Geneva Avenue/San Jose Avenue Intersection Study

San Francisco County Transportation Authority

SFMTA

Prepared by the San Francisco Municipal Transportation Agency

Funded by the San Francisco County Transportation Authority through the Neighborhood Transportation Improvement Program (NTIP) for District 11

March 11, 2020

Acknowledgements

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Cover Photo – Upper Yard, taken April 1972

The San Francisco Municipal Transportation Agency (SFMTA) has conducted a study of the Geneva Avenue/San Jose Avenue intersection area, which has been funded by the San Francisco County Transportation Authority's (SFCTA) Neighborhood Transportation Improvement Program (NTIP) for District 11. The goal of the study is to develop concepts to improve multimodal safety and access to transit as well as to coordinate planning and design with ongoing plans and projects in the immediate area, including Bay Area Rapid Transit District's (BART) Balboa Park Station and Plaza, the Mayor's Office of Housing and Community Development's (MOHCD) Upper Yard Housing Development and the Recreation and Park Department's (RPD) Geneva Car Barn and Powerhouse Project.

Existing Conditions

Geneva Avenue at San Jose Avenue forms the intersection of multiple neighborhoods: Oceanview, Merced Heights and Ingleside (collectively known as OMI) and Outer Mission. It is also a major focal point for local and regional transportation as it is adjacent to Balboa Park Station, multiple transit connections and one block from Interstate 280. Much of the surrounding land uses are low- to moderate-density residential, but other land uses within half-mile include the Ocean Avenue and Outer Mission Street commercial districts; City College of San Francisco; Balboa High School; Lick Wilmerding High School; and Balboa Park.

Two sites immediately adjacent to the intersection are undergoing major changes – at the southwest corner, MOHCD is sponsoring the Upper Yard mixed used development on the site of a former Muni rail yard that will include to develop approximately 120 units of affordable housing and 12,000 square feet of ground floor commercial, community service space, and childcare facilities. In parallel with the Upper Yard development, BART is planning to redevelop the patron drop-off loop to create a new plaza. At the southeast corner, San Francisco Recreation and Parks Department is in the process of renovating the vacant Geneva Car Barn and Powerhouse for community use.

Study Area

The study area includes the intersection of Geneva Avenue/San Jose Avenue and extends approximately one block in each direction from the intersection, as shown in Figure 1.

Figure 1 – Study Area

Multimodal Transportation

Pedestrian

Pedestrian destinations near the study area include the City College of San Francisco, Balboa High School, Leadership High School, James Denman Middle School, Lick-Wilmerding High School, Balboa Park, neighborhood retail along Ocean Avenue as well as access to various local and regional transit service within and adjacent to Balboa Park Station. The Balboa Park BART station has three entrances, two on each side of Geneva Avenue and a third on the south side of Ocean Avenue. Muni light rail facilities are located along San Jose Avenue and Ocean Avenue and Muni buses have passenger stops on both Geneva Avenue and San Jose Avenue.

Pedestrian volume data collected in 2017 measured a volume of 828 pedestrians crossing the intersection of San Jose and Geneva in the AM peak hour, and 705 pedestrians crossing in the PM peak hour. During both peak periods, pedestrians crossing the northern leg of San Jose Avenue made up the greatest volume of pedestrian crossings, followed by the western leg of Geneva Avenue. Peak hour count summaries are shown in Figure 2. Full data is provided in Enclosure A.

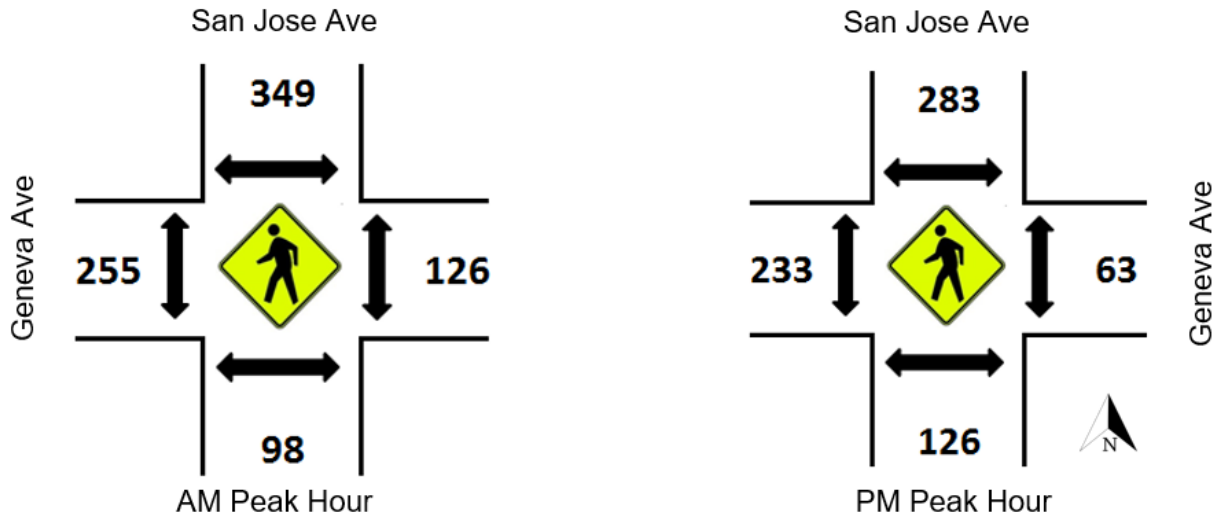


Figure 2 – Morning and evening peak hour pedestrian crossing data, obtained in October 2017.

Pedestrian activity was observed on multiple occasions and several areas were identified where pedestrians cross midblock and therefore are not captured in the volume counts.

- M Line Off-boarding – The M Line drops off passengers on northbound San Jose Avenue, mid-block between Niagara Avenue and Geneva Avenue. It was observed that a large portion of off-boarding passengers choose to cross the street midblock instead of crossing at the adjacent intersections.
- M Line Boarding – The M Line picks up passengers on southbound San Jose Avenue, south of Geneva Avenue. The boarding island does not connect to the crosswalk, but there is a painted path that guides pedestrians to the crosswalk. However, it was observed that many pedestrians choose to cross midblock between the sidewalk and the boarding island.
- Geneva Avenue – Pedestrians have been observed to cross Geneva Avenue mid-block between San Jose Avenue and the I-280 Northbound Ramp. Of the midblock movements, this one was observed to have the lowest instances of crossing.

Bicycles

Both Geneva and Ocean avenues are designated bike routes; however, the area lacks continuous, separated bicycle facilities. Cyclists traveling through the area tend to ride along Ocean Avenue, as Geneva Avenue has a steep grade on its west end. Ocean Avenue is marked with shared lane use markings, commonly referred to as “Sharrows”

The Geneva Avenue and San Jose Avenue both connect to many regional destinations, including CCSF, San Francisco State University, Stonestown Galleria, Balboa Park and McLaren Park. Within the study area, bicycle parking is located at the Balboa Park BART Station. The Balboa Park BART Station has two bicycle parking areas. Bicycle lockers and

racks are located on the west side of the station entrance on the north side of Geneva Avenue, and bicycle racks are provided inside the paid area of the BART station on the concourse level. Additionally, a Bay Wheels bikeshare dock is be provided at Balboa Park Station, as well as dock-less bike share services.

Despite the number of local and regional destinations near the study area, bicycle activity was observed to be fairly small with 11 cyclists counted during the morning peak hour and only one during the evening peak hour.

Transit

The San Francisco Municipal Railway (Muni) operates both bus and light rail transit services in the vicinity of Geneva Avenue/San Jose Avenue, which are discussed in the following sections and shown on Figure 3.

Figure 3 – Muni Service

Muni – Bus Operations

Balboa Park Station is one of the heaviest utilized transit facilities in San Francisco. The area is served by five regular service Muni bus routes, two commute period routes, one weekday only route and additional overnight service. Daily service is provided by the 8 Bayshore, 43 Masonic, and 54 Felton. Weekday commute period service is provided by the 8BX Bayshore B Express and 88 BART Shuttle. The 28R 19th Avenue Rapid runs on weekdays and overnight service is provided by the 91 Owl. Additionally, the 29 Sunset and 49 Van Ness/Mission travel a block away on Ocean Avenue but is part of the general Balboa Park Station area transit service.

Muni – Rail Operations

The intersection is flanked by two Muni Light Rail Vehicle (LRV) operations yards: Curtis M. Green Light Rail Center on the northwest corner of the intersection and the Cameron Beach Yard on the southeast corner of the intersection. Three light rail lines serve the Geneva Avenue/San Jose Avenue intersection area with the J-Church and K-Ingleside terminating at Green Yard, and the M-Ocean View terminating at Cameron Beach Yard.

J Church and K Ingleside serve stops within the Green Yard. The last outbound (drop-off only) stop is located at a recently constructed platform located adjacent to the station's Ocean Avenue entrance. And the first inbound (pick-up only) stop is located at the edge of Green Yard, using tracks located within the yard running parallel to San Jose Avenue.

The M Ocean View loops through the Cameron Beach Yard to transition between inbound and outbound directions. The last drop-off for outbound services occurs on northbound San Jose Avenue, north of Niagara Avenue. At this location there is no dedicated boarding facility is provided, instead the train is pulled part-way into the yard entrance, blocking traffic in the right lane from passing. Passengers exit the train and have been observed to commonly cross mid-block to reach the western sidewalk, as shown in Figure 4.

Figure 4 – Passengers cross San Jose Avenue after off-boarding from an outbound M Line Train.

In the opposite direction, the M Line picks-up inbound passengers on a boarding island on southbound San Jose Avenue, just south of Geneva Avenue. The current boarding island does not connect to the crosswalk and there is a pointed path on the ground that directs intending customers to the crosswalk; however, during observations, it has been observed that most people cross mid-block between the sidewalk and the boarding island. Furthermore, the boarding island is sufficient length only to accommodate a one-car train, while many trains

operating on the M-Line are two-car trains. The existing boarding island configuration is shown in Figure 5.

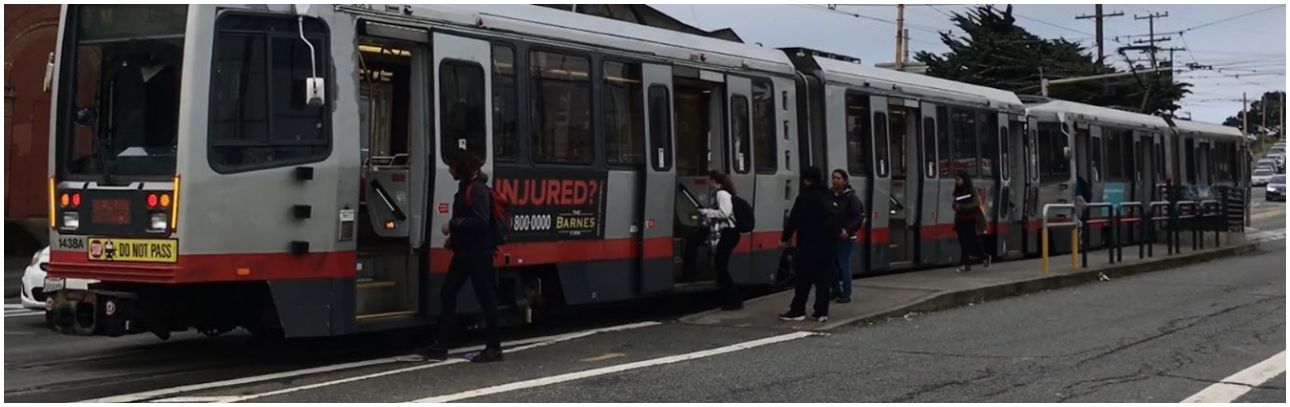


Figure 5 - Passengers board an inbound M Line train.

As trains travel along curved track, the swing, or dynamic envelope, of the train extends beyond the tangent path of the train. This poses a constraint since where this occurs; it is not possible to install raised elements (such as boarding island) and often buffer/clearance zones are painted on the pavement.

Non-Revenue Service

Due to its proximity to the two Muni light rail operations yards, the study area also serves many non-revenue (non-passenger) movements. These generally include the movement of trains between the yards for maintenance and storage purposes but can also include positioning trains that do not directly serve the Geneva/San Jose area (such as trains on other lines entering/exiting the yard at the beginning or end of service).

Pull-in/Pull-Out Tracks

There are additional tracks to facilitate turns in/out of the adjacent rail facilities. While not all the pull-in/pull-out tracks are used on a regular basis, they are important to Muni operations for both maintenance movements and for providing redundancy if another route is inaccessible.

Accessibility

All Muni buses are equipped with either ramps or lifts to allow access for wheelchair users. Light rail vehicles are high-floor and require use of high-level boarding for wheelchair users, or persons with other mobility limitations. High-level boarding platforms were recently built for the J and K lines, which allow-for step-free access on/off the trains.

The M Line utilizes two different facilities for accessible boarding:

- Inbound trains utilize a mechanical lift at the end of the boarding island. This lift has been known to experience mechanical breakdowns at times which limits its reliability.
- Outbound trains utilize a boarding ramp located north of Geneva Avenue, near Seneca Avenue. After completing the drop-off, the train must proceed north then turn left on Ocean Avenue, where there is a cross-over track that allows it to switch back to the other direction of travel and it returns to Cameron Beach Yard before starting the next run of service. This configuration results in an inconvenience to customers who need to

use the ramp since it requires them to travel past the primary boarding area. Additionally, this movement increases the operating time on the route, which then impacts on-time performance and therefore impact other customers waiting to ride the train.

BART

The Bay Area Rapid Transit District (BART) operates regional, inter-city rail service throughout the San Francisco Bay Area. The Balboa Park Station is located along Geneva Avenue at San Jose Avenue and the southernmost station in San Francisco. In total, four BART lines serve the Balboa Park Station, which is a transfer point for those traveling to San Francisco International Airport.

Shuttles

Several independent shuttle routes pick up and drop off passengers at the Balboa Park Station area, utilizing the BART drop-off loop. There are no designated on-street shuttle zones in the project area.

Paratransit

San Francisco Paratransit is a van and taxi program for people unable to independently use public transit because of a disability or disabling health condition. This service is provided by the SFMTA. Paratransit vehicles may need to pick-up or drop-off passengers at multiple locations within the study area.

Vehicle Circulation

Geneva Avenue and San Jose Avenue are both regional corridors that serve southeast San Francisco and continue into adjacent cities

Geneva Avenue

Geneva Avenue travels east-west and generally has two lanes in each direction, plus additional turn lanes at some intersections. The street terminates to the west of the study area into the intersection of Geneva Avenue/Ocean Avenue/Frida Kahlo Way (formerly Phelan Avenue). To the east, Geneva Avenue continues through both commercial and primarily residential areas before continuing into Daly City and Brisbane and ultimately terminating at Bayshore Boulevard. Additionally, it serves as access to the Cow Palace event center.

Due to the hilly topography adjacent to Geneva Avenue, it is the only primary east-west corridor in the region. Generally, other east-west streets are narrow, non-continuous residential streets.

San Jose Avenue

San Jose Avenue travels north-south and generally has two lanes in each direction. Muni Light Rail tracks travel along San Jose Avenue between 30th Street and Broad Street. These tracks are located in both mixed-flow lanes as well as exclusive right-of-way; however, within the project area, the train travels in mixed-flow lanes. San Jose Avenue continues south into Daly City where it merges with Mission Street. To the north, San Jose Avenue becomes Guerrero

Avenue which terminates at Market Street. Parallel major corridors include Alemany Boulevard and Mission Street.

Vehicle Traffic

Traffic volume data was collected in October 2017 measured a total volume of 2,565 vehicles during the AM peak hour and 2,383 vehicles during the PM peak hour. During both the AM and PM peak hours, Eastbound Geneva Avenue carries the highest traffic volumes. Peak hour count summaries are shown in the Figure 6. Full data is provided in Enclosure A.

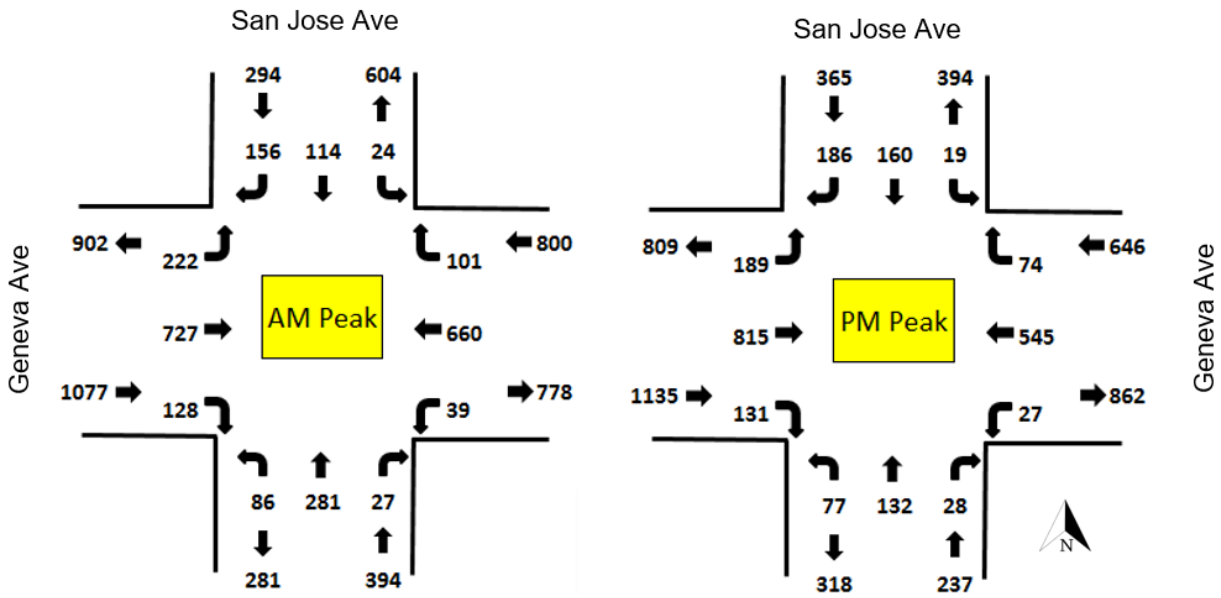


Figure 6 – Morning and evening peak hour traffic volume data, obtained in October 2017.

Safety

Collisions

Every year, about 30 people are killed and 200 more are seriously injured in San Francisco traffic crashes. In 2014, the City and County of San Francisco adopted Vision Zero policy, committing to build better and safer streets, educate the public on traffic safety, enforce traffic laws, and adopt policy changes that save lives. The goal is to eliminate traffic fatalities by 2024. Through a data-driven process, the High Injury Network has been developed, which represents approximately 30 percent of the streets where 70 percent of injury and fatal collisions occur. In the study area, both Geneva Avenue and San Jose Avenue have been identified as part of High Injury Network.

During a five-year period (2012-2016), there were 54 reported collisions within the overall study area, resulting in one fatality and numerous injuries, based on records maintained by the San Francisco Police Department. This excludes collisions involving a transit vehicle, which are discussed in the next section.

The details of all collisions have been reviewed to determine the following trends:

- The intersection of Geneva Avenue/San Jose Avenue experienced the most collisions, followed by Geneva Avenue/I-280 Northbound Ramps.

- Eleven of the collisions involved pedestrians and 4 collisions involved bicyclists.
- The majority, 68 percent, of collisions resulted in injuries.
- One fatal collision occurred Geneva Avenue/I-280 Northbound Ramp in 2012.

Transit Collisions

Transit collisions are discussed separately since the SFMTA collects reports on all transit involved collisions, regardless of severity. Whereas, private vehicle collisions with no injuries and low property damage tend to be less likely to be reported to the police. As such, transit collisions may appear to be more common than other collisions, but this is generally a result of more detailed reporting.

During the same five-year reporting period, there were 16 transit-involved collisions, of which two resulted in injuries and none resulted in fatalities. The most common transit-involved collision occurred within bus zones, where a passing vehicle collided with a stopped bus. Most collisions involved another vehicle; however, one collision involved a pedestrian.

Previous Analysis

The Balboa Park Station Area has been the subject of numerous planning studies over the past decade. These studies, which are summarized below, were reviewed and used as a starting point for the Intersection Study.

Balboa Park Station Area Plan – October 2008

This area plan finalized in October 2008 established the following objects and polices for transportation in the Balboa Park Station Area:

OBJECTIVE 2.1
EMPHASIZE TRANSIT IMPROVEMENTS THAT SUPPORT THE NEIGHBORHOOD.

POLICY 2.1.1
Redesign the Balboa Park BART Station as a regional transit hub that efficiently accommodates BART, light rail, buses, bicycles, pedestrians, taxis and automobile drop-off and pick-up.

POLICY 2.1.2
Reconfigure the City College Terminal[1] to encourage public transit use and strengthen the connection between transit and land use.

OBJECTIVE 2.2
RECONSTRUCT AND RECONFIGURE MAJOR STREETS IN THE PLAN AREA TO ENCOURAGE TRAVEL BY NON-AUTO MODES.

POLICY 2.2.1
Re-design Geneva Avenue as a new front door to the BART station.

POLICY 2.2.2
Re-design San Jose Avenue between Ocean and Geneva Avenues to better accommodate public transit while maintaining its character as a residential street.

POLICY 2.2.3

[1] Identified in the document as its former name “Phelan Bus Loop”.

Re-design Ocean Avenue as a transit and pedestrian boulevard.
POLICY 2.2.4
Re-design Frida Kahlo Way[2] in a manner befitting a campus-oriented street.

OBJECTIVE 2.3
RECONNECT THE NEIGHBORHOODS BISECTED BY THE INTERSTATE 280.
POLICY 2.3.1
Minimize the prominent physical barrier of Interstate 280.
OBJECTIVE 2.4
ENCOURAGE WALKING, BIKING, PUBLIC TRANSIT AS THE PRIMARY MEANS OF TRANSPORTATION.
POLICY 2.4.1
Main streets in the plan area should be civic spaces as well as movement corridors.
POLICY 2.4.2
Improve and expand bicycle connections throughout the plan area.
POLICY 2.4.3
Improve travel time, transit reliability, and comfort level on all modes of public transportation.

The Area Plan identifies recommended modifications to both Geneva Avenue and San Jose Avenue in the project area. Recently completed construction on Geneva Avenue greatly redesigned the street as identified in Policy 2.2.1 and the study examines if more modifications are recommended. For San Jose Avenue, the Area Plan identifies a policy to redesign the street between Ocean Avenue and Geneva Avenue to better accommodate transit. Some identified improvements have been completed such as the J/K Line Boarding Area.

Balboa Park Station Pedestrian and Bicycle Connection Report – October 2009

The *Balboa Park Station Pedestrian and Bicycle Connection Report* identified possible modifications to Muni Light Rail boarding facilities on San Jose Avenue by moving them to north of Geneva Avenue coupled with transit only lanes. This would result in a large change to both Muni operations as well as general traffic circulation. The Geneva Avenue/San Jose Avenue Intersection Study will further examine the feasibility of this concept and identify additional concept designs.

Additionally, the *Balboa Park Station Pedestrian and Bicycle Connection Report* made recommendations on pedestrian elements such as bulb-outs, lane configurations and pedestrian walkways. The Geneva Avenue/San Jose Avenue Intersection study further considers all of these options. Upgrades to ADA accessible curb ramps was also included in the Report, which would be included with any potential modifications.

Balboa Park Station Capacity and Conceptual Engineering Study – Oct. 2012

The *Balboa Park Station Capacity and Conceptual Engineering Study* identified three conceptual alternatives for modifying M Line boarding:

[2] Identified in the document as its former name “Phelan Avenue”.

- Option A. Center Platform on San Jose Avenue north of Geneva Avenue
- Option B. Farside Platforms on San Jose Avenue at Geneva Avenue
- Option C. Alighting Platform on San Jose Avenue south of Niagara Avenue

The feasibility of these options will be reviewed as part of the Geneva Avenue/San Jose Avenue Intersection Study; however, Option C has already been determined infeasible due to the dynamic envelope of the train when using the adjacent cross-over track.

Other recommendation in the *Balboa Park Station Capacity and Conceptual Engineering Study* include reconfiguration of Geneva Avenue, in front of Balboa Park Station, which was largely accomplished by recent construction.

The recommendations presented in this study have been the subject of two follow-up reports where feasibility was further evaluated:

- Balboa Park Station Area "Fast Track" Improvements – April 2013
- Balboa Park Station Area and Plaza Improvements – November 2013

Balboa Park Circulation Study – April 2014

The *Balboa Park Circulation Study* evaluated multimodal transportation circulation in the Balboa Park Station Area, including items such as freeway access, passenger loading areas and transit access.

Ocean and Geneva Corridor Design Plan – March 2015

The *Ocean and Geneva Corridor Design Plan* is a framework for public realm improvements along the Ocean Avenue corridor and a portion of Geneva Avenue. While this plan does not directly overlap with the Geneva Avenue/San Jose Avenue Intersection Study area, many of the streetscape design elements identified in the *Ocean and Geneva Corridor Design Plan* would be considered for improvements in adjacent areas for consistency purposes.

Balboa Park Station Modernization Kiss-and-Ride Study – March 2017

Currently there is a Patron/Passenger Drop-off Loop located on BART property at the Balboa Park Station (sometimes also referred to as "Kiss and Ride" or "BART Access Road"). Many of the above referenced studies have assumed that there would be future modifications to this Loop but have not yet resulted in modifications. In parallel with the adjacent Upper Yard Development and BART Station Modernization, BART completed the *Balboa Park Station Modernization Kiss-and-Ride Study.* The future of this Patron/Passenger Drop-off Loop is part of the coordination elements of the Geneva Avenue/San Jose Avenue Intersection Study, and the SFMTA will work in coordination with BART on the future of this loop.

Coordination

One of the goals of the Geneva Avenue/San Jose Avenue Intersection Study is to coordinate with the nearby projects currently underway, which are shown on Figure 7.

Figure 7 – Adjacent Projects

Upper Yard

The Upper Yard (shown in teal in Figure 7) is a former Muni rail yard on the southwest corner of the intersection that has not been used for rail in nearly a decade. Until recently, the site had served as parking for employees of the adjacent Muni facilities. As part of a ground-lease agreement between the SFMTA, BART and the Mayor's Office of Housing and Community Development (MOHCD), the site is slated to be redeveloped as an affordable housing complex, with community and/or service uses on the ground floor.

BART Plaza and Drop-off Lane

Currently there is a two-lane pick-up/drop-off loop, sometimes referred to as a "Kiss & Ride", provided on the southwest corner of the intersection, between the Upper Yard Site and the BART station entrance. In parallel with the Upper Yard Development, BART is in the process of planning for reconfiguration of the drop-off loop as well as adjacent plaza area. It is anticipated that as part of this effort, the drop-off loop would be reconfigured as a cul-de-sac loop

entering/existing at the San Jose Avenue/Niagara Avenue intersection, with no direct vehicular access to Geneva Avenue.

Geneva Car Barn and Powerhouse

The Geneva Car Barn and Powerhouse was built in 1901 and served as a rail depot. Damaged in the 1989 Loma Prieta earthquake, the building has largely been unused in recent years. The building is now owned by San Francisco Recreation and Parks Department which is in the process of restoring it for community use.

I-280 Ramp Study

The San Francisco County Transportation Authority (SFCTA) has been evaluating possible changes to the configuration of freeway on/off-ramps adjacent to Balboa Park Station. The SFCTA is in the process of redesigning the southbound I-280 Off-Ramp at Ocean Avenue to signalize the ramp movement and better separate pedestrian movements from vehicles exiting the freeway.

Study Approach

The goal of the Study is to identify potentially feasible safety and access improvements in the vicinity of Balboa Park Station. The area around Geneva Avenue/San Jose Avenue is highly constrained due to the presence of Muni LRV tracks and adjacent land uses. Because of these constraints, the following was assumed throughout the Study process.

Physical Characteristics

- The existing roadway width cannot be widened.
- Sidewalk widths should not be reduced, and where possible, sidewalks should be widened.

Pedestrian Access

- All pedestrian crossings and other facilities cannot be closed.

Transit & Rail Movements

- Tracks cannot be relocated or rerouted. In some situations, it may be possible to adjust an existing alignment (for example moved wider apart).
- All pull-in/pull-out tracks need to remain in place regardless of use frequency. While some tracks are rarely used, they serve important maintenance or redundancy purposes.
- Modifications would support the City's Transit First Policy.

The study initially focused on the Geneva Avenue/San Jose Avenue intersection; however, as the project progressed, it was determined that there are few opportunities for changes to the intersection without major system modification, with one exception, the M Line facilities on San Jose Avenue, south of Geneva Avenue. Because of that, the focus of the study shifted to the M Line facilities since it has high needs and possible modifications, which could benefit the Geneva/San Jose intersection by moving a major source of pedestrian activity away from the intersection and into an alternative route.

Intersection Design

The Geneva Avenue/San Jose Avenue intersection traffic signal is one of the more complicated signals in the City serving multiple LRV train movements as well as heavy pedestrian, bus and private vehicle traffic. Based on a review of the intersection, many of the possible enhancements to the intersection have already been completed, and any further enhancements would require major reconfiguration and associated impacts.

Pedestrian Separation

Through the outreach process and other community engagement, a common request has been to separate pedestrian movements from vehicle movements, and possibly allow diagonal crossing, commonly referred to as a "pedestrian scramble". Under a pedestrian scramble, pedestrians would be given a walk signal only when there are no conflicting vehicle movements. These pedestrian scrambles are often most appropriate at compact intersections, with relatively short crossing distances and minimal traffic movements (such as intersections of one-way streets, or where turns are prohibited). Within San Francisco, pedestrian scrambles

are most commonly implemented in areas like the Financial District where intersections fit these characteristics.

The Geneva Avenue/San Jose Avenue intersection does not fit the characteristics that would be commonly associated with a pedestrian scramble, especially when considering the LRV movements through the intersection. As such, a pedestrian scramble is not recommended for the following reasons:

- Since all pedestrian crossing have a corresponding conflicting turn movement, in a scramble, pedestrians would not cross concurrently with traffic movements, many pedestrians would experience an increased waiting time to cross the street. When pedestrian wait times increase, pedestrians become more likely to choose to cross against the signal, negating the safety benefit of separated signal phasing, and possibly introducing new safety concerns.
- Introduction of a pedestrian only phase would result in a large increase in the overall traffic signal cycle length, which needs to be balanced against associated impacts to transit operations. The increase in signal cycle length would result in delays to transit at a critical location that serves multiple high-frequency and high-ridership lines. Furthermore, general traffic experiences heavy congestion in the area and the introduction of a pedestrian only phase would increase that congestion, which in turn would increase delays to Muni. In addition, the adjacent signals are timed to be coordinated along the Geneva corridor and introducing a pedestrian only phase would reduce the coordination, further increasing transit delay and congestion.

A hybrid alternative could be considered where pedestrians can cross concurrent with parallel vehicles movements as well as during a pedestrian only phase. This would pose many of the same tradeoffs of a the solely pedestrian only phase, while not having the benefits of fully separating movements.

Turning Movements

Additionally, through the outreach process there were requests to further separate turn movements from the pedestrian movements. These were evaluated and the recommendations for each turn is described below.

Geneva Left Turns

Currently the eastbound left turn is served by a protected left turn arrow, which is also the heaviest left turn movement at the intersection. The westbound movement is considerably lower, serving about one-fifth of the volume of the eastbound movement. Providing a westbound left-turn arrow would require stopping the eastbound through movement, which would increase delay to Muni.

San Jose Avenue Left Turns

The left turn movements from San Jose Avenue are currently served in a shared left-turn/through lane, which also is the track lane, which limits opportunities to separate left turn movements here. Two options where considered to separate the left-turn movements from the pedestrian movements:

- Prohibiting left turns would eliminate any interaction between left-turning vehicles and pedestrians. However, this would require re-routing drivers who currently make this

turn. San Jose Avenue is a residential throughway route serving as a primary through route for adjacent neighborhoods. Due to the inconsistent grid network, there are no direct connections to adjacent north-south aligned throughway streets that could serve as an alternative route. As such, a left-turn prohibition would result in drivers traveling on smaller residential streets which are less appropriate for regional traffic and could pose other safety considerations on those neighborhood streets. This is particularly prominent for the higher volume northbound left turn, which may be impacted by changes in traffic patterns with the planned modifications to the BART Drop-off Loop.

- Split phasing, where only one direction goes at a time, and the pedestrian movements are separated from the conflicting left-turn movements would also eliminate any interaction between left-turning vehicles and pedestrians. However, this would also result in added delay to an already congested location, impacting transit vehicles, pedestrians and all other users. Further, split phasing would increase pedestrian waiting time, which needs to be balanced against the risk that pedestrians may choose to cross against the signal.

Southbound Right Turn

The southbound right turn from San Jose Avenue onto westbound Geneva Avenue is the highest right-turn movement at the intersection, crossing the two highest pedestrian crossings. Because of the heavy pedestrian crossing on the western leg of the intersection, drivers have few adequate gaps to complete the right turn during the green signal during peak periods. Drivers are also prohibited from turning on red, even if there is a gap in both pedestrian crossings and traffic.

Since the southbound right turn movement would complement the eastbound left turn movement (which is already served by a protected green signal arrow), it may be possible to install an overlapping southbound right turn green arrow phase. This would be dependent on the traffic signal being able to accommodate the additional equipment and would require that the right lane be restricted to right turns only.

If pursued, steps would need to be taken to make sure that this change does not cause unintended consequences, especially to safety. As such, the right turn arrow should be followed by a red signal internal and not go directly to the pedestrian crossing interval. This would help avoid a situation where a driver assumes they have right-of-way, but instead the signal had shifted to pedestrian crossing.

M Line Terminal

Through the study the primary focus shifted to center on the M Line boarding facilities, on San Jose Avenue, just south of Geneva Avenue. This is because the boarding facilities were identified as having the greatest potential for enhancements without requiring major modifications to rail track.

As discussed in the Existing Conditions section, currently there is no boarding island provided for the outbound M Line off-boarding, instead the train is pulled part-way into the yard entrance, blocking traffic in the right lane from passing. Passengers exit the train and have been observed to commonly cross mid-block to reach the western sidewalk. In the opposite

direction, the M-Line picks-up inbound passengers on a boarding island on southbound San Jose Avenue, just south of Geneva Avenue. Due to the swing of trains leaving the Cameron Beach Yard, the current boarding island does not connect to the crosswalk. There is a painted path on the ground that directs intending customers to the crosswalk; however, during observations, it has been observed that most people cross mid-block between the sidewalk and the boarding island. Furthermore, the boarding island is sufficient length only to accommodate a one-car train, while many trains operating on the M-Line are two-car trains.

Alternatives Considered but Not Pursued

Utilize Green Yard

Currently the J Church and K Ingleside lines have their first and last stops within the Green Muni Yard, adjacent to Balboa Park Station. Several years ago, the SFMTA rebuilt the boarding and off-boarding facilities within Green Yard to provide level boarding. Through the outreach, it has been suggested that the M Line be routed to utilize these boarding facilities as well to create a consolidated Muni facility. This is not recommended for the following reasons:

- There is limited capacity within the Green Yard to process trains at the end of the line and adding the M Line would pose capacity challenges.
- The inbound boarding facilities are oriented for trains continuing to travel northbound. Since the M Line travels southbound, the facilities would need to be reconfigured to accommodate southbound departing trans.
- Rerouting the line into Green Yard would both inconvenience riders by increasing the travel time due to traveling past the existing stop south of Geneva on San Jose to Ocean Avenue, then left into the Green Yard revenue loop where the boarding area is. This would result in approximately one-half mile of total additional travel, plus requires traveling through the congested Geneva Avenue/San Jose Avenue intersection twice, requiring additional resources on the route to maintain current frequencies.

Utilize Cameron Beach Yard

Another alternative considered was to build boarding facilities within the Cameron Beach Yard, where the M Line train currently turns around at the end of a run. However, due to limited space within the yard, a suitable location was not identified. Unlike the Green Yard, the configuration of Cameron Beach Yard would limit the ability to separate the public from an active rail yard, which would increase the possibility for unintentional intrusions and associated safety concerns.

It was also considered building just high-level accessible boarding ramp in the Cameron Beach Yard to serve customers with disabilities. While this is less space intensive than a full boarding facility, a suitable location could still not be identified. Furthermore, having a portion of the boarding facility within the Cameron Beach Yard would restrict future route flexibility by requiring that all trains travel through the yard.

On San Jose Avenue

Prior studies have identified a possibility creating layover space and associated boarding platforms on San Jose Avenue either north or south of Geneva Avenue. Either of these locations would require reconfiguration/reconstruction of track, reduce train access to/from

yards and possibly impact access to private property. Due to these impacts, concepts to create layover space and platforms on San Jose Avenue was not pursued further in this study.

Recommended Alternative

The M Line terminal could be relocated to center at the San Jose Avenue/Niagara Avenue by installing large transit bulb-outs at the corners to provide a direct connection between the train and the sidewalk. These are shown on Figure 8.

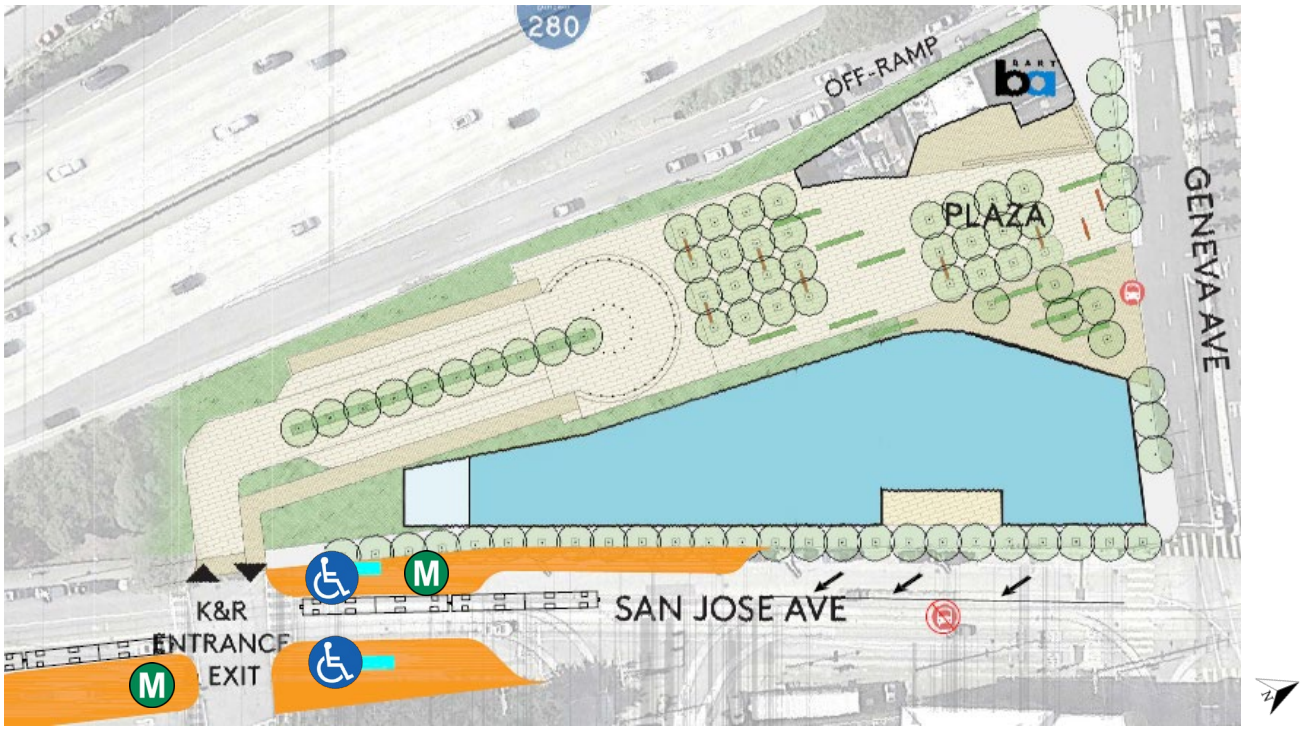


Figure 8 – Recommended Alternative, incorporating future BART Plaza, drop off loop and Upper Yard development

Off-Boarding (Last Outbound Stop)

The proposed outbound stop would be served by a bulb-out on San Jose Avenue, just south of Niagara Avenue, with an accessible boarding ramp located on another bulb-out to the north of Niagara Avenue. Due to the swing of the train caused by track curvature, the bulb-out would not extend the full length of a two-car train. However, there would be no travel lane to the right of the train, removing the conflict between alighting passengers and passing vehicles.

Currently, it is common for alighting passengers to cross the street mid-block. This design would connect the boarding area with a crosswalk at a stop-sign controlled intersection and would therefore encourage pedestrians to use the crosswalk instead of a mid-block location.

Boarding (First Inbound Stop)

The proposed inbound stop would be served by a bulb-out on San Jose Avenue, just north of Niagara Avenue, coupled with an accessible boarding ramp. The proposal would bring the sidewalk to the train by building a large bulb south of Niagara Avenue. Due to track constraints, the sidewalk would not be able to connect to the second car of the train, but the design would remove traffic from passing along the side of the train, which enhances the

boarding safety. This would be an improvement over existing conditions where there is no direct connection between the sidewalk and the transit boarding island. While passengers would be able to access the second train car without passing a travel lane, , providing direct sidewalk boarding to the front car would likely result in most people utilizing that sidewalk to board the front car.

Pedestrian Access & Transit Transfers

This would also benefit the overall pedestrian environment by moving pedestrians away from the congested and constrained Geneva Avenue/San Jose Avenue intersection.

However, as a tradeoff, this design would require some pedestrians to walk about 200 feet further than they do currently to transfer between the M Line and BART or other transit routes along Geneva Avenue. However, the slightly longer walk would be complemented by the proposed upgraded BART Drop-off Loop and Plaza, which would provide an enhanced walking path between these points that is provided today and is flatter than walking along Geneva Avenue.

Accessibility

The design would provide accessible boarding ramps in both directions, improving reliability and operational impacts. Serving the outbound accessible boarding ramp would require that the train momentarily blocks Niagara Avenue, which would impact any drivers traveling to/from Niagara Avenue. This would only occur when serving the accessible boarding ramp, and not during general boarding times. Furthermore, this would need to be reviewed and approved by the San Francisco Fire Department to consider if this occasional blockage would adversely affect emergency response.

Other Considerations

This would require the removal of one lane of traffic in each direction, which would result in requiring following vehicles to wait behind the train and would have secondary benefits of reducing traffic speeds. Additionally, this would impact approximately 12 to 15 parking spaces, the final number would be determined during design. These large bulb-outs would also provide opportunity areas for landscaping, art or other placemaking elements.

Sidewalk Improvements

Sidewalk is currently discontinuous on the south side of San Jose Avenue between Niagara Avenue and Geneva Avenue, including in front of the Car Barn/Powerhouse and the Cameron Beach Yard Rail Entrance, with some parts consisting of asphalt. The sidewalk in front of the Car Barn/Powerhouse property is being replaced as part of that construction. As plans continue to develop for the M Line terminal and associated work, consideration should be given to replacing sidewalk adjacent to the Cameron Beach Yard Rail Entrance. Through that process, opportunities should be identified to enhance the area around the rail entrance.

Outreach

Throughout the process, the SFMTA has engaged with community members to discuss how they travel through the intersection, and what they would like to see different. This included:

- Kick-off Meeting – At the beginning of the project, a kick-off meeting was held where community members were asked to comment about how they would like to see changes to the intersection.
- Combined Outreach – Overlapping with this study, both BART and Upper Yard held outreach meetings for their projects in the area. Whenever feasible, SFMTA joined these meetings to talk to community members about the Geneva/San Jose Intersection Study and potential modifications. This allowed for an opportunity to discuss the intersection as part of the greater conversation of changes occurring in the vicinity.
- MAAC – The concepts were presented to the SFMTA's Multimodal Accessibility Advisory Committee (SFMTA) to discuss the benefits and tradeoffs
- On-Site Pop-Up – SFMTA staff hosted on-site pop-up meetings at the current M Line stop on San Jose Avenue, both in the morning and evening to engage with riders and discuss the conceptual proposal and associated tradeoffs. A photo from one of the meetings is shown in Figure 9.

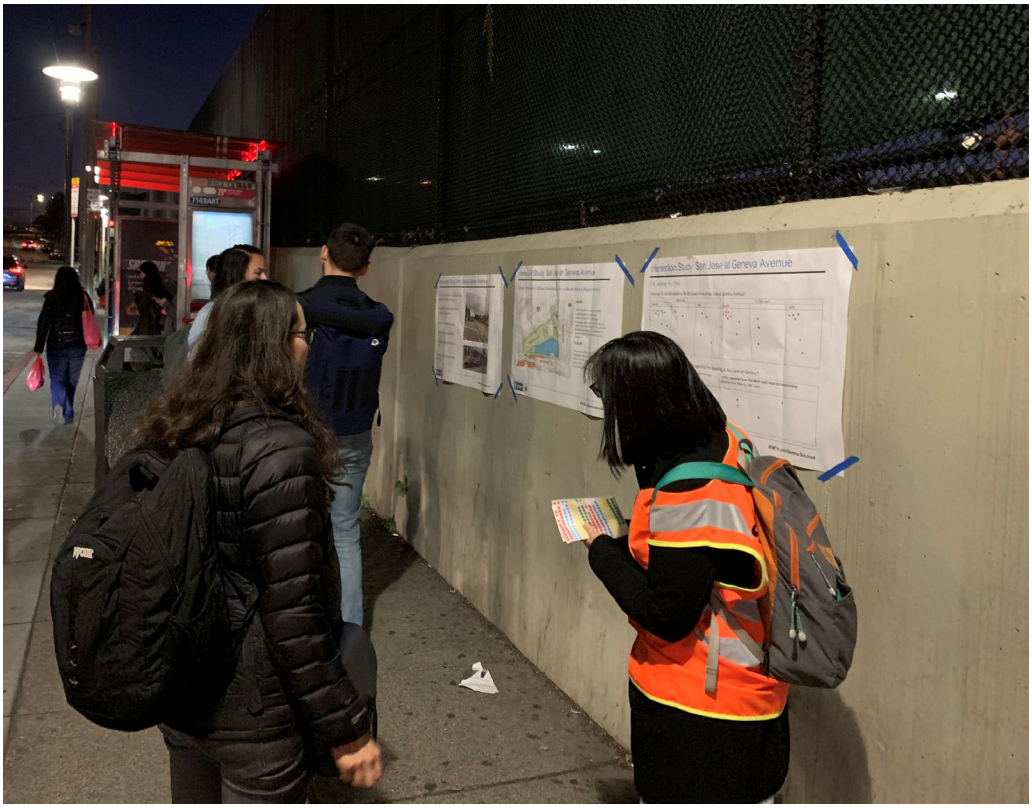


Figure 9 – On-site pop-up meeting

In general, stakeholders concurred with there being a need to enhance pedestrian and boarding facilities in this area; however, some were concerned that it would increase the distance to connect between Muni and BART lines.

Since there is more work necessary to fully develop this conceptual design, it is likely that there will be modifications throughout the process. As such, community engagement would continue

throughout the remaining process as options and tradeoffs can be discussed. This could culminate with presenting any proposed changes to the SFMTA Board of Directors for approval consideration.

Next Steps

Acceptance of this report is the final step of the NTIP-funded planning study but is not the final step of implementing improvements to this to the Geneva Avenue/San Jose Avenue area. While a conceptual feasibility analysis was completed as part of this study, additional engineering feasibility analysis needs to be completed, including formal review by other agencies such as the San Francisco Fire Department and the California Public Utilities Commission (rail oversight agency) as well as environmental impact assessment. Furthermore, improvements are not fully funded at this time, but the SFMTA is pursuing funding to continue developing and eventually implementing modifications to the M Line terminal.

Quick-Build

In February 2020 the SFMTA Board of Directors approved the Transit Quick-Build Program, focusing on reducing needless delay to transit riders and enhancing passenger boarding facilities using proven, fast-to-implement solutions. These are typically solutions that can be implemented with paint, signage and other low-cost measures that can be implemented through City forces without major construction. This legislation allows for a streamlined approval process following a community engagement process for pre-approved corridors and hot spots, with the goal of starting outreach on all identified corridors within two years. The M Oceanview line between Junipero Serra Boulevard and Geneva Avenue was identified as one of those corridors, which includes the M Line terminal. Though that process, the SFMTA will evaluate opportunities to implement the M Line terminal boarding modifications through the Quick-Build program while work continues on the long-term design and construction for the permanent facilities.

Enclosure A

Traffic and Pedestrian Volume Data

LOCATION: San Jose Ave & Geneva Ave

CITY/STATE: San Francisco, CA

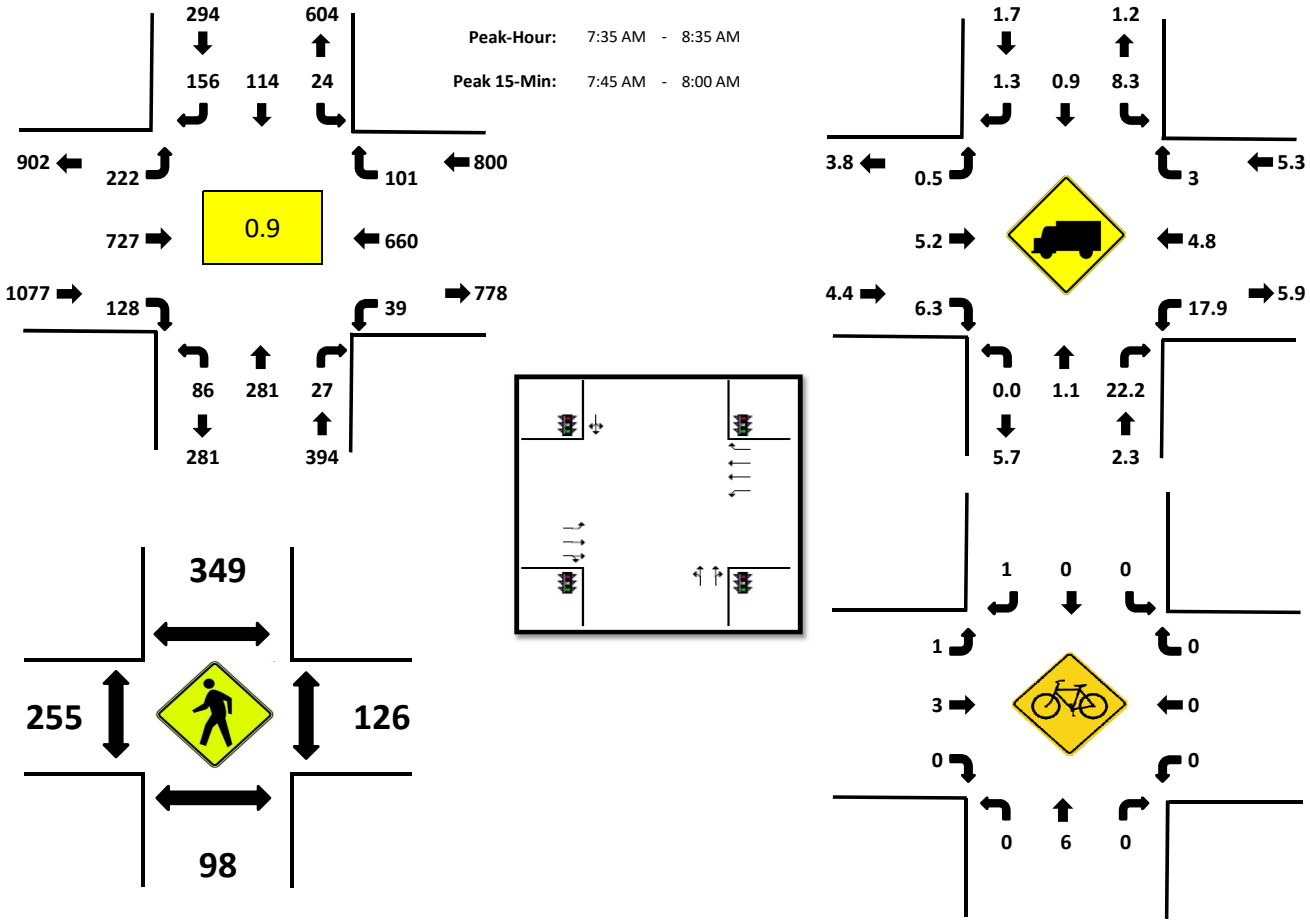
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

QC JOB #: 144812102

DATE: 10/17/2017

Peak-Hour: 7:35 AM - 8:35 AM

Peak 15-Min: 7:45 AM - 8:00 AM



Count Period	San Jose Ave Northbound				San Jose Ave Southbound				Geneva Ave Eastbound				Geneva Ave Westbound				Total	Hourly Totals
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U		
7:00 AM	11	8	2	0	0	4	10	0	6	36	6	1	1	53	4	0	142	
7:05 AM	6	16	0	0	2	3	9	0	17	28	5	0	0	34	5	0	125	
7:10 AM	10	15	2	0	3	4	15	0	16	53	7	0	2	60	7	0	194	
7:15 AM	16	16	3	0	2	2	10	0	20	40	8	0	1	34	12	0	164	
7:20 AM	11	15	3	0	1	4	15	0	9	30	8	0	5	71	3	0	175	
7:25 AM	5	29	1	0	2	8	15	0	26	51	10	0	3	35	6	0	191	
7:30 AM	8	16	3	0	1	12	10	0	22	43	8	0	2	60	5	0	190	
7:35 AM	8	25	1	0	0	7	10	0	14	54	15	0	1	63	6	0	204	
7:40 AM	13	30	1	0	3	8	14	0	19	56	12	0	1	40	6	0	203	
7:45 AM	8	27	0	0	3	11	10	0	8	60	6	0	4	82	7	0	226	
7:50 AM	9	23	1	0	2	7	3	0	16	63	15	0	4	67	10	0	220	
7:55 AM	5	26	6	0	6	14	17	0	20	84	17	0	3	59	8	0	265	2299
8:00 AM	7	23	4	0	0	11	21	0	23	54	11	0	3	44	6	0	207	2364
8:05 AM	4	24	1	0	2	11	15	0	18	57	10	0	8	39	16	0	205	2444
8:10 AM	2	5	1	0	1	7	8	0	18	57	9	0	3	55	10	0	176	2426
8:15 AM	10	38	3	0	1	13	21	0	24	52	10	0	2	58	8	0	240	2502
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8:35 AM	11	19	3	0	7	7	13	0	19	47	12	0	2	42	5	0	187	2548
8:40 AM	4	16	1	0	6	8	11	0	17	62	9	0	1	38	9	0	182	2527
8:45 AM	4	12	2	0	4	7	8	0	18	39	8	1	8	67	8	0	186	2487
8:50 AM	8	25	2	0	1	11	20	0	27	62	6	0	1	50	7	0	220	2487
8:55 AM	9	16	3	0	1	10	18	0	21	62	7	0	2	63	11	0	223	2445

Peak 15-Min Flowrates	NB				SB				EB				WB				Total
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
All Vehicles	88	304	28	0	44	128	120	0	176	828	152	0	44	832	100	0	2844
Heavies	0	0	4		8	0	0		0	36	8		8	36	8		108
Peds		136				436				268				132			
Bikes	0	0	0		0	0	0		0	0	0		0	0	0		

LOCATION: San Jose Ave & Geneva Ave

CITY/STATE: San Francisco, CA

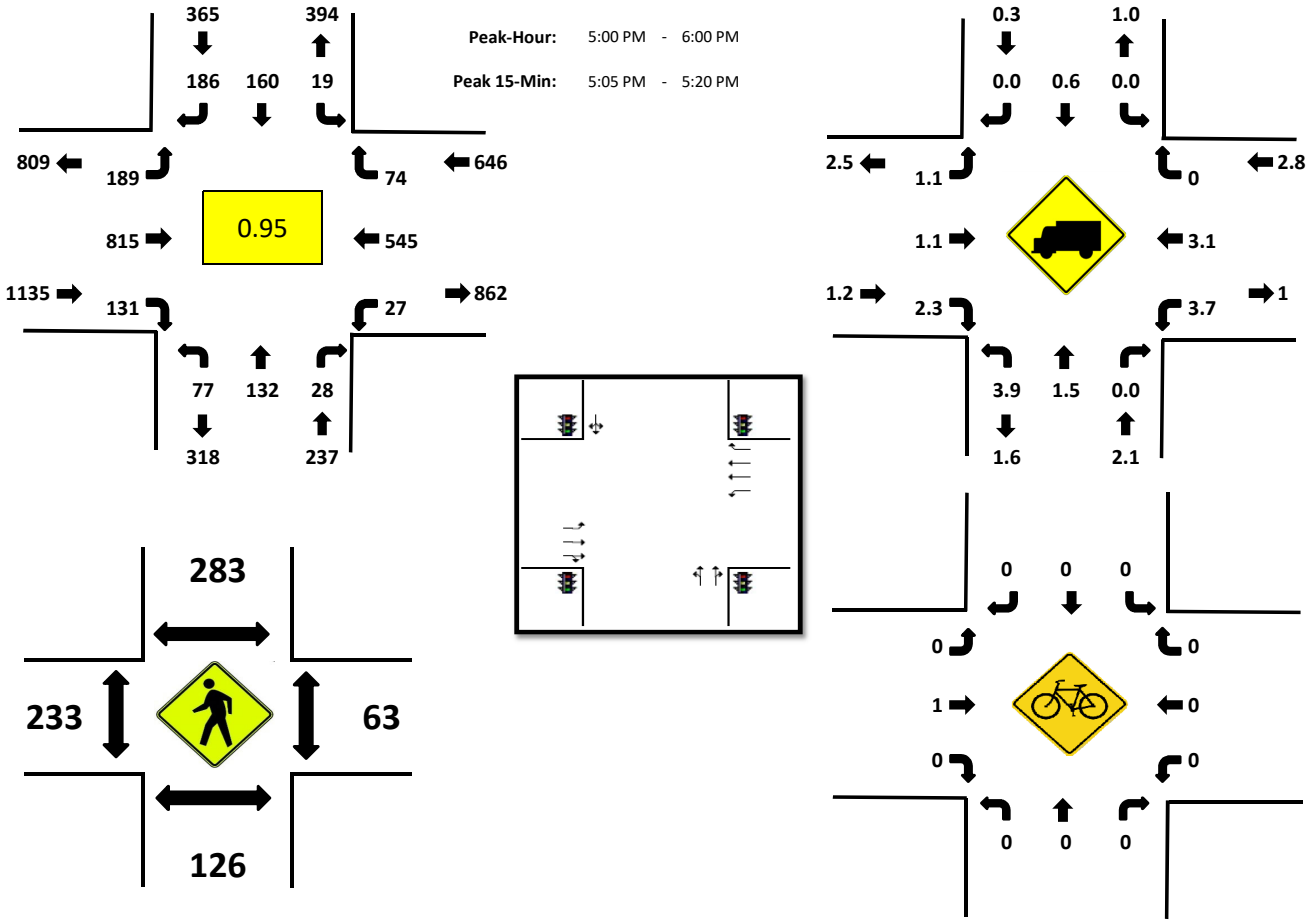
Quality Counts
TRANSPORTATION DATA COLLECTION SERVICES

QC JOB #: 144812103

DATE: 10/17/2017

Peak-Hour: 5:00 PM - 6:00 PM

Peak 15-Min: 5:05 PM - 5:20 PM



Count Period	San Jose Ave Northbound				San Jose Ave Southbound				Geneva Ave Eastbound				Geneva Ave Westbound				Total	Hourly Totals
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U		
4:00 PM	1	10	2	0	2	2	8	0	14	68	10	0	1	35	3	0	156	
4:05 PM	11	7	0	0	4	12	19	0	12	77	10	0	2	39	3	0	196	
4:10 PM	2	5	2	0	1	11	8	0	13	71	5	0	3	57	4	0	182	
4:15 PM	8	4	2	0	3	8	16	0	9	47	5	0	2	54	4	0	162	
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5:00 PM	7	7	1	0	2	18	21	0	10	56	5	0	2	30	4	0	163	2251
5:05 PM	8	13	2	0	0	7	13	0	12	90	11	1	0	70	2	0	229	2284
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5:35 PM	4	8	1	0	1	17	18	0	17	51	11	0	3	43	10	0	184	2338
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5:50 PM	6	12	1	0	4	14	21	0	17	60	11	0	5	40	5	0	196	2347
5:55 PM	10	7	6	0	4	14	13	0	21	82	13	0	3	45	10	0	228	2383

Peak 15-Min Flowrates	NB				SB				EB				WB				Total
	L	T	R	U	L	T	R	U	L	T	R	U	L	T	R	U	
All Vehicles	88	148	32	0	4	164	168	0	172	920	132	4	12	580	72	0	2496
Heavies	4	8	0		0	0	0		0	12	4		0	8	0		36
Peds		104				384				312				24			
Bikes	0	0	0		0	0	0		0	0	0		0	0	0		

Quality Counts
TRANSPORTATION DATA
COLLECTION SERVICES

Location: San Jose Ave & Niagara Ave
Date: 10/17/2017
Site Code: 144812104

	San Jose Ave Southbound						Niagara Ave Westbound						San Jose Ave FR Northwestbound						San Jose Ave Northbound						Niagara Ave Eastbound						Parking Lot Southeastbound					
Start Time	Right to Parking Lot	Right	Thru	Left to FR	Left	U-Turns	Right	Right to Parking Lot	Thru	Left	Left to FR	U-Turns	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	U-Turns	Right to FR	Right	Thru	Left to Parking Lot	Left	U-Turns	Right	Right to FR	Thru	Left	Left to Parking Lot	U-Turns	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	U-Turns
07:00 AM	2	1	8	0	0	0	1	0	4	3	0	0	0	1	0	0	0	0	0	2	15	0	6	0	1	0	1	3	0	0	0	0	0	0	0	0
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Total	**16**	**31**	**394**	**0**	**35**	**1**	**57**	**4**	**92**	**319**	**0**	**0**	**4**	**43**	**0**	**14**	**36**	**0**	**0**	**200**	**549**	**2**	**155**	**3**	**72**	**0**	**19**	**64**	**4**	**0**	**0**	**1**	**0**	**0**	**1**	**0**

Peak Hour: 7:30 AM - 8:30 AM
Peak 15: 7:50 AM - 8:05 AM
PHF: 0.956113

Quality Counts
TRANSPORTATION DATA
COLLECTION SERVICES

Location: San Jose Ave & Niagara Ave
Date: 10/17/2017
Site Code: 144812105

	San Jose Ave Southbound						Niagara Ave Westbound						San Jose Ave FR Northwestbound						San Jose Ave Northbound						Niagara Ave Eastbound						Parking Lot Southeastbound					
Start Time	Right to Parking Lot	Right	Thru	Left to FR	Left	U-Turns	Right	Right to Parking Lot	Thru	Left	Left to FR	U-Turns	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	U-Turns	Right to FR	Right	Thru	Left to Parking Lot	Left	U-Turns	Right	Right to FR	Thru	Left	Left to Parking Lot	U-Turns	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	U-Turns
04:00 PM	1	0	12	0	3	0	0	0	3	6	0	0	0	1	0	1	0	0	0	7	11	0	2	0	3	0	2	0	0	0	0	0	0	1	0	0
04:05 PM	0	1	20	0	4	0	1	0	2	5	0	0	2	2	0	0	0	0	0	3	9	1	4	0	4	0	1	2	0	0	1	0	0	1	0	0
04:10 PM	1	0	15	0	2	0	1	0	0	6	0	0	1	1	0	0	0	0	0	4	9	0	1	0	0	0	0	2	0	0	0	0	0	0	0	0
04:15 PM	0	1	5	0	2	0	1	0	5	7	0	0	1	1	0	0	0	0	0	8	10	0	3	0	4	0	0	2	1	1	0	1	1	1	0	0
04:20 PM	0	0	10	0	3	0	1	0	2	6	0	0	2	3	0	1	0	0	0	7	17	0	3	0	3	0	2	0	0	0	0	0	0	0	0	0
04:25 PM	0	3	20	0	2	0	3	0	2	7	0	0	1	5	0	1	0	0	0	4	14	0	3	0	1	0	2	3	0	0	0	0	0	0	0	0
04:30 PM	1	0	13	0	3	0	1	0	5	7	0	0	2	2	0	0	1	0	0	9	8	0	1	0	2	0	0	0	0	0	0	0	0	0	0	0
04:35 PM	1	0	23	0	2	1	0	0	3	13	0	0	0	1	0	1	0	0	0	3	6	0	1	1	6	0	1	2	0	0	0	0	0	0	0	0
04:40 PM	0	2	14	0	2	1	1	0	1	9	0	0	0	1	0	0	1	0	0	3	15	0	2	0	5	0	0	0	0	0	0	1	0	0	0	0
04:45 PM	0	2	9	0	3	0	2	0	2	9	0	0	0	0	0	2	1	0	0	4	19	0	0	0	6	0	2	4	0	0	0	0	0	2	0	0
04:50 PM	0	0	20	0	4	0	1	0	6	8	0	0	1	1	0	2	0	0	0	4	8	0	3	0	5	0	0	0	0	0	0	0	0	0	0	0
04:55 PM	1	3	21	0	0	0	2	0	1	9	0	0	0	6	0	2	0	0	0	4	13	0	4	0	1	0	2	1	0	0	0	0	0	0	0	0
05:00 PM	1	2	24	0	4	0	2	0	2	3	0	0	1	5	0	0	0	0	0	3	14	0	4	0	5	0	0	3	2	0	1	0	0	0	0	0
05:05 PM	0	0	19	0	0	0	2	0	6	11	0	0	0	4	0	0	2	0	0	15	17	0	2	0	6	0	0	3	0	0	0	0	0	1	0	0
05:10 PM	0	3	13	0	0	0	1	0	2	7	0	0	0	3	0	0	1	0	0	7	13	0	2	0	11	0	1	4	0	0	0	1	0	2	0	0
05:15 PM	0	0	35	0	4	0	0	0	2	16	0	0	0	2	0	1	1	0	0	7	7	0	5	0	3	0	0	3	0	0	0	0	0	1	0	0
05:20 PM	0	2	19	0	1	0	2	0	3	11	0	0	0	0	0	0	2	0	0	7	14	0	3	0	8	0	1	1	0	0	0	1	0	0	0	0
05:25 PM	0	1	22	0	1	0	1	0	4	12	0	0	0	0	0	0	0	0	0	7	18	1	8	0	12	0	4	3	0	0	0	0	0	2	0	0
05:30 PM	0	2	24	0	2	1	2	0	2	9	0	0	0	1	0	0	0	0	0	11	18	0	9	0	9	0	0	2	0	0	0	1	0	1	0	0
05:35 PM	0	1	23	0	4	0	2	0	6	13	0	0	1	2	0	1	0	0	0	6	13	0	5	0	2	0	0	1	0	0	0	1	0	0	0	0
05:40 PM	0	2	24	0	1	1	2	0	5	11	0	0	1	1	0	1	1	0	0	7	14	0	2	0	6	0	1	6	0	1	0	2	0	0	0	0
05:45 PM	0	1	31	0	3	0	1	0	4	13	0	0	2	2	0	1	0	0	0	8	13	0	4	0	3	0	4	3	0	1	0	0	0	0	0	0
05:50 PM	0	1	27	0	1	0	3	0	3	6	0	0	0	0	0	0	0	0	0	5	18	0	4	0	5	0	2	3	0	0	0	1	0	0	0	0
05:55 PM	0	2	23	0	1	1	1	0	2	10	0	0	0	3	0	0	1	0	0	7	13	0	3	0	13	0	1	1	0	0	0	3	0	2	0	0
Total	**6**	**29**	**466**	**0**	**52**	**5**	**33**	**0**	**73**	**214**	**0**	**0**	**15**	**47**	**0**	**14**	**11**	**0**	**0**	**150**	**311**	**2**	**78**	**1**	**123**	**0**	**26**	**49**	**3**	**3**	**2**	**12**	**1**	**14**	**0**	**0**

Peak Hour: 5:00 PM - 6:00 PM
Peak 15: 5:25 PM - 5:40 PM
PHF: 0.938192

Quality Counts
TRANSPORTATION DATA
COLLECTION SERVICES

Location: San Jose Ave & Niagara Ave
Date: 10/17/2017
Site Code: 144812104

	San Jose Ave Southbound						Niagara Ave Westbound						San Jose Ave FR Northwestbound						San Jose Ave Northbound						Niagara Ave Eastbound						Parking Lot Southeastbound					
Start Time	Right to Parking Lot	Right	Thru	Left to FR	Left	Peds	Right	Right to Parking Lot	Thru	Left	Left to FR	Peds	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	Peds	Right to FR	Right	Thru	Left to Parking Lot	Left	Peds	Right	Right to FR	Thru	Left	Left to Parking Lot	Peds	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	Peds
07:00 AM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0
07:05 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	6	0	0	1	0	0	6	0	0	0	0	0	3	0	0	0	0	0	0
07:10 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	1	7	0	0	0	0	0	2	0	0	0	0	0	0
07:15 AM	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	8	0	0	0	0	0	6	0	0	0	0	0	2	0	0	0	0	0	0
07:20 AM	0	0	0	0	0	12	0	0	0	0	0	5	0	0	0	0	0	8	0	0	0	0	1	8	0	0	0	0	0	1	0	0	0	0	0	0
07:25 AM	0	0	0	0	0	3	0	0	0	1	0	1	0	0	0	0	0	12	0	0	0	0	0	12	0	0	0	0	0	3	0	0	0	0	0	0
07:30 AM	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	9	0	0	0	0	0	11	0	0	0	0	0	2	0	0	0	0	0	0
07:35 AM	0	0	0	0	0	8	0	0	0	0	0	1	0	0	0	0	0	5	0	0	0	0	0	8	0	0	0	0	0	3	0	0	0	0	0	6
07:40 AM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	7	0	0	2	0	0	6	0	0	0	0	0	5	0	0	0	0	0	0
07:45 AM	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	16	0	0	0	0	0	17	0	0	0	0	0	10	0	0	0	0	0	3
07:50 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	19	0	0	0	0	0	19	1	0	0	0	0	3	0	0	0	0	0	1
07:55 AM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	11	0	0	0	0	0	3	0	0	0	0	0	0
08:00 AM	0	0	0	0	0	3	0	0	0	0	0	1	0	0	0	0	0	12	0	0	0	0	0	13	0	0	0	0	0	6	0	0	0	0	0	0
08:05 AM	0	0	0	0	0	11	0	0	0	0	0	4	0	0	0	0	0	11	0	0	0	0	0	14	0	0	0	0	0	4	0	0	0	0	0	8
08:10 AM	0	0	0	0	0	3	0	0	0	0	0	4	0	0	0	0	0	14	0	0	0	0	2	19	0	0	0	0	0	3	0	0	0	0	0	2
08:15 AM	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	9	0	0	0	0	1	9	0	0	0	0	0	3	0	0	0	0	0	1
08:20 AM	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	10	0	0	1	0	0	10	0	0	0	0	0	1	0	0	0	0	0	0
08:25 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	1	11	0	0	0	0	0	6	0	0	0	0	0	0
08:30 AM	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	10	0	0	0	0	1	12	0	0	0	0	0	6	0	0	0	0	0	0
08:35 AM	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	5	0	0	0	0	0	6	0	0	0	0	0	2	0	0	0	0	0	0
08:40 AM	0	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	0	15	0	0	0	0	0	2	0	0	0	0	0	5
08:45 AM	0	0	1	0	0	7	0	0	0	0	0	3	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	5	0	0	0	0	0	0
08:50 AM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	4	0	0	0	0	0	3	0	0	0	0	0	2
08:55 AM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	6	0	0	0	0	0	2	0	0	0	0	0	0
Total	**0**	**0**	**2**	**0**	**0**	**87**	**1**	**0**	**0**	**1**	**0**	**35**	**0**	**0**	**0**	**0**	**0**	**222**	**0**	**0**	**4**	**0**	**7**	**242**	**1**	**0**	**0**	**0**	**0**	**80**	**0**	**0**	**0**	**0**	**0**	**28**

Quality Counts
TRANSPORTATION DATA
COLLECTION SERVICES

Location: San Jose Ave & Niagara Ave
Date: 10/17/2017
Site Code: 144812105

	San Jose Ave Southbound						Niagara Ave Westbound						San Jose Ave FR Northwestbound						San Jose Ave Northbound						Niagara Ave Eastbound						Parking Lot Southeastbound					
Start Time	Right to Parking Lot	Right	Thru	Left to FR	Left	Peds	Right	Right to Parking Lot	Thru	Left	Left to FR	Peds	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	Peds	Right to FR	Right	Thru	Left to Parking Lot	Left	Peds	Right	Right to FR	Thru	Left	Left to Parking Lot	Peds	Right to Niagara Ave	Right to San Jose Ave	Thru	Left to Niagara Ave	Left to San Jose Ave	Peds
04:00 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	8	0	0	1	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0
04:05 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	3	0	0	0	0	0	2	0	0	0	0	0	2
04:10 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	6	0	0	0	0	0	6
04:15 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	8	0	0	0	0	0	8	0	0	0	0	0	0	0	0	0	0	0	0
04:20 PM	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	6	0	0	0	0	1	6	0	0	0	0	0	0	0	0	0	0	0	0
04:25 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	2	0	0	0	0	0	2
04:30 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	1	10	0	0	0	0	0	3	0	0	0	0	0	3
04:35 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	0	0	0	0	0	7	0	0	0	0	0	3	0	0	0	0	0	3
04:40 PM	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	6	0	0	1	0	0	6	0	0	1	0	0	7	0	0	0	0	0	7
04:45 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	7	0	0	0	0	0	7	0	0	0	0	0	1	0	0	0	0	0	1
04:50 PM	0	0	0	0	0	1	0	0	0	0	0	3	0	0	0	0	0	4	0	0	1	0	0	4	0	0	0	0	0	3	0	0	0	0	0	3
04:55 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	11	0	0	0	0	0	11	0	0	0	0	0	1	0	0	0	0	0	1
05:00 PM	0	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	12	0	0	0	0	0	3	0	0	0	0	0	3
05:05 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	0	0	0	0	0	10	0	0	0	0	0	0	0	0	0	0	0	0
05:10 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	9	0	0	0	0	0	9	0	0	0	0	0	1	0	0	0	0	0	1
05:15 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	11	1	0	0	0	0	1	0	0	0	0	0	1
05:20 PM	0	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	12	0	0	0	0	0	12	0	0	0	0	0	5	0	0	0	0	0	5
05:25 PM	0	0	1	0	0	1	0	0	0	0	0	1	0	0	0	0	0	12	0	0	0	0	0	12	0	0	0	0	0	3	0	0	0	0	0	3
05:30 PM	0	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	0	4	0	0	0	0	0	3	0	0	0	0	0	3
05:35 PM	0	0	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	2	0	0	0	0	0	2
05:40 PM	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	0	15	0	0	0	0	0	0	0	0	0	0	0	0
05:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	11	0	0	0	0	0	4	0	0	0	0	0	4
05:50 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	0	0	0	0	0	11	0	0	0	0	0	0	0	0	0	0	0	0
05:55 PM	0	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	0	21	0	0	0	0	0	21	0	0	0	0	0	4	0	0	0	0	0	4
Total	**0**	**0**	**3**	**0**	**0**	**32**	**0**	**0**	**0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**0**	**210**	**0**	**0**	**3**	**0**	**2**	**210**	**1**	**0**	**1**	**0**	**0**	**54**	**0**	**0**	**0**	**0**	**0**	**54**