	17936	17937	17940	17941	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
V, Volume	1504.34	642.59	219.76	1007.53	599	582	233
						815	
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615
						1615	
c, Capacity	1680	750	280	2412	837	1077	385
						1461	
g/C, Green / Cycle	0.46	0.46	0.15	0.67	0.24	0.67	0.24
						0.90	
X, Volume / Capacity	0.9	0.86	0.78	0.42	0.72	0.54	0.61
						0.56	
d1, Uniform Delay	20.63	20.02	34.15	6.47	29.39	0.38	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	7.88	12.11	19.50	0.53	5.21	1.54	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.46	0.46	0.15	0.67	0.24	0.90	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	28.51	32.13	53.66	7.00	34.60	1.93	
LOS	C	C	D	A	C	A	
dA, Approach Delay	29.59		15.36		15.76		
Approach LOS	C		B		B		
dI, Intersection Delay	21.86						
Intersection LOS	C						

Back of Queue

Approach	N		S		W		
Arrival Type	3		3		3		
Lane Group	17938	17939	17936	17937	17940	17941	
g/C, Green / Cycle	0.46	0.46	0.15	0.67	0.24	0.90	
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Q1, First-term Queued	11.50	9.54	4.04	2.94	5.05	0.00	
Q2, Second-term Queued	1.84	2.52	1.52	0.18	0.61	0.63	
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	
Q, Average Back of Queue	13.34	12.06	5.56	3.12	5.65	0.63	
fB%, % Factor	1.45	1.47	1.70	1.80	1.69	1.80	
Q%, Back of Queue Percentile	95	95	95	95	95	95	
% Back of Queue	19.33	17.75	9.43	5.62	9.55	1.13	

Signal Timing Information

Approach	N		S		W		
Lane Group	17938	17939	17936	17937	17940	17941	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
Signal Type	P	P	P	P	P	P	
C, Cycle Length	84.00	84.00	84.00	84.00	84.00	84.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2	2
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
l2, Clearance Loss Time	3.00	3.00	2.00	3.00	2.00	3	2
Green Time Start	17	17	0	0	60	0	60
Green Time End	56	56	13	56	80	56	80
G, Actual Green Time	39	39	13	56	20	56	20
gs, Effective Green Time	39	39	13	56	20	56	20
g/C, Green / Cycle	0.46	0.46	0.15	0.67	0.24	0.67	0.24
						0.90	
(v/s)i, Volume / Saturation Flow Rate	0.42	0.40	0.12	0.28	0.17	0.36	0.14
Critical Lane Group	Y		Y		Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W		
Lane Group	17938	17939	17936	17937	17940	17941	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
qro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
qp, Pedestrian Green		0.00	0.00		0.00	0.00
OCCpedg, Average Pedestrian Occupancy		0.00	0.00		0.00	0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00	0.00
ApbT, Adjustment Factor		1.00	1.00		1.00	1.00
fRpb, Right Turn Factor		1.00	1.00		1.00	1.00
fLpb, Left Turn Factor		1.00	1.00		1.00	1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 13. Bayshore Boulevard / Valley Drive

Node 1004: Bayshore Blvd & Valley Dr

D.11. Cumulative Plus Project with Candlestick Interchange - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	81.07
Average LOS	F
V/C	0.93
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	117	1795	408	116	87	0	402	1087	89	140	1	345
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	29	449	102	29	22	0	100	272	22	35	0	86
Adjusted Volume	117	1795	408	116	87	0	402	1087	89	140	1	345

Volume and Adjustments by Lane Group

Approach	N			E		S			W		
Lane Group	L	C	R	C	L	C	C	L	C	R	
ID	17523	17524	17525	17522	17519	17520	17521	17526	17527	17528	
Lanes	L	T, T	R	LTR	L, L	T	RT	L	LT	R	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
V, Volume	117	1795	408	203	402	592	583	70	70	345	
PLT, Proportion Left Turns	1.00	0.00	0.00	0.57	1.00	0.00	0.00	1.00	0.99	0.00	
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	0.00	0.00	0.15	0.00	0.00	1.00	

Saturation Flow Rate

Approach	N			E		S			W		
Lane Group	17523	17524	17525	17522	17519	17520	17521	17526	17527	17528	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
N, Number of Lanes	1	2	1	1	2	1	1	1	1	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.971	1.000	1.000	1.000	1.000	1.000	
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.972	0.952	1.000	1.000	0.952	0.953	1.000	
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	1.000	1.000	0.974	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane											
s, Saturation Flow Rate	1810	3618	1615	1847	3514	1900	1850	1810	1810	1615	

Capacity, Control Delay, and Level of Service Determination

Approach	N			E		S			W		
Lane Group	17523	17524	17525	17522	17519	17520	17521	17526	17527	17528	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
V, Volume	116.58	1795.18	408.02	202.7	401.57	592.5	582.88	70.25	70.27	344.8	
s, Saturation Flow Rate	1810	3618	1615	1847	3514	1900	1850	1810	1810	1615	
c, Capacity	184	1601	715	182	357	841	819	345	345	308	
g/C, Green / Cycle	0.1	0.44	0.44	0.1	0.1	0.44	0.44	0.19	0.19	0.19	
X, Volume / Capacity	0.63	1.12	0.57	1.12	1.12	0.7	0.71	0.2	0.2	1.12	
d1, Uniform Delay	51.75	33.45	24.95	54.10	53.90	27.10	27.22	40.87	40.87	48.55	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	15.47	63.57	3.30	101.43	85.58	4.93	5.22	1.33	1.33	87.17	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.10	0.44	0.44	0.10	0.10	0.44	0.44	0.19	0.19	0.19	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	67.23	97.02	28.25	155.53	139.48	32.03	32.45	42.20	42.20	135.72	
LOS	E	F	C	F	F	C	C	D	D	F	
dA, Approach Delay		83.43		155.53		59.54			108.64		
Approach LOS		F		F		E			F		
dI, Intersection Delay	81.07										
Intersection LOS	F										

Back of Queue

Approach	N			E		S			W		
Arrival Type		3		3		3			3		
Lane Group	17523	17524	17525	17522	17519	17520	17521	17526	17527	17528	
g/C, Green / Cycle	0.10	0.44	0.44	0.10	0.10	0.44	0.44	0.19	0.19	0.19	
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Q1, First-term Queued	3.29	21.56	8.20	5.61	5.25	12.93	12.78	1.73	1.73	9.00	
Q2, Second-term Queued	0.79	14.13	0.65	5.12	4.25	1.15	1.19	0.13	0.13	7.46	
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Q, Average Back of Queue	4.08	35.70	8.85	10.72	9.49	14.08	13.97	1.85	1.86	16.46	
fB%, % Factor	1.80	1.39	1.55	1.57	1.60	1.44	1.44	1.80	1.80	1.49	
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95	95	
% Back of Queue	7.34	49.47	13.73	16.79	15.21	20.24	20.10	3.34	3.34	24.48	

Signal Timing Information

Approach	N			E		S			W		
Lane Group	17523	17524	17525	17522	17519	17520	17521	17526	17527	17528	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
Signal Type	P	P	P	P	P	P	P	P	P	P	
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Green Time Start	107.8	5	5	63.1	107.8	5	5	79.9	79.9	79.9	
Green Time End	120	58.1	58.1	74.9	120	58.1	58.1	102.8	102.8	102.8	
G, Actual Green Time	12.2	53.1	53.1	11.8	12.2	53.1	53.1	22.9	22.9	22.9	
gi, Effective Green Time	12.2	53.1	53.1	11.8	12.2	53.1	53.1	22.9	22.9	22.9	
g/C, Green / Cycle	0.1	0.44	0.44	0.1	0.1	0.44	0.44	0.19	0.19	0.19	
(v/s)i, Volume / Saturation Flow Rate	0.06	0.50	0.25	0.11	0.11	0.31	0.32	0.04	0.04	0.21	
Critical Lane Group		Y		Y	Y					Y	

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E		S			W		
Lane Group	17523	17524	17525	17522	17519	17520	17521	17526	17527	17528	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
gf											
qro, Opposing Queue Ratio											
gq, Opposing Queue Clearing Time											
gu											
PL,											
de facto caused by PL >= 1.0											
EL1											
EL2											
gdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.97	0.95	1.00	1.00	0.95	0.95	1.00	

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 14. Bayshore Boulevard / Old County Road / Tunnel Avenue

Node 753: Bayshore Blvd & Old County Rd

D.11. Cumulative Plus Project with Candlestick Interchange - AM

Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	119.27
Average LOS	F
V/C	1.05
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	377	1756	162	273	140	193	0	43	1321	306	102	257	143
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	94	439	40	68	35	48	0	11	330	77	26	64	36
Adjusted Volume	377	1756	162	273	140	193	0	43	1321	306	102	257	143

Volume and Adjustments by Lane Group

Approach	N			E		S			W		
Lane Group	L	C	R	C	R	L	C	C	L	C	R
ID	17513	17514	17515	17511	17512	17508	17509	17510	17516	17517	17518
Lanes	L	T, T	R	LT	R	L	T	RT	L	LT	R
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	377	1756	162	414	193	43	827	800	102	257	143
PLT, Proportion Left Turns	1.00	0.00	0.00	0.66	0.00	1.00	0.00	0.00	1.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.38	0.00	0.00	1.00

Saturation Flow Rate

Approach	N			E		S			W		
Lane Group	17513	17514	17515	17511	17512	17508	17509	17510	17516	17517	17518
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.968	1.000	0.952	1.000	1.000	0.952	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	0.850	1.000	1.000	0.937	1.000	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane											
s, Saturation Flow Rate	1810	3618	1615	1839	1615	1810	1900	1780	1810	1900	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E		S			W		
Lane Group	17513	17514	17515	17511	17512	17508	17509	17510	17516	17517	17518
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	377.08	1756.45	161.65	413.64	193.05	43.35	826.71	800.46	102.44	296.66	143.03
s, Saturation Flow Rate	1810	3618	1615	1839	1615	1810	1900	1780	1810	1900	1615
c, Capacity	257	1562	697	261	229	178	748	700	267	280	238
g/C, Green / Cycle	0.14	0.43	0.43	0.14	0.14	0.1	0.39	0.39	0.15	0.15	0.15
X, Volume / Capacity	1.47	1.12	0.23	1.58	0.84	0.24	1.11	1.14	0.38	0.92	0.6
d1, Uniform Delay	39.25	26.00	16.42	39.25	38.25	38.11	27.75	27.75	35.24	38.44	36.48
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	230.10	65.08	0.78	279.86	29.45	3.23	65.85	80.74	4.14	35.83	10.71
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.14	0.43	0.43	0.14	0.14	0.10	0.39	0.39	0.15	0.15	0.15
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	269.35	91.08	17.20	319.11	67.70	41.33	93.60	108.49	39.38	74.27	47.18
LOS	F	F	B	F	E	D	F	F	D	E	D
dA, Approach Delay		115.17		239.11			99.38			59.44	
Approach LOS		F		F			F			E	
dI, Intersection Delay	119.27										
Intersection LOS	F										

Back of Queue

Approach	N			E		S			W		
Arrival Type	3			3		3			3		
Lane Group	17513	17514	17515	17511	17512	17508	17509	17510	17516	17517	17518
g/C, Green / Cycle	0.14	0.43	0.43	0.14	0.14	0.10	0.39	0.39	0.15	0.15	0.15
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	5.47	14.95	1.95	5.76	4.15	0.86	14.61	13.68	2.06	5.64	2.98
Q2, Second-term Queued	16.43	14.12	0.15	20.31	1.88	0.16	13.67	15.71	0.31	2.79	0.71
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	21.90	29.06	2.10	26.08	6.03	1.02	28.28	29.39	2.37	8.43	3.69
fB%, % Factor	1.57	1.42	1.80	1.57	1.67	1.80	1.40	1.43	1.80	1.56	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95	95	95
% Back of Queue	34.29	41.19	3.79	40.82	10.05	1.83	39.68	41.91	4.27	13.19	6.64

Signal Timing Information

Approach	N			E		S			W		
Lane Group	17513	17514	17515	17511	17512	17508	17509	17510	17516	17517	17518
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	91.50	91.50	91.50	91.50	91.50	91.50	91.50	91.50	91.50	91.50	91.50
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.00	3.70	3.70	2.50	2.50	2.00	3.70	3.70	2.50	2.50	2.50
Green Time Start	0	13.5	13.5	56	56	0	17	17	73.5	73.5	73.5
Green Time End	13	53	53	69	69	9	53	53	87	87	87
G, Actual Green Time	13	39.5	39.5	13	13	9	36	36	13.5	13.5	13.5
gi, Effective Green Time	13	39.5	39.5	13	13	9	36	36	13.5	13.5	13.5
g/C, Green / Cycle	0.14	0.43	0.43	0.14	0.14	0.1	0.39	0.39	0.15	0.15	0.15
(v/s)i, Volume / Saturation Flow Rate	0.21	0.49	0.10	0.22	0.12	0.02	0.44	0.45	0.06	0.14	0.09
Critical Lane Group	Y	Y		Y						Y	

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E		S			W		
Lane Group	17513	17514	17515	17511	17512	17508	17509	17510	17516	17517	17518
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
gf											
qro, Opposing Queue Ratio											
gq, Opposing Queue Clearing Time											
gu											
PL											
de facto caused by PL >= 1.0											
EL1											
EL2											
gdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.97	1.00	0.95	1.00	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 16. Bayshore Boulevard / San Bruno Avenue

Node 818: Bayshore Blvd & San Bruno Ave

D.11. Cumulative Plus Project with Candlestick Interchange - AM Peak Hour

Control Type	TWSC
Method	HCM 7th Edition
dI, Average Delay	2.12
Worst Case Delay	20.68
Worst Case LOS	C

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Base Volume	1337.64	15.67	267.84	2285.52	173.22
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	1337.64	15.67	267.84	2285.52	173.22

Pedestrians					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Flow (Ped/hr)			0.00		0.00
w, Lane Width (ft)			12.00		12.00
Sp, Walking Speed (ft/s)			3.50		3.50
fpb, Percent Blockage			0.00		0.00

Capacity of Movements below Rank 1					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Rank	1	1	2	1	2
vx, Volume			267.84		173.22
Conflicting Volume (Veh)			1337.64		676.66
Conflicting Volume (Ped)			0.00		0.00
Conflicting Volume			1337.64		676.66
Two-Stage Gap Acceptance					
Number of Storage Spaces in Median Refuge Area					
cpx, Potential Capacity			522.09		400.21
Capacity			522.09		400.21

Critical Headway and Follow Up Headway					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
tc,base, Base Critical Headway			4.10		6.90
tc,base,I, Base Critical Headway (Stage I)					
tc,base,II, Base Critical Headway (Stage II)					
tc,HV, Heavy Vehicles Adjustment Factor			2.00		2.00
Phv, % Heavy Vehicles			0.00		0.00
tc,G, Grade Adjustment Factor			0.00		0.10
G, % Grade	0.00		0.00		0.00
T3,lt, Geometry Adjustment Factor			0.00		0.00
tc, Critical Headway			4.10		6.90
tc,I, Critical Headway (Stage I)					
tc,II, Critical Headway (Stage II)					
tf,base, Base Follow-Up Headway			2.20		3.30
tf,hv, Heavy Vehicles Adjustment Factor			1.00		1.00
tf, Follow-Up Headway			2.20		3.30

Delay and Level of Service by Movement					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Volume	1337.64	15.67	267.84	2285.52	173.22
cmx, Capacity			522.09		400.21
V / C			0.51		0.43
d, Delay			18.93		20.68
LOS			C		C
dA, Approach Delay	0.00		1.99		20.68
Approach LOS					C
dRank1, Rank 1 Delay	0.00		0.00		

Delay and Level of Service by Lane						
Approach	N (Major)		S (Major)			W
Lane	Lane 1	Lane 2	Lane 1	Lane 2	Lane 3	Lane 1
Movements		T, R1				
vx, Volume	676.66	676.66	267.84	1142.76	1142.76	173.22
Flared Storage Size						
cmx, Capacity						
V / C						
Q95, 95% Queue Length						
d, Delay						
LOS						
dA, Approach Delay	0.00		1.99			20.68
Approach LOS						C

D.12. Cumulative Plus Project with Candlestick Interchange - PM Peak Hour

Intersection No. 12. Bayshore Boulevard / Guadalupe Canyon Parkway

Node 609: Bayshore Blvd & Guadalupe Canyon Pkwy

D.12. Cumulative Plus Project with Candlestick Interchange - PM Pea

Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	62.02
Average LOS	E
V/C	0.98
Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	816	723	655	1682	587	258
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	204	181	164	420	147	64
Adjusted Volume	816	723	655	1682	587	258

Volume and Adjustments by Lane Group

Approach	N		S		W	
Lane Group	C	R	L	C	L	R
ID	8713	8714	8711	8712	8715	8716
Lanes	T, T	R	L	T, T	L, L	R
Control Type	No Left	No Left	Prot	No Left	Prot	No Left
V, Volume	816	723	655	1682	587	258
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	1.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W		
Lane Group	8713	8714	8711	8712	8715	8716	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	
N, Number of Lanes	2	1	1	2	2	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	0.952	1.000	1.000	0.952	0.971	1.000	
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	0.952	1.000	
fRT, Right Turn Adjustment	1.000	0.850	1.000	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane							
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W		
Lane Group	8713	8714	8711	8712	8715	8716	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
V, Volume	815.83	722.63	654.89	1681.85	586.72	193	65
						258	
s, Saturation Flow Rate	3618	1615	1810	3618	3514	1615	1615
						1615	
c, Capacity	1109	495	603	2508	703	1120	323
						1443	
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.2	0.69	0.20
						0.89	
X, Volume / Capacity	0.74	1.46	1.09	0.67	0.83	0.17	0.20
						0.18	
d1, Uniform Delay	23.28	26.00	25.00	6.59	28.81	0.25	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	4.35	217.55	62.07	1.45	11.24	0.27	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.31	0.31	0.33	0.69	0.20	0.89	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	27.63	243.55	87.07	8.04	40.05	0.53	
LOS	C	F	F	A	D	A	
dA, Approach Delay	129.05		30.19		27.98		
Approach LOS	F		C		C		
dI, Intersection Delay	62.02						
Intersection LOS	E						

Back of Queue

Approach	N		S		W	
Arrival Type	3		3		3	
Lane Group	8713	8714	8711	8712	8715	8716
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.20	0.89
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	5.73	7.77	9.34	4.44	4.53	0.00
Q2, Second-term Queued	0.67	29.93	10.40	0.50	1.10	0.11
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	6.40	37.70	19.74	4.94	5.63	0.11
fB%, % Factor	1.65	1.54	1.44	1.74	1.69	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95
% Back of Queue	10.55	58.13	28.49	8.59	9.52	0.20

Signal Timing Information

Approach	N		S		W		
Lane Group	8713	8714	8711	8712	8715	8716	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
Signal Type	P	P	P	P	P	P	
C, Cycle Length	75.00	75.00	75.00	75.00	75.00	75.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2	2
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
l2, Clearance Loss Time	3.00	3.00	2.00	3.00	2.00	3	2
Green Time Start	29	29	0	0	56	0	56
Green Time End	52	52	25	52	71	52	71
G, Actual Green Time	23	23	25	52	15	52	15
gs, Effective Green Time	23	23	25	52	15	52	15
g/C, Green / Cycle	0.31	0.31	0.33	0.69	0.2	0.69	0.20
						0.89	
(v/s)i, Volume / Saturation Flow Rate	0.23	0.45	0.36	0.46	0.17	0.12	0.04
Critical Lane Group		Y	Y		Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W		
Lane Group	8713	8714	8711	8712	8715	8716	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Prot	Perm
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
qro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
qp, Pedestrian Green		0.00	0.00		0.00	0.00
OCCpedg, Average Pedestrian Occupancy		0.00	0.00		0.00	0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00	0.00
ApbT, Adjustment Factor		1.00	1.00		1.00	1.00
fRpb, Right Turn Factor		1.00	1.00		1.00	1.00
fLpb, Left Turn Factor		1.00	1.00		1.00	1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 13. Bayshore Boulevard / Valley Drive

Node 1004: Bayshore Blvd & Valley Dr

D.12. Cumulative Plus Project with Candlestick Interchange - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	114.6
Average LOS	F
V/C	1.28
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	0	979	94	3	119	182	400	1895	179	261	0	685
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	245	24	1	30	45	100	474	45	65	0	171
Adjusted Volume	0	979	94	3	119	182	400	1895	179	261	0	685

Volume and Adjustments by Lane Group

Approach	N			E		S			W		
Lane Group	L	C	R	C	L	C	C	L	C	R	
ID	9056	9057	9058	9055	9052	9053	9054	9059	9060	9061	
Lanes	L	T, T	R	LTR	L, L	T	RT	L	LT	R	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
V, Volume	0	979	94	303	400	1037	1037	131	131	685	
PLT, Proportion Left Turns	1.00	0.00	0.00	0.01	1.00	0.00	0.00	1.00	1.00	0.00	
PRT, Proportion Right Turns	0.00	0.00	1.00	0.60	0.00	0.00	0.17	0.00	0.00	1.00	

Saturation Flow Rate

Approach	N			E		S			W		
Lane Group	9056	9057	9058	9055	9052	9053	9054	9059	9060	9061	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	
N, Number of Lanes	1	2	1	1	2	1	1	1	1	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	0.971	1.000	1.000	1.000	1.000	1.000	
fLT, Left Turn Adjustment	0.952	1.000	1.000	1.000	0.952	1.000	1.000	0.952	0.953	1.000	
fRT, Right Turn Adjustment	1.000	1.000	0.850	0.904	1.000	1.000	0.970	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane											
s, Saturation Flow Rate	1810	3618	1615	1718	3514	1900	1844	1810	1810	1615	

Capacity, Control Delay, and Level of Service Determination

Approach	N			E		S			W		
Lane Group	9056	9057	9058	9055	9052	9053	9054	9059	9060	9061	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
V, Volume	0.22	979.39	94.25	303.45	399.87	1037.01	1037.01	130.59	130.59	684.91	
s, Saturation Flow Rate	1810	3618	1615	1718	3514	1900	1844	1810	1810	1615	
c, Capacity	160	1592	711	240	310	836	811	600	600	536	
g/C, Green / Cycle	0.09	0.44	0.44	0.14	0.09	0.44	0.44	0.33	0.33	0.33	
X, Volume / Capacity	0	0.62	0.13	1.26	1.29	1.24	1.28	0.22	0.22	1.28	
d1, Uniform Delay	24.94	12.90	9.99	25.80	27.35	16.80	16.80	14.44	14.44	20.05	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	0.02	1.79	0.39	146.81	151.83	118.35	134.68	0.83	0.83	139.28	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.09	0.44	0.44	0.14	0.09	0.44	0.44	0.33	0.33	0.33	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	24.95	14.69	10.38	172.61	179.18	135.15	151.48	15.27	15.27	159.33	
LOS	C	B	B	F	F	F	F	B	B	F	
dA, Approach Delay		14.31		172.61		149.11			119.56		
Approach LOS		B		F		F			F		
dI, Intersection Delay	114.6										
Intersection LOS	F										

Back of Queue

Approach	N			E		S			W		
Arrival Type		3		3		3			3		
Lane Group	9056	9057	9058	9055	9052	9053	9054	9059	9060	9061	
g/C, Green / Cycle	0.09	0.44	0.44	0.14	0.09	0.44	0.44	0.33	0.33	0.33	
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Q1, First-term Queued	0.00	3.87	0.58	3.39	1.98	8.61	8.36	1.10	1.10	6.25	
Q2, Second-term Queued	0.00	0.40	0.08	9.81	6.55	27.48	30.35	0.14	0.14	20.72	
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	
Q, Average Back of Queue	0.00	4.27	0.65	13.20	8.53	36.10	38.71	1.24	1.24	26.98	
fB%, % Factor	1.80	1.79	1.80	1.60	1.69	1.47	1.48	1.80	1.80	1.52	
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95	95	
% Back of Queue	0.01	7.66	1.18	21.05	14.45	53.05	57.42	2.23	2.23	40.90	

Signal Timing Information

Approach	N			E		S			W		
Lane Group	9056	9057	9058	9055	9052	9053	9054	9059	9060	9061	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
Signal Type	P	P	P	P	P	P	P	P	P	P	
C, Cycle Length	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	60.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
Green Time Start	26.4	0	0	51.6	26.4	0	0	31.7	31.7	31.7	
Green Time End	31.7	26.4	26.4	60	31.7	26.4	26.4	51.6	51.6	51.6	
G, Actual Green Time	5.3	26.4	26.4	8.4	5.3	26.4	26.4	19.9	19.9	19.9	
gi, Effective Green Time	5.3	26.4	26.4	8.4	5.3	26.4	26.4	19.9	19.9	19.9	
g/C, Green / Cycle	0.09	0.44	0.44	0.14	0.09	0.44	0.44	0.33	0.33	0.33	
(v/s)i, Volume / Saturation Flow Rate	0.00	0.27	0.06	0.18	0.11	0.55	0.56	0.07	0.07	0.42	
Critical Lane Group				Y	Y		Y			Y	

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E		S			W		
Lane Group	9056	9057	9058	9055	9052	9053	9054	9059	9060	9061	
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	Prot	No Left	
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
gf											
qro, Opposing Queue Ratio											
gq, Opposing Queue Clearing Time											
gu											
PL,											
de facto caused by PL >= 1.0											
EL1											
EL2											
gdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	0.95	1.00	

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 14. Bayshore Boulevard / Old County Road / Tunnel Avenue

Node 753: Bayshore Blvd & Old County Rd

D.12. Cumulative Plus Project with Candlestick Interchange - PM

Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	239.29
Average LOS	F
V/C	1.26
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	503	1054	111	170	213	454	0	158	1865	303	155	194	115
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	126	263	28	42	53	113	0	39	466	76	39	49	29
Adjusted Volume	503	1054	111	170	213	454	0	158	1865	303	155	194	115

Volume and Adjustments by Lane Group

Approach	N			E		S			W		
Lane Group	L	C	R	C	R	L	C	C	L	C	R
ID	9046	9047	9048	9044	9045	9041	9042	9043	9049	9050	9051
Lanes	L	T, T	R	LT	R	L	T	RT	L	LT	R
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	503	1054	111	382	454	158	1084	1084	155	194	115
PLT, Proportion Left Turns	1.00	0.00	0.00	0.44	0.00	1.00	0.00	0.00	1.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	1.00	0.00	0.00	0.28	0.00	0.00	1.00

Saturation Flow Rate

Approach	N			E		S			W		
Lane Group	9046	9047	9048	9044	9045	9041	9042	9043	9049	9050	9051
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	2	1	1	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	0.952	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.978	1.000	0.952	1.000	1.000	0.952	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	0.850	1.000	1.000	0.953	1.000	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane											
s, Saturation Flow Rate	1810	3618	1615	1859	1615	1810	1900	1811	1810	1900	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E		S			W		
Lane Group	9046	9047	9048	9044	9045	9041	9042	9043	9049	9050	9051
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
V, Volume	502.92	1053.7	110.89	382.38	453.98	157.98	1083.86	1083.86	155.26	194.06	115.15
s, Saturation Flow Rate	1810	3618	1615	1859	1615	1810	1900	1811	1810	1900	1615
c, Capacity	128	1574	703	319	277	170	907	864	210	221	188
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
X, Volume / Capacity	3.92	0.67	0.16	1.2	1.64	0.93	1.2	1.25	0.74	0.88	0.61
d1, Uniform Delay	41.95	20.32	15.46	37.40	37.40	40.59	23.60	23.60	38.57	39.27	37.97
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	1333.23	2.28	0.48	115.64	302.74	52.07	98.65	123.85	20.52	35.64	14.06
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	1375.18	22.60	15.94	153.04	340.14	92.67	122.25	147.45	59.09	74.91	52.03
LOS	F	C	B	F	F	F	F	F	E	E	D
dA, Approach Delay		430.10			254.60		131.99			63.95	
Approach LOS		F			F		F			E	
dI, Intersection Delay						239.29					
Intersection LOS						F					

Back of Queue

Approach	N			E		S			W		
Arrival Type		3			3		3			3	
Lane Group	9046	9047	9048	9044	9045	9041	9042	9043	9049	9050	9051
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	2.72	7.88	1.26	6.89	5.99	3.32	16.56	15.78	3.31	4.22	2.42
Q2, Second-term Queued	47.50	0.50	0.09	10.25	23.31	2.46	24.85	29.73	1.20	2.19	0.73
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	50.22	8.38	1.36	17.14	29.30	5.78	41.41	45.52	4.51	6.40	3.15
fB%, % Factor	1.51	1.57	1.80	1.52	1.58	1.68	1.43	1.45	1.77	1.65	1.80
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95	95	95
% Back of Queue	75.97	13.13	2.44	26.05	46.15	9.72	59.05	66.18	8.00	10.55	5.67

Signal Timing Information

Approach	N			E		S			W		
Lane Group	9046	9047	9048	9044	9045	9041	9042	9043	9049	9050	9051
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30	90.30
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	2.00	3.70	3.70	2.50	2.50	2.00	3.70	3.70	2.50	2.50	2.50
Green Time Start	0	14.2	14.2	74	74	0	9.4	9.4	58	58	58
Green Time End	6.4	53.5	53.5	89.5	89.5	8.5	52.5	52.5	68.5	68.5	68.5
G, Actual Green Time	6.4	39.3	39.3	15.5	15.5	8.5	43.1	43.1	10.5	10.5	10.5
gi, Effective Green Time	6.4	39.3	39.3	15.5	15.5	8.5	43.1	43.1	10.5	10.5	10.5
g/C, Green / Cycle	0.07	0.44	0.44	0.17	0.17	0.09	0.48	0.48	0.12	0.12	0.12
(v/s)i, Volume / Saturation Flow Rate	0.28	0.29	0.07	0.21	0.28	0.09	0.57	0.60	0.09	0.10	0.07
Critical Lane Group	Y				Y			Y		Y	

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E		S			W		
Lane Group	9046	9047	9048	9044	9045	9041	9042	9043	9049	9050	9051
Control Type	Prot	No Left	No Left	Prot	No Left	Prot	No Left	No Left	Split	Prot	No Left
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
gf											
qro, Opposing Queue Ratio											
gq, Opposing Queue Clearing Time											
gu											
PL											
de facto caused by PL >= 1.0											
EL1											
EL2											
gdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.98	1.00	0.95	1.00	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 16. Bayshore Boulevard / San Bruno Avenue

Node 818: Bayshore Blvd & San Bruno Ave

D.11. Cumulative Plus Project with Candlestick Interchange - AM Peak Hour

Control Type	TWSC
Method	HCM 7th Edition
dI, Average Delay	2.12
Worst Case Delay	20.68
Worst Case LOS	C

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Base Volume	1337.64	15.67	267.84	2285.52	173.22
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000
V, Adjusted Volume	1337.64	15.67	267.84	2285.52	173.22

Pedestrians					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Flow (Ped/hr)			0.00		0.00
w, Lane Width (ft)			12.00		12.00
Sp, Walking Speed (ft/s)			3.50		3.50
fpb, Percent Blockage			0.00		0.00

Capacity of Movements below Rank 1					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
Rank	1	1	2	1	2
vx, Volume			267.84		173.22
Conflicting Volume (Veh)			1337.64		676.66
Conflicting Volume (Ped)			0.00		0.00
Conflicting Volume			1337.64		676.66
Two-Stage Gap Acceptance					
Number of Storage Spaces in Median Refuge Area					
cpx, Potential Capacity			522.09		400.21
Capacity			522.09		400.21

Critical Headway and Follow Up Headway					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
tc,base, Base Critical Headway			4.10		6.90
tc,base,I, Base Critical Headway (Stage I)					
tc,base,II, Base Critical Headway (Stage II)					
tc,HV, Heavy Vehicles Adjustment Factor			2.00		2.00
Phv, % Heavy Vehicles			0.00		0.00
tc,G, Grade Adjustment Factor			0.00		0.10
G, % Grade	0.00		0.00		0.00
T3,lt, Geometry Adjustment Factor			0.00		0.00
tc, Critical Headway			4.10		6.90
tc,I, Critical Headway (Stage I)					
tc,II, Critical Headway (Stage II)					
tf,base, Base Follow-Up Headway			2.20		3.30
tf,hv, Heavy Vehicles Adjustment Factor			1.00		1.00
tf, Follow-Up Headway			2.20		3.30

Delay and Level of Service by Movement					
Approach	N (Major)		S (Major)		W
Movement	T	R1	L1	T	R1
vx, Volume	1337.64	15.67	267.84	2285.52	173.22
cmx, Capacity			522.09		400.21
V / C			0.51		0.43
d, Delay			18.93		20.68
LOS			C		C
dA, Approach Delay	0.00		1.99		20.68
Approach LOS					C
dRank1, Rank 1 Delay	0.00		0.00		

Delay and Level of Service by Lane						
Approach	N (Major)		S (Major)			W
Lane	Lane 1	Lane 2	Lane 1	Lane 2	Lane 3	Lane 1
Movements		T, R1				
vx, Volume	676.66	676.66	267.84	1142.76	1142.76	173.22
Flared Storage Size						
cmx, Capacity						
V / C						
Q95, 95% Queue Length						
d, Delay						
LOS						
dA, Approach Delay	0.00		1.99			20.68
Approach LOS						C

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Intersection No. 12. Bayshore Boulevard / Guadalupe Canyon Parkway

Node 609: Bayshore Blvd & Guadalupe Canyon Pkwy

D.13. Cumulative Plus Project with Candlestick Interchange ani
Recommended Improvements - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	102.41
Average LOS	F
V/C	0.99
Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	982	566	295	492	562	772
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	246	141	74	123	140	193
Adjusted Volume	982	566	295	492	562	772

Volume and Adjustments by Lane Group

Approach	N		S		W	
Lane Group	C	R	L	C	L	R
ID	47582	47583	47580	47581	47584	47585
Lanes	T	R	L	T	L	R
Control Type	No Left	No Left	Prot	No Left	Prot	No Left
V, Volume	982	566	295	492	562	772
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	1.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W		
Lane Group	47582	47583	47580	47581	47584	47585	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	
N, Number of Lanes	1	1	1	1	1	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	0.952	1.000	
fRT, Right Turn Adjustment	1.000	0.850	1.000	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane							
s, Saturation Flow Rate	1900	1615	1810	1900	1810	1615	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W		
Lane Group	47582	47583	47580	47581	47584	47585	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
V, Volume	982.24	565.96	295.18	492.1	561.93	435	338
						772	
s, Saturation Flow Rate	1900	1615	1810	1900	1810	1615	1615
						1615	
c, Capacity	839	713	252	839	487	435	225
						659	
g/C, Green / Cycle	0.44	0.44	0.14	0.44	0.27	0.27	0.14
						0.41	
X, Volume / Capacity	1.17	0.79	1.17	0.59	1.15	1.00	1.50
						1.17	
d1, Uniform Delay	33.50	28.80	51.65	25.24	43.85	32.20	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	89.36	8.85	111.33	2.99	90.40	92.60	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.44	0.44	0.14	0.44	0.27	0.41	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	122.86	37.65	162.98	28.24	134.25	124.80	
LOS	F	D	F	C	F	F	
dA, Approach Delay	91.71		78.76		128.78		
Approach LOS	F		E		F		
dI, Intersection Delay	102.41						
Intersection LOS	F						

Back of Queue

Approach	N		S		W	
Arrival Type	3		3		3	
Lane Group	47582	47583	47580	47581	47584	47585
g/C, Green / Cycle	0.44	0.44	0.14	0.44	0.27	0.41
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	23.64	13.70	7.55	10.44	13.71	16.21
Q2, Second-term Queued	20.83	1.75	7.79	0.70	12.23	16.96
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	44.47	15.46	15.34	11.14	25.94	33.17
fB%, % Factor	1.40	1.42	1.52	1.49	1.44	1.43
Q%, Back of Queue Percentile	95	95	95	95	95	95
% Back of Queue	62.03	21.90	23.34	16.62	37.30	47.45

Signal Timing Information

Approach	N		S		W		
Lane Group	47582	47583	47580	47581	47584	47585	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
Signal Type	P	P	P	P	P	P	
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2	2
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
Green Time Start	26.7	26.7	5	26.7	87.7	87.7	5
Green Time End	79.7	79.7	21.7	79.7	120	120	21.7
G, Actual Green Time	53	53	16.7	53	32.3	32.3	16.7
gi, Effective Green Time	53	53	16.7	53	32.3	32.3	16.7
g/C, Green / Cycle	0.44	0.44	0.14	0.44	0.27	0.27	0.14
						0.41	
(v/s)i, Volume / Saturation Flow Rate	0.52	0.35	0.16	0.26	0.31	0.27	0.21
Critical Lane Group	Y		Y		Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W		
Lane Group	47582	47583	47580	47581	47584	47585	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
qro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
qp, Pedestrian Green		0.00	0.00		0.00	0.00
OCCpedg, Average Pedestrian Occupancy		0.00	0.00		0.00	0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00	0.00
ApbT, Adjustment Factor		1.00	1.00		1.00	1.00
fRpb, Right Turn Factor		1.00	1.00		1.00	1.00
fLpb, Left Turn Factor		1.00	1.00		1.00	1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 13. Bayshore Boulevard / Valley Drive

Node 1004: Bayshore Blvd & Valley Dr

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	207.56
Average LOS	F
V/C	1.24
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	1	1555	199	0	141	0	0	508	719	143	68	1	326
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	389	50	0	35	0	0	127	180	36	17	0	82
Adjusted Volume	1	1555	199	0	141	0	0	508	719	143	68	1	326

Volume and Adjustments by Lane Group

Approach	N			E	S			W	
Lane Group	L	C	R	C	L	C	R	L	C
ID	6434	6435	6436	6433	6430	6431	6432	6437	6438
Lanes	L	T	R	LTR	L, L	T	R	L	RT
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
V, Volume	1	1555	199	142	508	719	143	68	327
PLT, Proportion Left Turns	1.00	0.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	0.00	0.00	1.00	0.00	1.00

Saturation Flow Rate

Approach	N			E	S			W	
Lane Group	6434	6435	6436	6433	6430	6431	6432	6437	6438
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	2	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	0.971	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	1.000	0.952	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	0.999	1.000	1.000	0.850	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane									
s, Saturation Flow Rate	1810	1900	1615	1899	3514	1900	1615	1810	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E	S			W	
Lane Group	6434	6435	6436	6433	6430	6431	6432	6437	6438
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
V, Volume	1.1	1554.76	198.77	141.6	507.69	719.02	143.03	67.85	326.98
s, Saturation Flow Rate	1810	1900	1615	1899	3514	1900	1615	1810	1615
c, Capacity	170	1015	863	92	331	1015	863	238	213
g/C, Green / Cycle	0.09	0.53	0.53	0.05	0.09	0.53	0.53	0.13	0.13
X, Volume / Capacity	0.01	1.53	0.23	1.54	1.53	0.71	0.17	0.28	1.54
d1, Uniform Delay	49.26	27.95	14.85	57.10	54.35	20.95	14.29	47.00	52.10
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	0.07	244.36	0.62	291.15	255.12	4.18	0.41	2.98	263.96
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.09	0.53	0.53	0.05	0.09	0.53	0.53	0.13	0.13
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	49.33	272.31	15.47	348.25	309.47	25.12	14.70	49.98	316.06
LOS	D	F	B	F	F	C	B	D	F
dA, Approach Delay		243.08		348.25		129.43		270.34	
Approach LOS		F		F		F		F	
dI, Intersection Delay	207.56								
Intersection LOS	F								

Back of Queue

Approach	N			E	S			W	
Arrival Type		3		3		3			3
Lane Group	6434	6435	6436	6433	6430	6431	6432	6437	6438
g/C, Green / Cycle	0.09	0.53	0.53	0.05	0.09	0.53	0.53	0.13	0.13
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.03	27.55	2.87	2.85	4.99	14.63	1.98	1.81	6.27
Q2, Second-term Queued	0.00	68.89	0.15	7.42	11.73	1.18	0.10	0.20	15.60
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	0.03	96.44	3.02	10.27	16.71	15.80	2.08	2.00	21.87
fB%, % Factor	1.80	1.53	1.80	1.68	1.60	1.41	1.80	1.80	1.58
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95
% Back of Queue	0.06	147.24	5.43	17.21	26.82	22.32	3.75	3.60	34.52

Signal Timing Information

Approach	N			E	S			W	
Lane Group	6434	6435	6436	6433	6430	6431	6432	6437	6438
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
Signal Type	P	P	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	108.7	5	5	74.1	108.7	5	5	84.9	84.9
Green Time End	120	69.1	69.1	79.9	120	69.1	69.1	100.7	100.7
G, Actual Green Time	11.3	64.1	64.1	5.8	11.3	64.1	64.1	15.8	15.8
gi, Effective Green Time	11.3	64.1	64.1	5.8	11.3	64.1	64.1	15.8	15.8
g/C, Green / Cycle	0.09	0.53	0.53	0.05	0.09	0.53	0.53	0.13	0.13
(v/s)i, Volume / Saturation Flow Rate	0.00	0.82	0.12	0.07	0.14	0.38	0.09	0.04	0.20
Critical Lane Group		Y		Y	Y				Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E	S			W	
Lane Group	6434	6435	6436	6433	6430	6431	6432	6437	6438
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
Subject is Single(S) or Multi(M)									
Opposed by Single(S) or Multi(M)									
C, Cycle Length									
G(s), Actual GT									
g(s), Eff. perm. GT									
go(s), Opposing Eff. GT									
No, Number Lanes in Opposing									
N, Number Left Lanes									
VLT, Adj. LT Flow Rate									
PLT, Proportion LT in Lane Group									
PLTo, Proportion LT in Opposing									
LT Volume per Cycle									
Vo, Opposing Flow									
Volc, Adjusted Opposing Flow									
FLUo, Opposing Lane Utilization									
Rpo, Opposing Platoon Ratio									
gf									
qro, Opposing Queue Ratio									
gq, Opposing Queue Clearing Time									
gu									
PL									
de facto caused by PL >= 1.0									
EL1									
EL2									
gdiff									
fm									
CAVs adjustment for Permitted Left Turns									
CAVs adjustment for Protected Left Turns									
fLT, Left Turn Adjustment	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 14. Bayshore Boulevard / Old County Road / Tunnel Avenue

Node 753: Bayshore Blvd & Old County Rd

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	217.97
Average LOS	F
V/C	1.29
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	328	1530	23	205	217	312	24	962	226	96	282	18
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	82	383	6	51	54	78	6	241	57	24	70	4
Adjusted Volume	328	1530	23	205	217	312	24	962	226	96	282	18

Volume and Adjustments by Lane Group

Approach	N			E			S			W	
Lane Group	L	C	R	L	C	R	L	C	R	L	C
ID	6420	6421	6422	6417	6418	6419	6414	6415	6416	6423	6424
Lanes	L	T	R	L	T	R	L	T	R	L	RT
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
V, Volume	328	1530	23	205	217	312	24	962	226	96	300
PLT, Proportion Left Turns	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.06

Saturation Flow Rate

Approach	N			E			S			W	
Lane Group	6420	6421	6422	6417	6418	6419	6414	6415	6416	6423	6424
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.952	1.000	1.000	0.952	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	1.000	0.850	1.000	1.000	0.850	1.000	0.990
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane											
s, Saturation Flow Rate	1810	1900	1615	1810	1900	1615	1810	1900	1615	1810	1880

Capacity, Control Delay, and Level of Service Determination

Approach	N			E			S			W	
Lane Group	6420	6421	6422	6417	6418	6419	6414	6415	6416	6423	6424
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
V, Volume	328.14	1530.23	23.26	204.51	216.83	311.63	24.17	962.02	226.35	96.09	299.74
s, Saturation Flow Rate	1810	1900	1615	1810	1900	1615	1810	1900	1615	1810	1880
c, Capacity	205	956	813	128	230	195	205	956	813	128	227
g/C, Green / Cycle	0.11	0.5	0.5	0.07	0.12	0.12	0.11	0.5	0.5	0.07	0.12
X, Volume / Capacity	1.6	1.6	0.03	1.6	0.94	1.6	0.12	1.01	0.28	0.75	1.32
d1, Uniform Delay	53.20	29.80	15.02	55.75	52.35	52.75	47.81	29.80	17.21	54.71	52.75
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	291.69	274.97	0.07	301.46	46.56	291.36	1.17	30.56	0.85	32.62	171.17
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.11	0.50	0.50	0.07	0.12	0.12	0.11	0.50	0.50	0.07	0.12
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	344.89	304.77	15.08	357.21	98.92	344.11	48.98	60.36	18.07	87.33	223.92
LOS	F	F	B	F	F	F	D	F	B	F	F
dA, Approach Delay		308.19			275.23			52.24			190.76
Approach LOS		F			F			D			F
dI, Intersection Delay						217.97					
Intersection LOS						F					

Back of Queue

Approach	N			E			S			W	
Arrival Type		3			3			3			3
Lane Group	6420	6421	6422	6417	6418	6419	6414	6415	6416	6423	6424
g/C, Green / Cycle	0.11	0.50	0.50	0.07	0.12	0.12	0.11	0.50	0.50	0.07	0.12
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	6.17	26.32	0.32	3.87	6.47	5.86	0.65	26.32	3.60	2.87	6.89
Q2, Second-term Queued	16.62	73.05	0.01	10.73	2.97	15.79	0.07	8.12	0.19	1.16	10.80
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	22.79	99.37	0.34	14.61	9.44	21.66	0.72	34.44	3.79	4.03	17.69
fB%, % Factor	1.57	1.54	1.80	1.63	1.53	1.59	1.80	1.29	1.80	1.80	1.55
Q%, Back of Queue Percentile	95	95	0.03	95	95	95	95	95	95	95	95
% Back of Queue	35.86	153.13	0.61	23.74	14.47	34.37	1.30	44.29	6.82	7.26	27.39

Signal Timing Information

Approach	N			E			S			W	
Lane Group	6420	6421	6422	6417	6418	6419	6414	6415	6416	6423	6424
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	106.4	5	5	70.4	83.9	83.9	106.4	5	5	70.4	83.9
Green Time End	120	65.4	65.4	78.9	98.4	98.4	120	65.4	65.4	78.9	98.4
G, Actual Green Time	13.6	60.4	60.4	8.5	14.5	14.5	13.6	60.4	60.4	8.5	14.5
gi, Effective Green Time	13.6	60.4	60.4	8.5	14.5	14.5	13.6	60.4	60.4	8.5	14.5
g/C, Green / Cycle	0.11	0.5	0.5	0.07	0.12	0.12	0.11	0.5	0.5	0.07	0.12
(v/s)i, Volume / Saturation Flow Rate	0.18	0.81	0.01	0.11	0.11	0.19	0.01	0.51	0.14	0.05	0.16
Critical Lane Group	Y	Y		Y		Y					

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E			S			W	
Lane Group	6420	6421	6422	6417	6418	6419	6414	6415	6416	6423	6424
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
gf											
qro, Opposing Queue Ratio											
gq, Opposing Queue Clearing Time											
gu											
PL											
de facto caused by PL >= 1.0											
EL1											
EL2											
gdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 16. Bayshore Boulevard / San Bruno Avenue

Node 818: Bayshore Blvd & San Bruno Ave

D.13. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - AM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	76.23
Average LOS	E
V/C	0.98
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N		S		W
Movement	T	R1	L1	T	R1
Base Volume	1730	0	190	1220	378
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	433	0	48	305	95
Adjusted Volume	1730	0	190	1220	378

Volume and Adjustments by Lane Group

Approach	N		S		W
Lane Group	C	C	L	C	R
ID	6427	6428	6425	6426	6429
Lanes	T	RT	L	T	R
Control Type	No Left	No Left	Prot	No Left	No Left
V, Volume	865	865	190	1220	378
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W
Lane Group	6427	6428	6425	6426	6429
Control Type	No Left	No Left	Prot	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	1.000
fRT, Right Turn Adjustment	1.000	1.000	1.000	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000
Has Short Lane					
s, Saturation Flow Rate	1900	1900	1810	1900	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W
Lane Group	6427	6428	6425	6426	6429
Control Type	No Left	No Left	Prot	No Left	No Left
V, Volume	865.24	865.24	190.27	1219.61	378.12
s, Saturation Flow Rate	1900	1900	1810	1900	1615
c, Capacity	1058	1058	164	1058	327
g/C, Green / Cycle	0.56	0.56	0.09	0.56	0.2
X, Volume / Capacity	0.82	0.82	1.16	1.15	1.16
d1, Uniform Delay	21.65	21.65	54.55	26.60	47.85
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	7.05	7.05	118.91	79.95	99.17
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.56	0.56	0.09	0.56	0.20
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00
d, Delay	28.70	28.70	173.46	106.55	147.02
LOS	C	C	F	F	F
dA, Approach Delay	28.70		115.58		147.02
Approach LOS	C		F		F
dI, Intersection Delay	76.23				
Intersection LOS	E				

Back of Queue

Approach	N		S		W
Arrival Type	3		3		3
Lane Group	6427	6428	6425	6426	6429
g/C, Green / Cycle	0.56	0.56	0.09	0.56	0.20
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	18.90	18.90	4.83	26.75	9.81
Q2, Second-term Queued	2.07	2.07	5.43	23.49	9.01
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	20.97	20.97	10.26	50.24	18.82
fB%, % Factor	1.36	1.36	1.59	1.38	1.49
Q%, Back of Queue Percentile	95	95	95	95	95
% Back of Queue	28.47	28.48	16.37	69.24	27.95

Signal Timing Information

Approach	N		S		W
Lane Group	6427	6428	6425	6426	6429
Control Type	No Left	No Left	Prot	No Left	No Left
Signal Type	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00
Green Time Start	5	5	109.1	5	76.8
Green Time End	71.8	71.8	120	71.8	101.1
G, Actual Green Time	66.8	66.8	10.9	66.8	24.3
gi, Effective Green Time	66.8	66.8	10.9	66.8	24.3
g/C, Green / Cycle	0.56	0.56	0.09	0.56	0.2
(v/s)i, Volume / Saturation Flow Rate	0.46	0.46	0.11	0.64	0.23
Critical Lane Group			Y	Y	Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W
Lane Group	6427	6428	6425	6426	6429
Control Type	No Left	No Left	Prot	No Left	No Left
Subject is Single(S) or Multi(M)					
Opposed by Single(S) or Multi(M)					
C, Cycle Length					
G(s), Actual GT					
g(s), Eff. perm. GT					
go(s), Opposing Eff. GT					
No, Number Lanes in Opposing					
N, Number Left Lanes					
VLT, Adj. LT Flow Rate					
PLT, Proportion LT in Lane Group					
PLTo, Proportion LT in Opposing					
LT Volume per Cycle					
Vo, Opposing Flow					
Volc, Adjusted Opposing Flow					
FLUo, Opposing Lane Utilization					
Rpo, Opposing Platoon Ratio					
gf					
qro, Opposing Queue Ratio					
gq, Opposing Queue Clearing Time					
gu					
PL,					
de facto caused by PL >= 1.0					
EL1					
EL2					
gdiff					
fm					
CAVs adjustment for Permitted Left Turns					
CAVs adjustment for Protected Left Turns					
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W
Movement	T	R1	L1	T	R1
gp, Pedestrian Green		0.00	0.00		0.00
OCCped, Average Pedestrian Occupancy		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00
ApbT, Adjustment Factor		1.00	1.00		1.00
fRpb, Right Turn Factor		1.00	1.00		1.00
fLpb, Left Turn Factor		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Intersection No. 12. Bayshore Boulevard / Guadalupe Canyon Parkway

Node 609: Bayshore Blvd & Guadalupe Canyon Pkwy

D.14. Cumulative Plus Project with Candlestick Interchange ani
Recommended Improvements - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	154.46
Average LOS	F
V/C	1.18
Loss Time	0

Notes: N = North leg of the intersection (southbound approach). E = East leg of the intersection (westbound approach). etc.

Volume and Adjustments by Movement

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
Base Volume	522	565	649	1001	529	313
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	130	141	162	250	132	78
Adjusted Volume	522	565	649	1001	529	313

Volume and Adjustments by Lane Group

Approach	N		S		W	
Lane Group	C	R	L	C	L	R
ID	32820	32821	32818	32819	32822	32823
Lanes	T	R	L	T	L	R
Control Type	No Left	No Left	Prot	No Left	Prot	No Left
V, Volume	522	565	649	1001	529	313
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	1.00	0.00	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W		
Lane Group	32820	32821	32818	32819	32822	32823	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	
N, Number of Lanes	1	1	1	1	1	1	
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	0.952	1.000	
fRT, Right Turn Adjustment	1.000	0.850	1.000	1.000	1.000	0.850	
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	
Has Short Lane							
s, Saturation Flow Rate	1900	1615	1810	1900	1810	1615	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W		
Lane Group	32820	32821	32818	32819	32822	32823	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
V, Volume	521.81	565.32	649.5	1001.01	528.93	219	94
						313	
s, Saturation Flow Rate	1900	1615	1810	1900	1810	1615	1615
						1615	
c, Capacity	722	614	469	722	382	340	419
						759	
g/C, Green / Cycle	0.38	0.38	0.26	0.38	0.21	0.21	0.26
						0.47	
X, Volume / Capacity	0.72	0.92	1.38	1.39	1.39	0.64	0.22
						0.41	
d1, Uniform Delay	31.80	35.49	44.45	37.20	47.35	17.88	
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	
d2, Incremental Delay,	6.19	21.38	186.08	182.43	189.43	1.65	
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	
P, Proportion Arriving on Green	0.38	0.38	0.26	0.38	0.21	0.47	
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	
d, Delay	37.99	56.87	230.53	219.63	236.78	19.53	
LOS	D	E	F	F	F	B	
dA, Approach Delay	47.81		223.92		156.03		
Approach LOS	D		F		F		
dI, Intersection Delay	154.46						
Intersection LOS	F						

Back of Queue

Approach	N		S		W	
Arrival Type	3		3		3	
Lane Group	32820	32821	32818	32819	32822	32823
g/C, Green / Cycle	0.38	0.38	0.26	0.38	0.21	0.47
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	12.79	15.47	13.81	20.71	10.88	4.85
Q2, Second-term Queued	1.24	3.65	24.24	36.59	20.07	0.35
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	14.03	19.11	38.05	57.29	30.96	5.19
fB%, % Factor	1.44	1.38	1.50	1.48	1.61	1.72
Q%, Back of Queue Percentile	95	95	95	95	95	95
% Back of Queue	20.18	26.28	57.00	84.85	46.82	8.93

Signal Timing Information

Approach	N		S		W		
Lane Group	32820	32821	32818	32819	32822	32823	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
Signal Type	P	P	P	P	P	P	
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2	2
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0	0
Green Time Start	41.1	41.1	5	41.1	94.7	94.7	5
Green Time End	86.7	86.7	36.1	86.7	120	120	36.1
G, Actual Green Time	45.6	45.6	31.1	45.6	25.3	25.3	31.1
gs, Effective Green Time	45.6	45.6	31.1	45.6	25.3	25.3	31.1
g/C, Green / Cycle	0.38	0.38	0.26	0.38	0.21	0.21	0.26
						0.47	
(v/s)i, Volume / Saturation Flow Rate	0.27	0.35	0.36	0.53	0.29	0.14	0.06
Critical Lane Group			Y	Y	Y		

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W		
Lane Group	32820	32821	32818	32819	32822	32823	
Control Type	No Left	No Left	Prot	No Left	Prot	No Left Perm	Prot
Subject is Single(S) or Multi(M)							
Opposed by Single(S) or Multi(M)							
C, Cycle Length							
G(s), Actual GT							
g(s), Eff. perm. GT							
go(s), Opposing Eff. GT							
No, Number Lanes in Opposing							
N, Number Left Lanes							
VLT, Adj. LT Flow Rate							
PLT, Proportion LT in Lane Group							
PLTo, Proportion LT in Opposing							
LT Volume per Cycle							
Vo, Opposing Flow							
Volc, Adjusted Opposing Flow							
FLUo, Opposing Lane Utilization							
Rpo, Opposing Platoon Ratio							
gf							
qro, Opposing Queue Ratio							
gq, Opposing Queue Clearing Time							
gu							
PL							
de facto caused by PL >= 1.0							
EL1							
EL2							
gdiff							
fm							
CAVs adjustment for Permitted Left Turns							
CAVs adjustment for Protected Left Turns							
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W	
Movement	T	R1	L1	T	L1	R1
qp, Pedestrian Green		0.00	0.00		0.00	0.00
OCCpedg, Average Pedestrian Occupancy		0.00	0.00		0.00	0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00	0.00
ApbT, Adjustment Factor		1.00	1.00		1.00	1.00
fRpb, Right Turn Factor		1.00	1.00		1.00	1.00
fLpb, Left Turn Factor		1.00	1.00		1.00	1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 13. Bayshore Boulevard / Valley Drive

Node 1004: Bayshore Blvd & Valley Dr

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	286.26
Average LOS	F
V/C	1.4
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
Base Volume	0	788	46	3	142	111	0	437	1313	132	227	0	711
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	0	197	12	1	36	28	0	109	328	33	57	0	178
Adjusted Volume	0	788	46	3	142	111	0	437	1313	132	227	0	711

Volume and Adjustments by Lane Group

Approach	N			E	S			W	
Lane Group	L	C	R	C	L	C	R	L	C
ID	6346	6347	6348	6345	6342	6343	6344	6349	6350
Lanes	L	T	R	LTR	L, L	T	R	L	RT
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
V, Volume	0	788	46	256	437	1313	132	227	712
PLT, Proportion Left Turns	1.00	0.00	0.00	0.01	1.00	0.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.43	0.00	0.00	1.00	0.00	1.00

Saturation Flow Rate

Approach	N			E	S			W	
Lane Group	6346	6347	6348	6345	6342	6343	6344	6349	6350
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	2	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	0.971	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.999	0.952	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	0.929	1.000	1.000	0.850	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane									
s, Saturation Flow Rate	1810	1900	1615	1764	3514	1900	1615	1810	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N			E	S			W	
Lane Group	6346	6347	6348	6345	6342	6343	6344	6349	6350
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
V, Volume	0.2	788.28	46.25	256.09	436.67	1312.63	131.69	227.23	711.9
s, Saturation Flow Rate	1810	1900	1615	1764	3514	1900	1615	1810	1615
c, Capacity	130	757	643	148	252	757	643	460	411
g/C, Green / Cycle	0.07	0.4	0.4	0.08	0.07	0.4	0.4	0.25	0.25
X, Volume / Capacity	0	1.04	0.07	1.72	1.73	1.73	0.2	0.49	1.73
d1, Uniform Delay	51.71	36.10	22.36	54.95	55.70	36.10	23.65	38.17	44.75
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	0.02	44.02	0.22	352.71	346.36	335.99	0.72	3.76	340.43
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.07	0.40	0.40	0.08	0.07	0.40	0.40	0.25	0.25
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	51.73	80.12	22.58	407.66	402.06	372.09	24.37	41.93	385.18
LOS	D	F	C	F	F	F	C	D	F
dA, Approach Delay		76.92		407.66		354.70		302.13	
Approach LOS		E		F		F		F	
dI, Intersection Delay	286.26								
Intersection LOS	F								

Back of Queue

Approach	N			E	S			W	
Arrival Type		3		3		3			3
Lane Group	6346	6347	6348	6345	6342	6343	6344	6349	6350
g/C, Green / Cycle	0.07	0.40	0.40	0.08	0.07	0.40	0.40	0.25	0.25
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	0.01	21.60	0.82	4.59	3.81	21.60	2.46	5.59	11.85
Q2, Second-term Queued	0.00	9.25	0.04	14.55	12.11	70.64	0.13	0.48	38.82
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	0.01	30.85	0.86	19.14	15.92	92.24	2.59	6.07	50.67
fB%, % Factor	1.80	1.34	1.80	1.60	1.63	1.55	1.80	1.67	1.56
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95
% Back of Queue	0.01	41.19	1.54	30.69	25.93	143.39	4.66	10.11	79.11

Signal Timing Information

Approach	N			E	S			W	
Lane Group	6346	6347	6348	6345	6342	6343	6344	6349	6350
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
Signal Type	P	P	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	111.4	5	5	57.8	111.4	5	5	72.9	72.9
Green Time End	120	52.8	52.8	67.9	120	52.8	52.8	103.4	103.4
G, Actual Green Time	8.6	47.8	47.8	10.1	8.6	47.8	47.8	30.5	30.5
gi, Effective Green Time	8.6	47.8	47.8	10.1	8.6	47.8	47.8	30.5	30.5
g/C, Green / Cycle	0.07	0.4	0.4	0.08	0.07	0.4	0.4	0.25	0.25
(v/s)i, Volume / Saturation Flow Rate	0.00	0.41	0.03	0.15	0.12	0.69	0.08	0.13	0.44
Critical Lane Group				Y	Y	Y			Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E	S			W	
Lane Group	6346	6347	6348	6345	6342	6343	6344	6349	6350
Control Type	Prot	No Left	No Left	Split	Prot	No Left	No Left	Split	No Left
Subject is Single(S) or Multi(M)									
Opposed by Single(S) or Multi(M)									
C, Cycle Length									
G(s), Actual GT									
g(s), Eff. perm. GT									
go(s), Opposing Eff. GT									
No, Number Lanes in Opposing									
N, Number Left Lanes									
VLT, Adj. LT Flow Rate									
PLT, Proportion LT in Lane Group									
PLTo, Proportion LT in Opposing									
LT Volume per Cycle									
Vo, Opposing Flow									
Volc, Adjusted Opposing Flow									
FLUo, Opposing Lane Utilization									
Rpo, Opposing Platoon Ratio									
gf									
qro, Opposing Queue Ratio									
gq, Opposing Queue Clearing Time									
gu									
PL									
de facto caused by PL >= 1.0									
EL1									
EL2									
gdiff									
fm									
CAVs adjustment for Permitted Left Turns									
CAVs adjustment for Protected Left Turns									
fLT, Left Turn Adjustment	0.95	1.00	1.00	1.00	0.95	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S				W		
Movement	L1	T	R1	L1	T	R1	L2	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 14. Bayshore Boulevard / Old County Road / Tunnel Avenue

Node 753: Bayshore Blvd & Old County Rd

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	223.45
Average LOS	F
V/C	1.31
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
Base Volume	433	976	94	96	257	506	75	1347	239	28	197	57
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	108	244	24	24	64	126	19	337	60	7	49	14
Adjusted Volume	433	976	94	96	257	506	75	1347	239	28	197	57

Volume and Adjustments by Lane Group

Approach	N			E			S			W	
Lane Group	L	C	R	L	C	R	L	C	R	L	C
ID	6332	6333	6334	6329	6330	6331	6326	6327	6328	6335	6336
Lanes	L	T	R	L	T	R	L	T	R	L	RT
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
V, Volume	433	976	94	96	257	506	75	1347	239	28	254
PLT, Proportion Left Turns	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00
PRT, Proportion Right Turns	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.00	1.00	0.00	0.22

Saturation Flow Rate

Approach	N			E			S			W	
Lane Group	6332	6333	6334	6329	6330	6331	6326	6327	6328	6335	6336
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1	1	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Phv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	0.952	1.000	1.000	0.952	1.000	1.000	0.952	1.000	1.000	0.952	1.000
fRT, Right Turn Adjustment	1.000	1.000	0.850	1.000	1.000	0.850	1.000	1.000	0.850	1.000	0.962
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000	1.000
Has Short Lane											
s, Saturation Flow Rate	1810	1900	1615	1810	1900	1615	1810	1900	1615	1810	1828

Capacity, Control Delay, and Level of Service Determination

Approach	N			E			S			W	
Lane Group	6332	6333	6334	6329	6330	6331	6326	6327	6328	6335	6336
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
V, Volume	432.75	975.94	94.38	95.97	256.94	505.8	74.94	1347.2	238.96	27.99	253.83
s, Saturation Flow Rate	1810	1900	1615	1810	1900	1615	1810	1900	1615	1810	1828
c, Capacity	265	830	705	59	366	311	265	830	705	59	352
g/C, Green / Cycle	0.15	0.44	0.44	0.03	0.19	0.19	0.15	0.44	0.44	0.03	0.19
X, Volume / Capacity	1.63	1.18	0.13	1.63	0.7	1.63	0.28	1.62	0.34	0.48	0.72
d1, Uniform Delay	51.20	33.80	20.22	58.05	45.24	48.45	45.58	33.80	22.35	57.05	45.43
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	300.34	91.84	0.39	348.80	10.76	296.42	2.65	286.24	1.30	25.13	12.09
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.15	0.44	0.44	0.03	0.19	0.19	0.15	0.44	0.44	0.03	0.19
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
d, Delay	351.54	125.64	20.62	406.85	56.00	344.87	48.23	320.04	23.65	82.17	57.52
LOS	F	F	C	F	E	F	D	F	C	F	E
dA, Approach Delay		184.08			265.36			265.14			59.97
Approach LOS		F			F			F			E
dI, Intersection Delay	223.45										
Intersection LOS	F										

Back of Queue

Approach	N			E			S			W	
Arrival Type	3			3			3			3	
Lane Group	6332	6333	6334	6329	6330	6331	6326	6327	6328	6335	6336
g/C, Green / Cycle	0.15	0.44	0.44	0.03	0.19	0.19	0.15	0.44	0.44	0.03	0.19
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	7.95	23.41	1.59	1.79	7.14	9.25	2.00	23.41	4.46	0.84	7.15
Q2, Second-term Queued	22.14	21.17	0.08	5.70	1.09	25.60	0.20	65.97	0.26	0.41	1.18
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	30.09	44.57	1.67	7.48	8.23	34.85	2.19	89.38	4.71	1.25	8.33
fB%, % Factor	1.56	1.40	1.80	1.76	1.57	1.56	1.80	1.54	1.76	1.80	1.57
Q%, Back of Queue Percentile	95	95	95	95	95	95	95	95	95	95	95
% Back of Queue	46.82	62.33	3.01	13.14	12.94	54.30	3.95	137.63	8.27	2.25	13.07

Signal Timing Information

Approach	N			E			S			W	
Lane Group	6332	6333	6334	6329	6330	6331	6326	6327	6328	6335	6336
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
Signal Type	P	P	P	P	P	P	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0	0	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Green Time Start	102.4	5	5	62.4	71.3	71.3	102.4	5	5	62.4	71.3
Green Time End	120	57.4	57.4	66.3	94.4	94.4	120	57.4	57.4	66.3	94.4
G, Actual Green Time	17.6	52.4	52.4	3.9	23.1	23.1	17.6	52.4	52.4	3.9	23.1
gi, Effective Green Time	17.6	52.4	52.4	3.9	23.1	23.1	17.6	52.4	52.4	3.9	23.1
g/C, Green / Cycle	0.15	0.44	0.44	0.03	0.19	0.19	0.15	0.44	0.44	0.03	0.19
(v/s)i, Volume / Saturation Flow Rate	0.24	0.51	0.06	0.05	0.14	0.31	0.04	0.71	0.15	0.02	0.14
Critical Lane Group	Y			Y		Y		Y			

Left Turn Adjustment Factors for Permitted Phasing

Approach	N			E			S			W	
Lane Group	6332	6333	6334	6329	6330	6331	6326	6327	6328	6335	6336
Control Type	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left	No Left	Prot	No Left
Subject is Single(S) or Multi(M)											
Opposed by Single(S) or Multi(M)											
C, Cycle Length											
G(s), Actual GT											
g(s), Eff. perm. GT											
go(s), Opposing Eff. GT											
No, Number Lanes in Opposing											
N, Number Left Lanes											
VLT, Adj. LT Flow Rate											
PLT, Proportion LT in Lane Group											
PLTo, Proportion LT in Opposing											
LT Volume per Cycle											
Vo, Opposing Flow											
Volc, Adjusted Opposing Flow											
FLUo, Opposing Lane Utilization											
Rpo, Opposing Platoon Ratio											
gf											
qro, Opposing Queue Ratio											
gq, Opposing Queue Clearing Time											
gu											
PL,											
de facto caused by PL >= 1.0											
EL1											
EL2											
gdiff											
fm											
CAVs adjustment for Permitted Left Turns											
CAVs adjustment for Protected Left Turns											
fLT, Left Turn Adjustment	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00	1.00	0.95	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N			E			S			W		
Movement	L1	T	R1	L1	T	R1	L1	T	R1	L1	T	R1
gp, Pedestrian Green	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy	0.00		0.00	0.00		0.00	0.00		0.00	0.00		0.00
ApbT, Adjustment Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fRpb, Right Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00
fLpb, Left Turn Factor	1.00		1.00	1.00		1.00	1.00		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis

Intersection No. 16. Bayshore Boulevard / San Bruno Avenue

Node 818: Bayshore Blvd & San Bruno Ave

D.14. Cumulative Plus Project with Candlestick Interchange and Recommended Improvements - PM Peak Hour

Control Type	Signalized
Method	HCM 7th Edition
Average Delay	158.48
Average LOS	F
V/C	1.21
Loss Time	0

Notes: N = North leg of the intersection (southbound approach), E = East leg of the intersection (westbound approach), etc.

Volume and Adjustments by Movement

Approach	N		S		W
Movement	T	R1	L1	T	R1
Base Volume	1140	4	351	1621	260
PHF, Peak-hour factor	1.000	1.000	1.000	1.000	1.000
Peak 15 Volume	285	1	88	405	65
Adjusted Volume	1140	4	351	1621	260

Volume and Adjustments by Lane Group

Approach	N		S		W
Lane Group	C	C	L	C	R
ID	6339	6340	6337	6338	6341
Lanes	T	RT	L	T	R
Control Type	No Left	No Left	Prot	No Left	No Left
V, Volume	572	572	351	1621	260
PLT, Proportion Left Turns	0.00	0.00	1.00	0.00	0.00
PRT, Proportion Right Turns	0.00	0.01	0.00	0.00	1.00

Saturation Flow Rate

Approach	N		S		W
Lane Group	6339	6340	6337	6338	6341
Control Type	No Left	No Left	Prot	No Left	No Left
Proportion of CAVs	0.000	0.000	0.000	0.000	0.000
so, Base Saturation Flow Rate	1900	1900	1900	1900	1900
N, Number of Lanes	1	1	1	1	1
fw, Lane Width Adjustment	1.000	1.000	1.000	1.000	1.000
fHv, % Heavy Vehicles	0.000	0.000	0.000	0.000	0.000
fHVg, HV and Grade Adjustment	1.000	1.000	1.000	1.000	1.000
fp, Parking Adjustment	1.000	1.000	1.000	1.000	1.000
fbb, Bus Blocking Adjustment	1.000	1.000	1.000	1.000	1.000
fa, Area Type Adjustment	1.000	1.000	1.000	1.000	1.000
fLU, Lane Utilization Adjustment	1.000	1.000	1.000	1.000	1.000
fLT, Left Turn Adjustment	1.000	1.000	0.952	1.000	1.000
fRT, Right Turn Adjustment	1.000	0.999	1.000	1.000	0.850
fLpb, Left Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fRpb, Right Turn Ped. Adjustment	1.000	1.000	1.000	1.000	1.000
fwz, Work Zone Adjustment	1.000	1.000	1.000	1.000	1.000
fms, Downstream Lane Blockage Adjustment	1.000	1.000	1.000	1.000	1.000
fsp, Sustained Spillback Adjustment	1.000	1.000	1.000	1.000	1.000
Has Short Lane					
s, Saturation Flow Rate	1900	1898	1810	1900	1615

Capacity, Control Delay, and Level of Service Determination

Approach	N		S		W
Lane Group	6339	6340	6337	6338	6341
Control Type	No Left	No Left	Prot	No Left	No Left
V, Volume	571.86	571.86	350.87	1620.9	259.83
s, Saturation Flow Rate	1900	1898	1810	1900	1615
c, Capacity	1140	1139	247	1140	183
g/C, Green / Cycle	0.6	0.6	0.14	0.6	0.11
X, Volume / Capacity	0.5	0.5	1.42	1.42	1.42
d1, Uniform Delay	13.73	13.74	51.80	24.00	53.20
k, Delay Calibration	0.50	0.50	0.50	0.50	0.50
d2, Incremental Delay,	1.58	1.58	210.52	195.01	217.68
d3, Initial Queue Delay	0.00	0.00	0.00	0.00	0.00
Rp, Platoon Ratio	1.00	1.00	1.00	1.00	1.00
P, Proportion Arriving on Green	0.60	0.60	0.14	0.60	0.11
PF, Progression Factor	1.00	1.00	1.00	1.00	1.00
d, Delay	15.31	15.32	262.32	219.01	270.88
LOS	B	B	F	F	F
dA, Approach Delay	15.32		226.72		270.88
Approach LOS	B		F		F
dI, Intersection Delay	158.48				
Intersection LOS	F				

Back of Queue

Approach	N		S		W
Arrival Type	3		3		3
Lane Group	6339	6340	6337	6338	6341
g/C, Green / Cycle	0.60	0.60	0.14	0.60	0.11
PF2, Progression Factor	1.00	1.00	1.00	1.00	1.00
Q1, First-term Queued	8.55	8.55	7.22	27.84	5.55
Q2, Second-term Queued	0.50	0.50	14.46	61.75	11.07
XU, Upstream V/C	0.00	0.00	0.00	0.00	0.00
I, Upstream Adj. Factor	1.00	1.00	1.00	1.00	1.00
kB, Early Arrival Adj. Factor	1.00	1.00	1.00	1.00	1.00
Q, Average Back of Queue	9.05	9.05	21.68	89.59	16.62
fB%, % Factor	1.55	1.55	1.55	1.50	1.59
Q%, Back of Queue Percentile	95	95	95	95	95
% Back of Queue	13.98	13.99	33.63	134.26	26.41

Signal Timing Information

Approach	N		S		W
Lane Group	6339	6340	6337	6338	6341
Control Type	No Left	No Left	Prot	No Left	No Left
Signal Type	P	P	P	P	P
C, Cycle Length	120.00	120.00	120.00	120.00	120.00
Gp, Minimum Pedestrian Timing	0	0	0	0	0
L, Total Loss Time per Cycle	0.00	0.00	0.00	0.00	0.00
l1, Start Up Loss Time	2.00	2.00	2.00	2.00	2.00
l1p, Permitted Start Up Loss Time	0.00	0.00	0.00	0.00	0.00
l2, Clearance Loss Time	0.00	0.00	0.00	0.00	0.00
Green Time Start	5	5	103.6	5	82
Green Time End	77	77	120	77	95.6
G, Actual Green Time	72	72	16.4	72	13.6
gi, Effective Green Time	72	72	16.4	72	13.6
g/C, Green / Cycle	0.6	0.6	0.14	0.6	0.11
(v/s)i, Volume / Saturation Flow Rate	0.30	0.30	0.19	0.85	0.16
Critical Lane Group			Y	Y	Y

Left Turn Adjustment Factors for Permitted Phasing

Approach	N		S		W
Lane Group	6339	6340	6337	6338	6341
Control Type	No Left	No Left	Prot	No Left	No Left
Subject is Single(S) or Multi(M)					
Opposed by Single(S) or Multi(M)					
C, Cycle Length					
G(s), Actual GT					
g(s), Eff. perm. GT					
go(s), Opposing Eff. GT					
No, Number Lanes in Opposing					
N, Number Left Lanes					
VLT, Adj. LT Flow Rate					
PLT, Proportion LT in Lane Group					
PLTo, Proportion LT in Opposing					
LT Volume per Cycle					
Vo, Opposing Flow					
Volc, Adjusted Opposing Flow					
FLUo, Opposing Lane Utilization					
Rpo, Opposing Platoon Ratio					
gf					
qro, Opposing Queue Ratio					
gq, Opposing Queue Clearing Time					
gu					
PL,					
de facto caused by PL >= 1.0					
EL1					
EL2					
gdiff					
fm					
CAVs adjustment for Permitted Left Turns					
CAVs adjustment for Protected Left Turns					
fLT, Left Turn Adjustment	1.00	1.00	0.95	1.00	1.00

Pedestrian and Bicycle Adjustment Factors

Approach	N		S		W
Movement	T	R1	L1	T	R1
gp, Pedestrian Green		0.00	0.00		0.00
OCCpedg, Average Pedestrian Occupancy		0.00	0.00		0.00
OCCr, Relevant Conflict Zone Occupancy		0.00	0.00		0.00
ApbT, Adjustment Factor		1.00	1.00		1.00
fRpb, Right Turn Factor		1.00	1.00		1.00
fLpb, Left Turn Factor		1.00	1.00		1.00

Actuated Phase Properties

Actuated Lane Group Properties

Pedestrian and Bicycle Analysis