

Technical Memorandum

# VTA Blossom Hill TOD Access Study

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Phase 2 Technical Memorandum



Prepared for Santa Clara Valley Transportation Authority (VTA)  
by IBI Group  
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# 1 Introduction

## 1.1 Study Background

The Santa Clara Valley Transportation Authority (VTA) initiated this Transit Oriented Development (TOD) Station Access Study to analyze multimodal station access and circulation at the Blossom Hill Light Rail Station. The analysis was conducted in two phases in coordination with a proposed residential mixed-use joint development project located south of Highway 85 and north of Blossom Hill Road on a portion of the park-and-ride site. Phase 1 of this Station Access Study evaluated current and future needs and conditions. Following submission of the Signature Project Application by the developer to the City of San José in March 2020, Phase 2 expands the off-site analysis and also assesses parking, bicycling, walking, and station facility needs. This memorandum is the deliverable for Phase 2 of the work scope.

## 1.2 Purpose of Report

The findings of this memorandum identify multi-modal access opportunities based on the updated joint development project concepts submitted as part of the Signature Project application. As a follow-up to Phase 1, Phase 2 also includes more in-depth analysis of potential on and off-site station access improvements, with conceptual-level cost estimates prepared for both on-site and off-site improvements.

This Phase 2 Technical Memorandum consists of eight primary sections: Section 2 Existing Data Review; Section 3 Mode of Access; Section 4 Walk Audits; Section 5 Analysis of Access Patterns and Issues; Section 6 Future Conditions and Needs Assessment; Section 7 Proposed Access Recommendations; Section 8 TDM Strategies; and Section 9 Cost Estimation.

The key objectives of the Phase 2 memo are to study existing conditions in regards to ridership, mode of access, and bike and pedestrian trips to Blossom Hill Station, and analyze future conditions and needs, to inform the following:

- Proposed access improvements for pedestrian, bike, and bus access to the station
- Improved transit demand management strategies
- Cost estimates for on-site and off-site proposed access recommendations

## 2 Existing Data Review

Blossom Hill Station is a light rail station located southeast of Downtown San José and Tamien Station on the VTA Blue Line, formerly the Alum Rock-Santa Teresa Light Rail Line. This section provides an overview of VTA transit serving the Blossom Hill Station, including route schedules and boardings, reflecting VTA’s New Transit Service Plan which launched in December 2019.

### 2.1 Station Layout and Transit Connections

The light rail platform is located in the median of Highway 85 at Blossom Hill Road. Blossom Hill Station is also served by VTA Bus Route 27 and is defined as a core bus stop located in the VTA service area. The Blossom Hill station platform can be accessed on either side of the underpass of Highway 85 via the VTA park-and-ride lot south of the freeway and north of Blossom Hill Road or Velasco Drive, located north of the freeway. For visitors who arrive at the station by car, the station has one parking lot owned by VTA, located south of Highway 85, accessed via Blossom Hill Road. The park-and-ride lot contains 481 parking spaces.

Bus Route 27 serves communities to the south of Downtown San José from Winchester Station to Kaiser San José. Blossom Hill Station is the second to last timepoint on the eastbound Route, with additional stops before the bus route ends at the Kaiser San José stop. Blossom Hill Station is classified as a “core” bus stop by the Transit Passenger Environment Plan based on its number of daily boardings. A more detailed interpretation of the conditions which are required by this categorization are defined in Table 7.3.

The Blue Line serves communities to the south and to the east of Downtown San José. Blossom Hill Station is located four stops south of the Convention Center, the closest Downtown transfer station, and three stops north of the Santa Teresa Station at the southernmost end of the line.

The following two tables summarize the boardings and alightings for both Route 27 and the Blue Line.

**Table 2.1: Existing VTA Bus Routes**

Bus Route	Direction	Schedule	Weekday	Weekend	Boardings	Alightings
Good Sam Hosp - Kaiser San José (27)	Eastbound	Hours of Operation	6:13 am - 10:09 pm	7:20 am - 8:36 pm	25	44
		Peak Headway	30	40		
		Average Headway	33	45		
	Westbound	Hours of Operation	5:46 am - 8:43 pm	7:36 am - 8:52 pm	40	28
		Peak Headway	30	40		
		Average Headway	32	44		
<b>Total</b>					65	72

Source: VTA weekday ridership data, February 2020 (Pre COVID-19 Data)

Table 2.1 summarizes the hours of operation, peak headway, average headway, and total boardings and alightings for Bus Route 27. Peak headway for both the eastbound and westbound Bus Routes was approximately 30 minutes on weekdays, while the average headway for both Routes was between 32-33 minutes for weekdays. Total boardings for both the eastbound and westbound buses was 65 passengers on an average weekday, while the total alightings was 72 passengers.

**Table 2.2: Existing VTA Light Rail Lines**

Light Rail Route	Direction	Schedule	Weekday	Weekend	Boardings	Alightings
Blue Line	North	Hours of Operation	4:16 am - 12:18 am	5:03 am - 12:19 am	246	33
		Peak Headway	14	20		
		Average Headway	17	26		
	South	Hours of Operation	5:23 am - 2:07 am	5:55 am - 1:06 am	28	209
		Peak Headway	15	20		
		Average Headway	18	22		
<b>Total</b>					<b>274</b>	<b>242</b>

Source: VTA weekday ridership data, February 2020 (Pre COVID-19 Data)

Table 2.2 summarizes the hours of operation, peak headway, average headway, and total boardings and alightings for the Blue Line extending from Santa Teresa toward Baypointe Station. Peak headway for both the Northbound and Southbound trains was between 14-15 minutes, while the average headway for both trains was between 17-18 minutes on weekdays. Total boardings onto the Blue Line was 274 passengers on an average weekday, while the total alightings was 242 passengers.

Due to the COVID-19 pandemic, VTA's bus and light rail service have changed considerably since March. Some routes were temporarily discontinued while other routes have had their frequency and service span reduced. While VTA works to restore some service in the coming months, true transit service recovery may take several years. Transit service in the near-term will start off leaner than pre-pandemic service levels in order to reflect the financial impact on VTA's transit budget as well as new travel patterns and potentially lower ridership brought on by COVID-19. In the scenarios VTA staff is currently considering, service reductions may include a combination of reduced frequency on its core (frequent) network, ending service earlier in the evenings on some routes, eliminating weekend service on other routes, and/or permanently discontinuing entire routes.

### 3 Data Collection: Mode of Access

IBI Group collected mode of access and station transfer data at Blossom Hill on two (2) weekdays, Thursday, January 30, 2020, and Thursday, February 6, 2020 between 6:00 AM and 9:00 AM, and 3:00 PM and 7:00 PM. The morning counts observed arrivals to the station, and the afternoon counts observed departures. Data was collected in 15 minute increments during each collection period. These dates were chosen to provide a representative study of the area on a typical weekday. No special events were occurring in the vicinity to increase or decrease activity at the Blossom Hill Station on these dates. At the time of data collection, VTA's New Transit Service Plan, which launched in December 2019, had been in place for two months. It is also important to note that this data was collected prior to the impacts of COVID-19.

The purpose of the mode of access data collection efforts is to understand how people are currently accessing the VTA Blossom Hill Station during typical peak weekday conditions. The following data were collected:

- Mode of Arrival: How people arrived at Blossom Hill Station in the morning
- Mode of Departure: How people departed Blossom Hill Station in the afternoon
- Mode of Transfer: What mode people are transferring to/from at Blossom Hill Station

Mode of Arrival and Mode of Departure data was collected at two locations, as shown in Figure 3.1.

- Zone 1: VTA Parking Lot
- Zone 2: Entrance on Velasco Dr.

Intercept surveys for Mode of Transfer data were conducted in two locations, also shown in Figure 3.1.

- Intercept 1: VTA bus stop
- Intercept 2: VTA light rail platform

The top modes of arrival and departure at each of the data collection zones within Blossom Hill Station are also shown in Figure 3.1. The mode splits are detailed further in Section 3.1. Access by car is most popular in Zone 1, while access by walking is most popular in Zone 2.

# Figure 3.1: Data Collection Locations

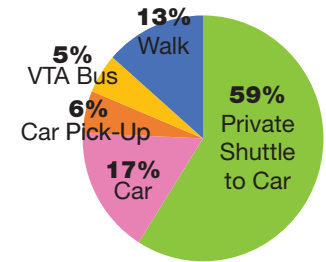
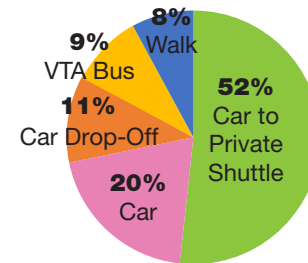


## Top Modes of Arrival

## Top Modes of Departure

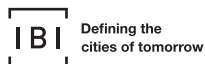
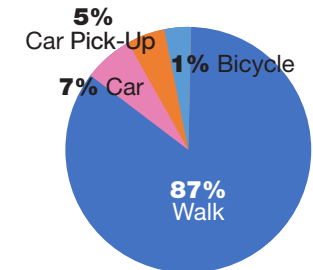
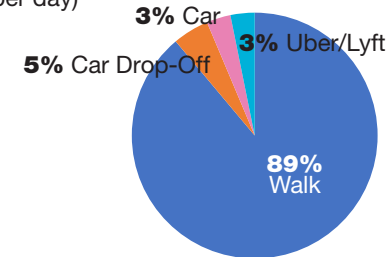
### Zone 1

(~515 passengers per day)



### Zone 2

(~70 passengers per day)





### 3.1 Mode of Arrival and Mode of Departure

Data were collected on whether people arrived or departed the station by the following modes:

- Bicycle
- Walking
- Car
- Car dropoff/pick-up
- Uber/Lyft
- Taxi
- Skateboard
- VTA bus
- Private shuttle (Apple shuttle, Facebook shuttle)

Surveyors observed the number of people arriving and departing the station by each mode. The mode of transit that each person took following arrival or before departing the station was not observed. However, during the on-site data collection effort, several private shuttles were also observed to be transporting people between the Blossom Hill Station park-and-ride lot and area employers, specifically to the Apple and Facebook campuses. For this reason, surveyors also recorded the number of people arriving to the station and transferring to a private shuttle rather than a form of VTA transit. During the morning data collection period, surveyors observed people arriving at Blossom Hill Station by car to then take the Apple and Facebook shuttles. During the afternoon period, surveyors observed people arriving to the station by Apple or Facebook shuttle and departing the station by car.

Table 3.1 demonstrates the number of arrivals and departures counted at Blossom Hill Station during collection.

**Table 3.1: Total Arrivals and Departures Counted**

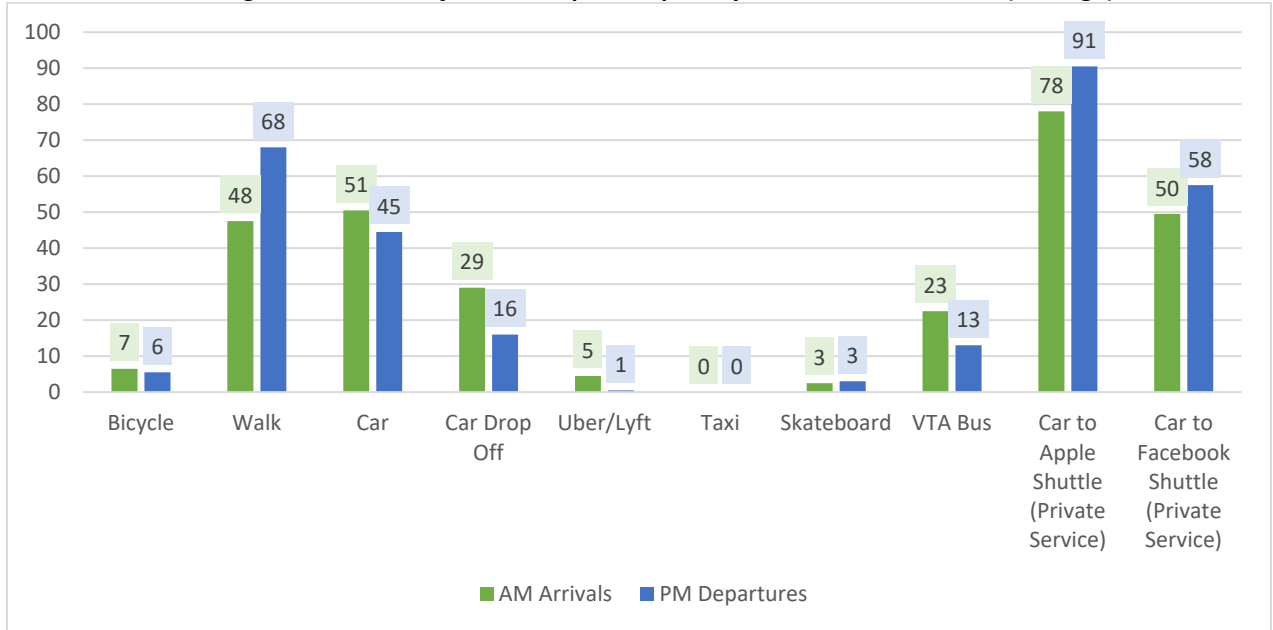
	JAN. 30	FEB. 6	COMBINED
<b>AM Arrivals</b>	304	277	581
<b>PM Departures</b>	300	297	597
<b>Total</b>	604	574	1,178

Overall, a total of 1,178 arrivals and departures were counted at Blossom Hill Station over the two data collection days. A total of 581 arrivals were counted during AM hours, and 597 departures were counted during PM hours.

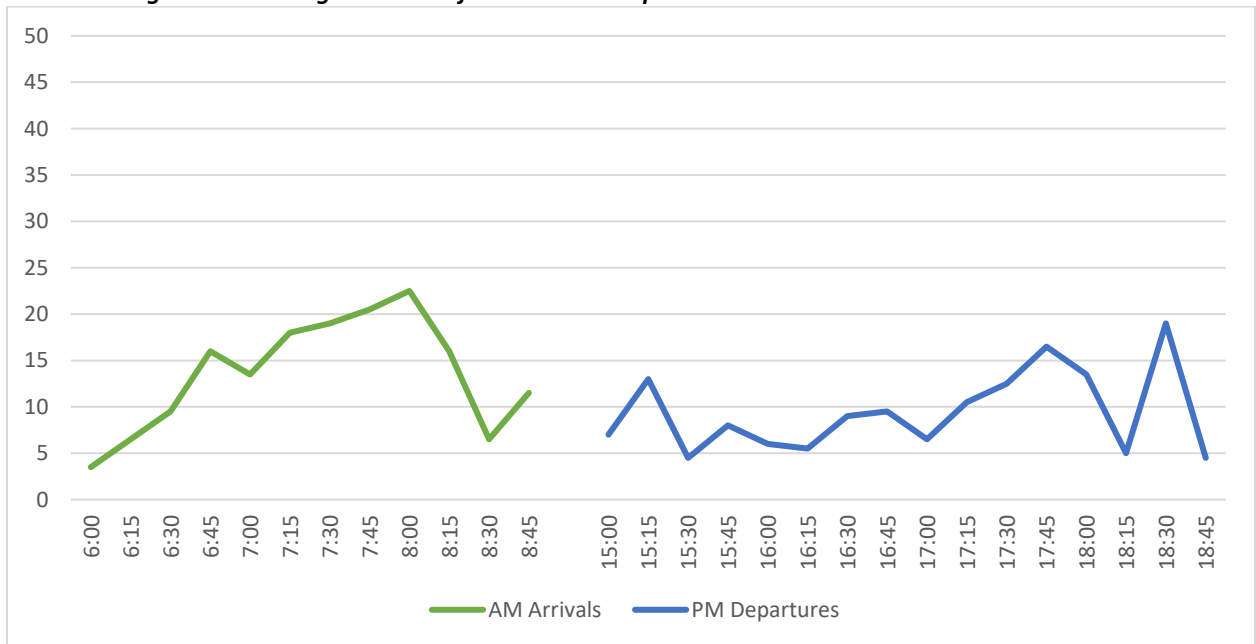
Figure 3.2 shows the average number of each mode of arrival/departure observed at Blossom Hill Station over the two data collection days, and Figures 3.3 and 3.4 show the average number of arrivals and

departures counted over time during both the AM collection hours and PM collection hours at Blossom Hill Station, organized by VTA transit users and private shuttle users, respectively.

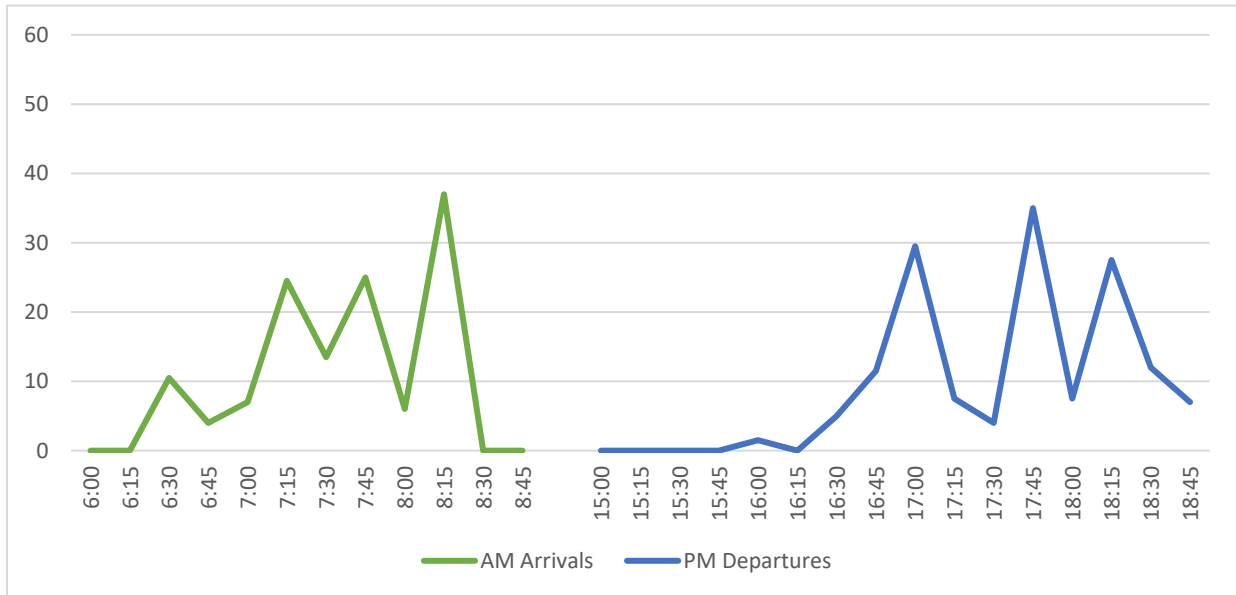
**Figure 3.2: Modes of Arrival/Departure per day at Blossom Hill Station (Average)**



**Figure 3.3: Average Number of Arrivals and Departures at Blossom Hill Station – VTA Transit Users**



**Figure 3.4: Average Number of Arrivals and Departures at Blossom Hill Station – Private Shuttle Users**



On an average day, during the AM collection hours, the most common mode of arrival was by car. A total of 179 people, on average, arrived to Blossom Hill Station by car. Out of those 179 arrivals, only 51 then transferred to a form of VTA transit. The other 128 people arrived to the station by car to take a private shuttle, either to the Apple (78), or Facebook (50) campuses. Of those passengers taking private shuttle, car was the only initial mode of arrival recorded. The next two most common modes to access VTA transit services were walking (48) and car drop-off (29). Note that car drop-offs were distinct from Uber/Lyft drop-offs.

Peaks in arrival of VTA transit users were observed at 8:00 AM and 7:45 AM. Arrival of private shuttle users peaked at 8:15 AM, followed by peaks at 7:15 AM and 7:45 AM.

During the PM collection hours on an average day, the observed mode share was similar to the morning, with a total of 194 people, on average, departing Blossom Hill Station by car. Twenty-three percent of departures by car had taken VTA transit, while the other 77 percent had arrived back to the station by private shuttle, before departing by car. Out of the 77 percent that arrived back to the station by private shuttle, 91 passengers arrived from Apple while 58 arrived from Facebook, before departing the station by car. This was followed by walking (68) and car pick-up (16), as the most popular mode share options. No trips departed the station by taxi.

Slight peaks in departure of VTA transit users were observed at 6:30 PM and 5:45 PM, while larger peaks in departure of private shuttle users were observed at 5:00 PM, 5:45 PM, and 6:15 PM.

As arrivals and departures were counted at two different collection zones, Table 3.2 presents the number of arrivals counted at each zone during both data collection dates.

**Table 3.2: Arrivals and Departures Counted at Each Zone**

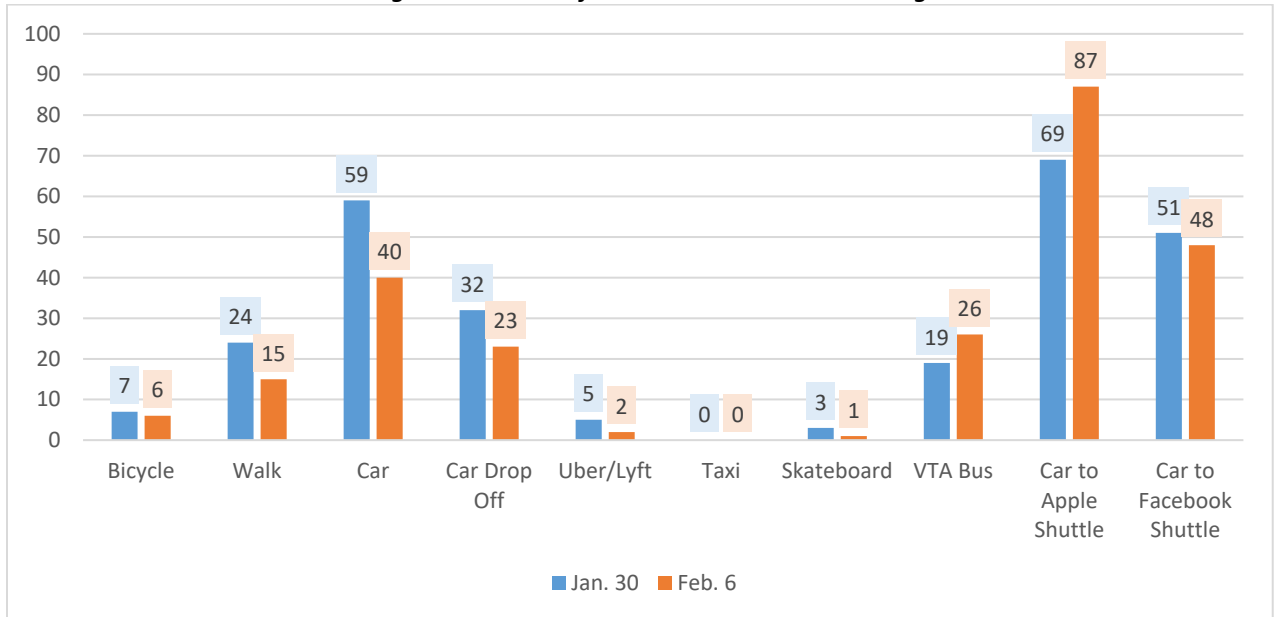
ZONE	DATE	AM ARRIVALS	PM DEPARTURES
Zone 1: VTA Parking Lot	30-Jan	269	261
	06-Feb	248	258
	Combined	517	519
Zone 2: Entrance on Velasco Dr.	30-Jan	35	39
	06-Feb	29	39
	Combined	64	78
Overall Total		581	597

Overall, the majority of both arrivals and departures at Blossom Hill Station occurred in Zone 1: Main Parking Lot, while less than 15 percent of arrivals and departures occurred in Zone 2 on both data collection days.

**3.1.1 Mode of Arrival by Zone**

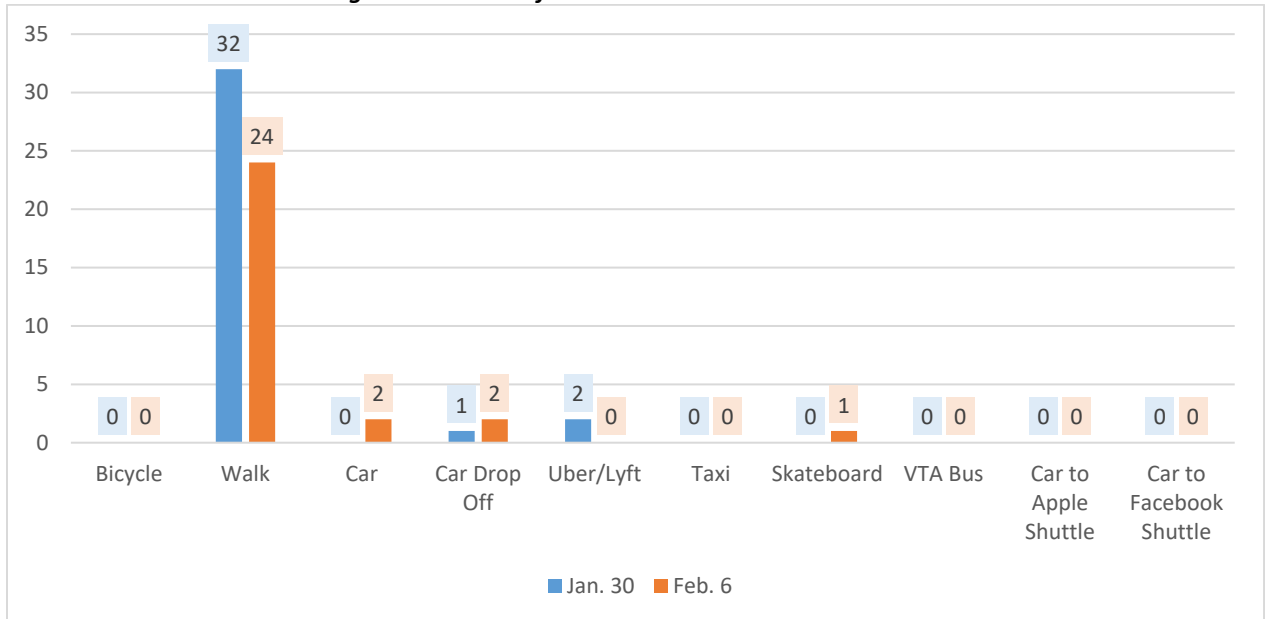
The following figures demonstrate how people accessed Blossom Hill Station on January 30, 2020 and February 6, 2020 at Zones 1 and 2 during the AM arrival collection hours, and the different times at which people accessed the station at Zones 1 and 2 during the AM arrival collection hours.

**Figure 3.5: Mode of Arrival at Zone 1: VTA Parking Lot**



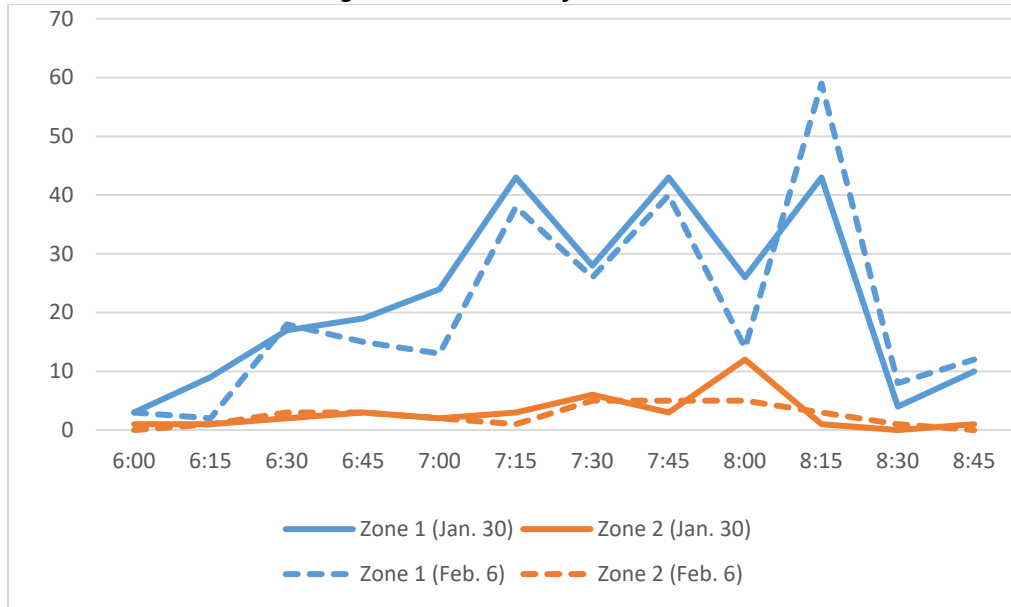
On both January 30 and February 6, the majority of arrivals to the station through the VTA parking lot arrived by car. The majority of arrivals by car then took a private shuttle, rather than VTA transit. On January 30, this was followed by accessing the station by car drop-off or walking. On February 6, this was followed by accessing the station by VTA bus or car drop-off. There were fewer arrivals by bicycle, Uber/Lyft, and skateboard. No arrivals by taxi were observed on either day.

**Figure 3.6: Mode of Arrival at Zone 2: Entrance on Velasco Dr.**



On both January 30 and February 6, almost all people arriving to station through the entrance on Velasco Drive arrived by walking. On January 30, 3 people arrived by Uber/Lyft or car drop-off. On February 6, 4 people arrived by personal car or car drop-off, meaning two people parked their vehicle on Velasco Drive before entering the station. One person arrived by skateboard. There were no other modes of arrival noted during the AM arrival collection hours at the entrance on Velasco Drive.

**Figure 3.7: AM Time of Arrival at Each Zone**



The number of total arrivals to the station was much higher via the VTA parking lot than via Velasco Drive on both data collection days. The number of arrivals through the VTA parking lot are relatively low until 7:00 AM, when arrivals begin to increase more sharply on both days. Arrivals peaked at 8:15 AM on both days, followed by a rapid decline for the rest of the morning. Secondary peaks in arrival occurred at 7:45 AM and 7:15 AM. These peaks correlate with arrival of northbound weekday Blue Line service at 8:18 AM, 7:48 AM, and 7:18 AM.<sup>1</sup>

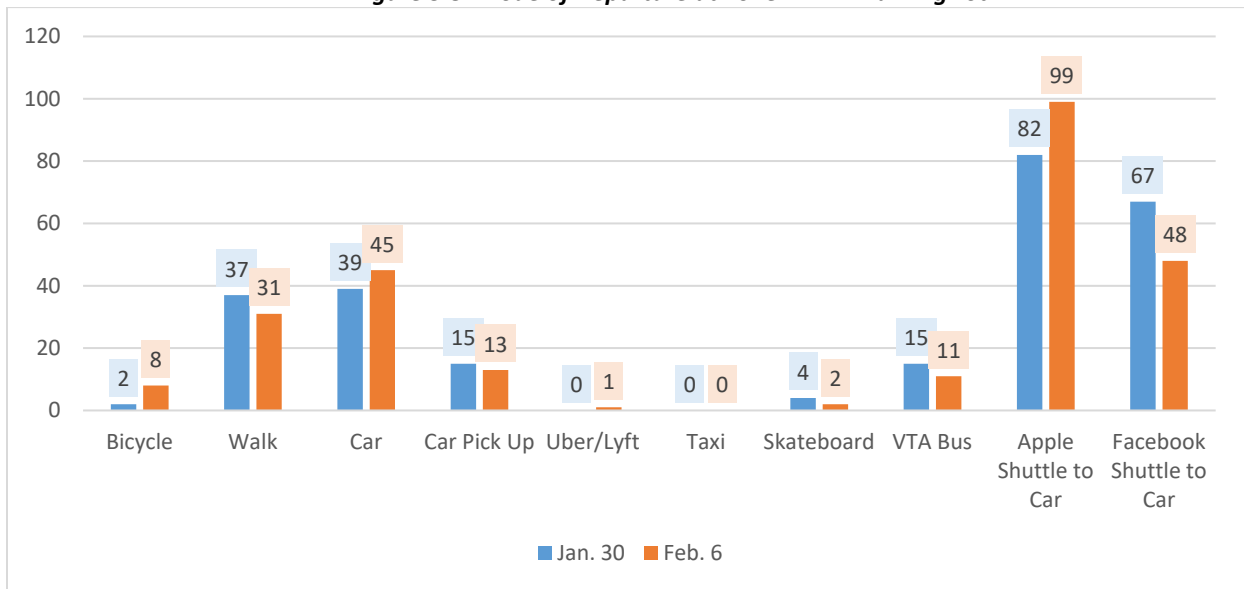
The number of arrivals through the entrance on Velasco Drive also remain relatively low until 7:00 AM, before seeing an increase at 7:30 AM, and peaking at 8:00 AM on both days. Peaks in arrival at Velasco Drive seem to occur during the intervals in which arrivals through the VTA parking lot seem to peak, and vice versa. This may be due to arrival in westbound Route 27 bus service at 8:13 AM and 7:43 AM, picking up passengers at these times, when there is a perceived dip in arrivals in Zone 2.

<sup>1</sup> Blue Line arrival times at Blossom Hill Station were estimated based on VTA Blue Line Route schedules, which specified a 4-minute headway between arrivals at Snell Station, one stop south of Blossom Hill Station, and Ohlone/Chynoweth Station, one stop north of Blossom Hill Station.

### 3.1.2 Mode of Departure by Zone

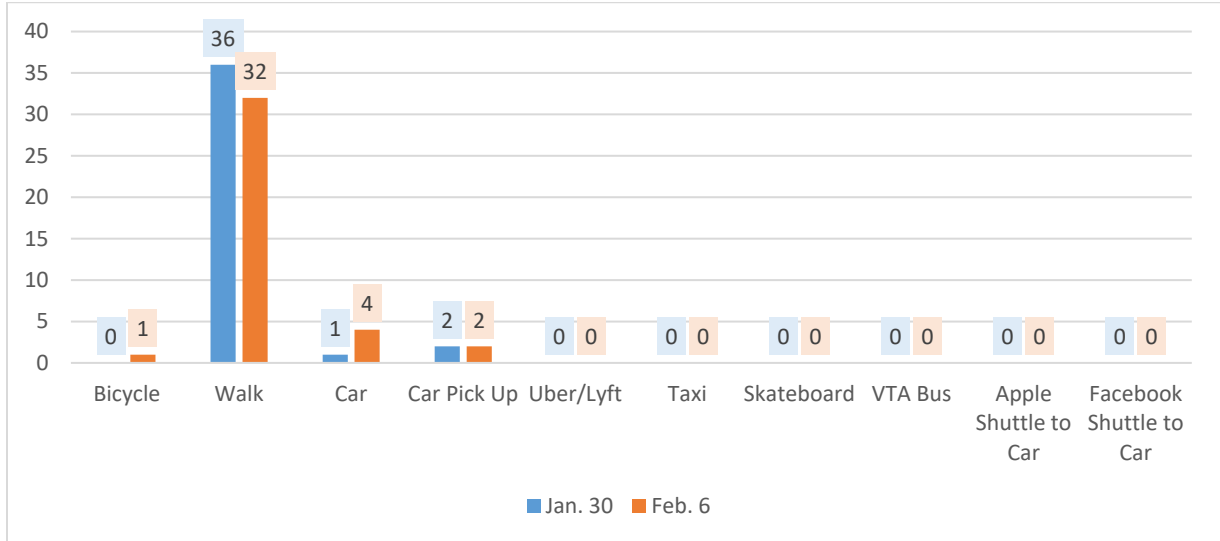
The following figures demonstrate how people departed Blossom Hill Station on January 30, 2020 and February 6, 2020 at Zones 1 and 2 during the AM arrival collection hours, and the different times at which people departed the station at Zones 1 and 2 during the AM arrival collection hours.

**Figure 3.8: Mode of Departure at Zone 1: VTA Parking Lot**



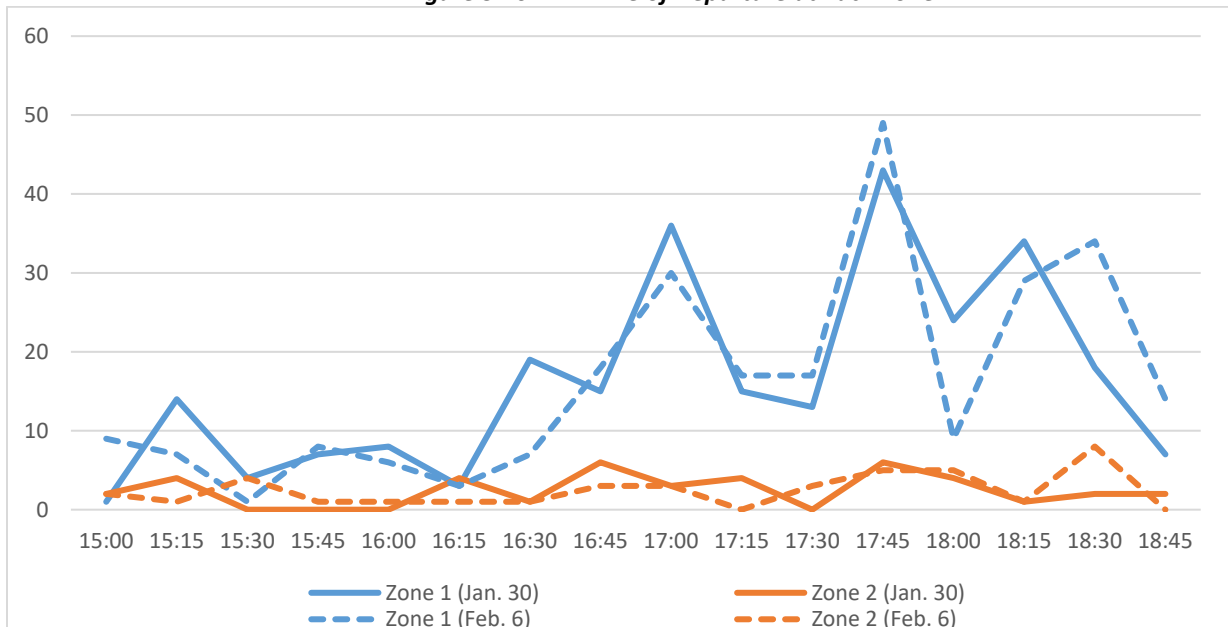
On both January 30 and February 6, the majority of departures the station through the VTA parking lot departed by car. The majority of departures by car had arrived back to the station by a private shuttle, rather than VTA transit. On January 30, this was followed by departing the station by walking, and then car pick-up or VTA bus. On February 6, this was followed by departing the station by walking or car pick-up. Similar to the number of arrivals observed, there were fewer departures by bicycle, Uber/Lyft, and skateboard. No departures by taxi were observed on either day.

**Figure 3.9: Mode of Departure at Zone 2: Entrance on Velasco Dr.**



On both January 30 and February 6, almost all people departing station through the entrance on Velasco Drive departed by walking. On January 30, three people departed by Uber/Lyft or car pick-up. On February 6, six people departed by personal car or Uber/Lyft. One person departed by bicycle. There were no other modes of departure noted during the PM departure collection hours at the entrance on Velasco Drive.

**Figure 3.10: PM Time of Departure at Each Zone**





Similar to the observation of arrivals, the number of departures from the station was much higher via the VTA parking lot than via Velasco Drive on both data collection days. The number of departures through the VTA parking lot are relatively low until about 4:30/4:45 PM. Peaks in departure then occurred at 5:45 PM, 5:00 PM, and 6:15/6:30 PM, relatively consistent with the arrival of southbound Blue Line service.

The departure profiles through Velasco Drive show more of a contrast between both data collection days. Peaks in departure on January 30 were observed at 5:45 PM and 4:45 PM, with smaller peaks occurring throughout the afternoon. The peak number of departures on February 6 occurred at 6:30 PM, followed by smaller peaks at 5:45 PM/6:00 PM and 3:30 PM.

### 3.2 Mode of Transfer

The aim of the mode of transfer data collection is to understand the magnitude of people transferring between different modes of transit at the Blossom Hill Station and which transit modes they are transferring to and from during typical peak weekday conditions.

Data were collected via intercept survey at two locations:

- Intercept 1: VTA bus stop
- Intercept 2: VTA light rail platform

Data collectors were asked to survey each passenger as they arrived to each intercept point to ask whether they were transferring to another form of transit and to what form of transit they were transferring to:

- VTA bus
- VTA light rail
- No transfer

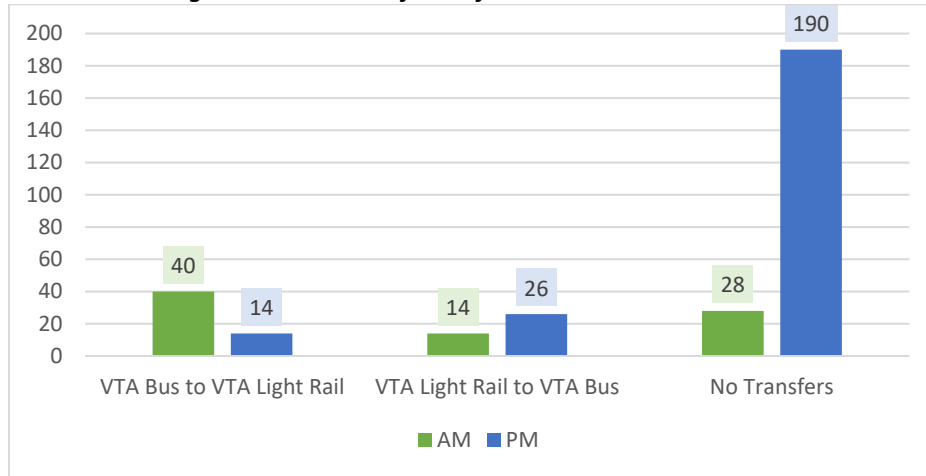
The total number of intercept surveys conducted at Blossom Hill Station is shown in Table 3.3. No refusals to answer the intercept survey were documented. The number of intercept surveys conducted on each day was relatively similar, and on both days, the majority of people surveyed after arriving by transit occurred during the PM data collection period (approximately 74 percent of surveys).

**Table 3.3: Total Number of Intercept Surveys Conducted at Blossom Hill Station**

	JAN. 30	FEB. 6	COMBINED
<b>AM Transfers</b>	42	40	82
<b>PM Transfers</b>	117	113	230
<b>Total</b>	159	153	312

Figure 3.11 summarizes the total number of each mode of transfer recorded by intercept survey at Blossom Hill Station over both data collection days.

**Figure 3.11: Modes of Transfer Observed at Blossom Hill Station**



During the AM data collection period, the most popular mode of transfer was from VTA bus to VTA light rail (40).

During the PM data collection period, the majority of people arriving to Blossom Hill Station indicated that they were not transferring to another mode of transit (190). Of those transferring to another mode of transit, most respondents indicated a transfer from VTA light rail to VTA bus (26).

As surveys were conducted at two different intercept points, Table 3.4 presents the number of surveys conducted at each intercept point on both data collection days.

**Table 3.4: Number of Intercept Surveys Conducted at Each Zone**

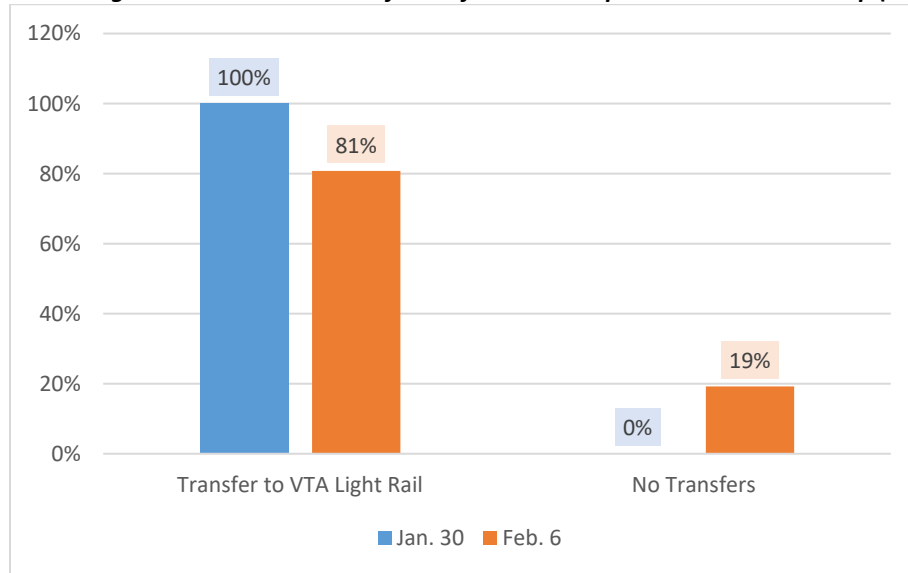
INTERCEPT	DATE	AM SURVEYS	PM SURVEYS	TOTALS BY INTERCEPT POINT
<b>Intercept 1: VTA Bus Stop</b>	30-Jan	19	5	24
	06-Feb	26	13	39
	Combined	45	18	63
<b>Intercept 2: VTA Light Rail Platform</b>	30-Jan	23	112	135
	06-Feb	14	100	114
	Combined	37	212	249

The majority of intercept surveys took place on the VTA light rail platform/Intercept 1 (249). Fewer intercept surveys were conducted at the VTA bus stop/Intercept 2 (63).

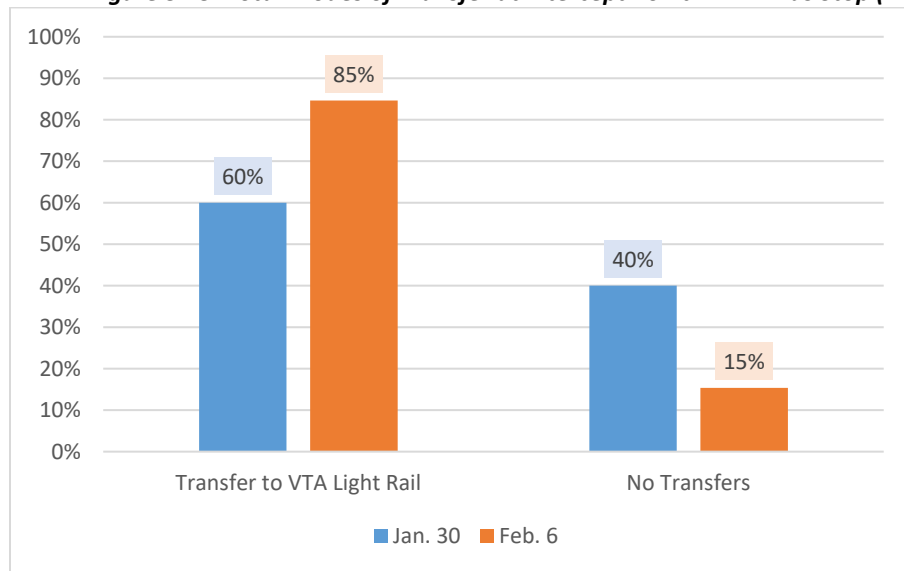
### 3.2.1 Mode of Transfer by Intercept Point

The following figures show the total modes of transfer (for both data collection days) used by passengers arriving at each intercept point at Blossom Hill Station. The number of people transferring to each transit mode are shown as a percentage of the total arrivals surveyed at each transit platform during either the AM or PM collection hours.

**Figure 3.12: Total Modes of Transfer at Intercept Point 1: VTA Bus Stop (AM)**

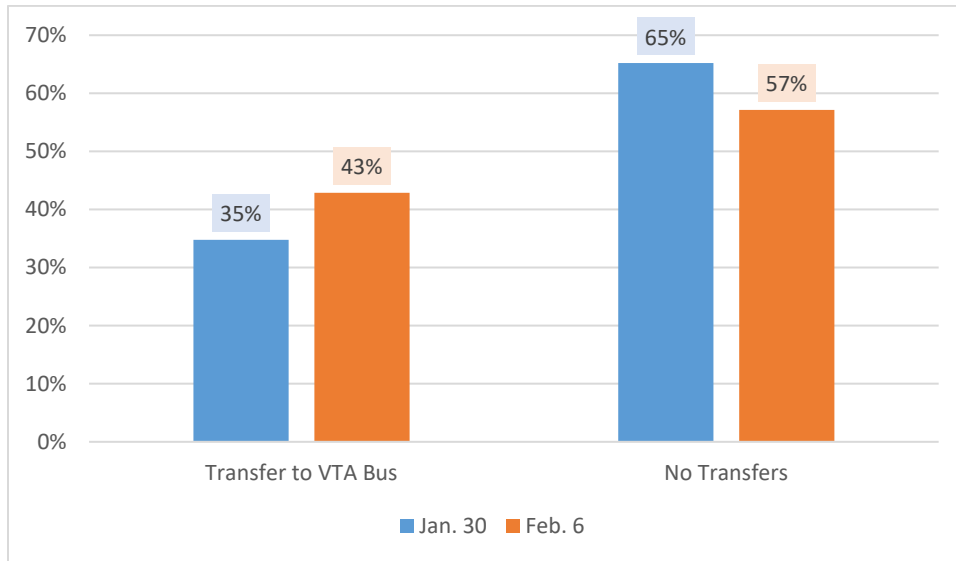


**Figure 3.13: Total Modes of Transfer at Intercept Point 1: VTA Bus Stop (PM)**

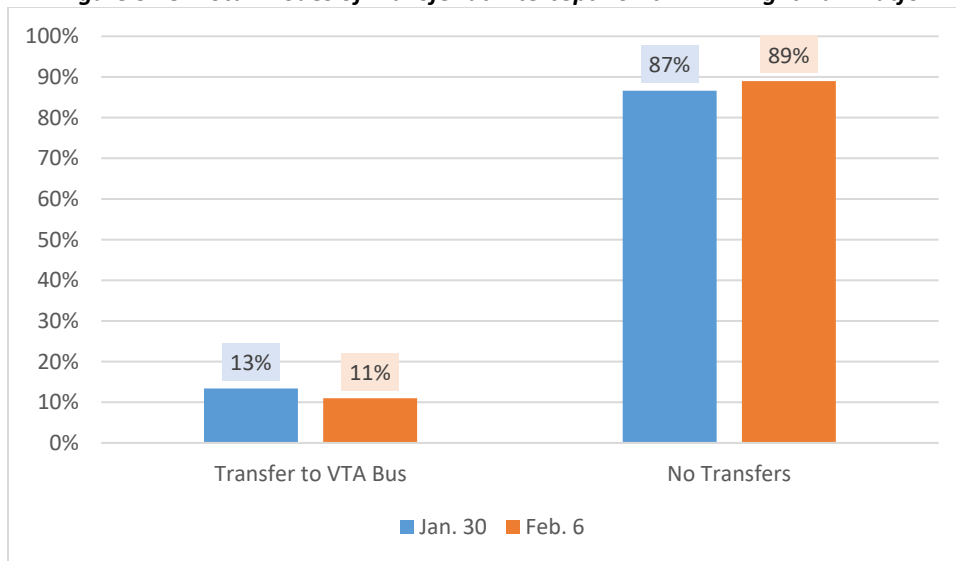


At Intercept Point 1: VTA Bus Stop, the majority of people surveyed were transferring to VTA light rail during the morning on both January 30<sup>th</sup> and February 6<sup>th</sup> (100 percent and 81 percent, respectively). During the afternoon, the majority of people were also transferring to light rail on both days, albeit at a smaller percentage (60 percent and 85 percent, respectively).

**Figure 3.14: Total Modes of Transfer at Intercept Point 2: VTA Light Rail Platform (AM)**



**Figure 3.15: Total Modes of Transfer at Intercept Point 2: VTA Light Rail Platform (PM)**



At Intercept Point 2: VTA Light Rail, the majority of people surveyed were transferring to VTA light rail during the morning on both January 30<sup>th</sup> and February 6<sup>th</sup> (100 percent and 81 percent, respectively). During the afternoon, the majority of people were also transferring to light rail on both days, albeit at a smaller percentage (60 percent and 85 percent, respectively).

### 3.3 Discussion

Overall, the automobile (55 percent, including personal car and car drop-off) is the most popular mode of travel when arriving and departing Blossom Hill Station through the main parking lot. This is followed by walking (22 percent) and VTA Bus (14 percent). There are no modes of arrival or departure in this zone by taxi.

When arriving or departing Blossom Hill Station through the entrance on Velasco Drive, walking is the most popular form of arrival (87 percent), followed by personal car/car drop-off (10 percent), and Uber/Lyft (one percent), among others. There are no modes of arrival or departure in this zone by taxi or VTA Bus.

Most people surveyed at Blossom Hill Station over both data collection days indicated that they were not transferring to another form of transit (70 percent). The other 30 percent of people were transferring from VTA Bus to VTA Light Rail (17 percent) or from VTA Light Rail to VTA Bus (13 percent). Comparatively, people were more likely to be transferring between transit modes in the morning (65 percent of people surveyed in the morning indicated they were transferring), when compared to the afternoon (17 percent of people surveyed in the afternoon indicated they were transferring).

During the AM collection period, VTA transit user arrivals at Blossom Hill Station generally peaked at 8:00 AM and 7:45 AM. Peaks in arrival correlate with arrival of northbound weekday Blue Line service at 8:03 AM and 7:48 AM. Peak AM period ridership indicates a high percentage of boardings at Blossom Hill Station on average in comparison to alightings (95 percent boardings). The number of people surveyed that indicated they were transferring during the same timeframe peaked at 7:30 AM and 8:15 AM, within 15 minutes of peak transit user arrival times. As 74 percent of transfers occurring in the morning were transferring from bus to VTA light rail (40 out of 54 actual transfers), these peaks in transfer coincide with the arrival of northbound Blue Line service at 7:33 AM and 8:18 AM.

During the PM collection period, transit user departures from Blossom Hill Station generally peaked at 6:30 PM and 5:45 PM, relatively consistent with the arrival of southbound Blue Line service at 6:23 PM and 5:38 PM. Peak period Blue Line ridership during the PM period on average indicates a high percentage of alightings in comparison to boardings (92 percent alightings). The number of people surveyed that indicated they were transferring during the same timeframe peaked at 4:00 PM and 5:30 PM, mostly to light rail at these times. However, it is worth noting that the number of surveys collected during the afternoon varied widely throughout the period and, as mentioned above, only 17 percent of people surveyed indicated that they were transferring. Overall, about 65 percent of those transfers occurring in the afternoon were transferring from VTA light rail to VTA bus (26 out of 40 transfers).

## **4 Data Collection: Walk Audit and Online Community Survey**

Following the count data collected to determine mode of access, a walk audit was performed by members of the consultant team, VTA, and City of San José on February 14<sup>th</sup>, 2020 to examine the existing conditions of the Blossom Hill Station and the surrounding area. The purpose of the walk audit was to identify the strengths, barriers, and opportunities for improvement for the street network located within a half-mile of the station. The walk audit participants were also asked to observe behavior conditions that might foster a safe, pleasant environment for both pedestrians and cyclists, which would contribute to the scope of the project. Barriers that the auditors were asked to take note of included missing or damaged sidewalks, inadequate lighting, high vehicular speeds, safety concerns, and missing crosswalks. Results from the walk audits are discussed in the next two subsections.

To collect further information from the community at large, an online community survey was distributed to residents in the area and passengers who use Blossom Hill Station to gather feedback on the user experience. The online community survey is discussed in Section 4.3.

### **4.1 Walk Audit Data Collection**

Walk audit responses were collected from the three participants whom each examined a third of the study area. Auditors were given a map of the study area and asked to mark locations on the map where they observed barriers or saw opportunity for improvement. Comments received from the audit were later added to a matrix and organized by location. Two major themes that emerged from comments were concerns related to pedestrian accessibility and safety.

#### **Pedestrian Connectivity**

Comments gathered through the walk audit heavily reflected a concern for the current level of pedestrian connectivity. Several comments were gathered concerning missing crosswalks in locations such as at the Blossom Hill Station entrance, at the intersection of Blossom Hill Road and Morton Way, on Sunny Oaks Drive, at the intersection of Cahalan Avenue and San Lorenzo Drive, and at the intersection of Blossom Hill Road and Indian Avenue. Missing or broken sidewalks were observed at several locations including the park & ride lot, at the Velasco Drive tunnel station entrance, and at the southern entrance to the station's parking lot. Opportunities for improvements to pedestrian access included the addition of flashing pedestrian beacons for enhanced visibility. Flashing beacons were proposed at several possible or current pedestrian crossing locations including the southeast I-85 on-ramp, Blossom Hill Road, and on Entrada Cedros.

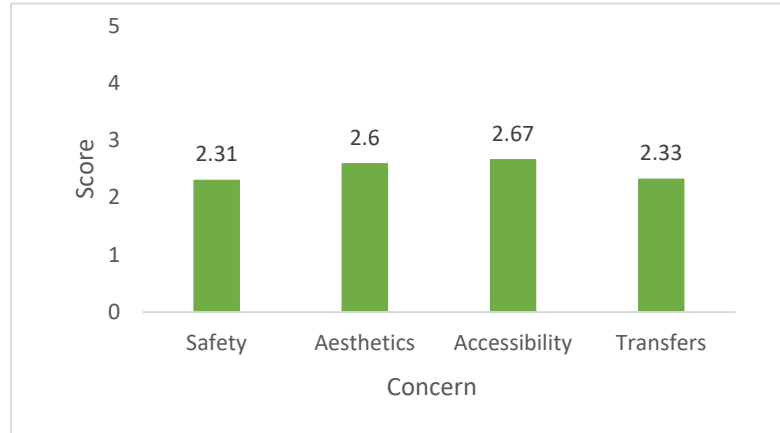
#### **Safety**

Several comments made by the auditors centered on safety concerns. Barriers to safety included inadequate lighting in the Velasco Drive tunnel station entrance, high vehicular speeds at the intersection of Entrada Cedros and Giuffrida Ave, and unyielding traffic to crossing pedestrians at the intersection of Cahalan Avenue and Chemeketa Drive. Several concerns were also raised surrounding a lack of ADA accessibility ramps in areas including the Velasco Drive tunnel station entrance and at the southeast end of Blossom Hill Road.

## 4.2 Walk Audit Survey

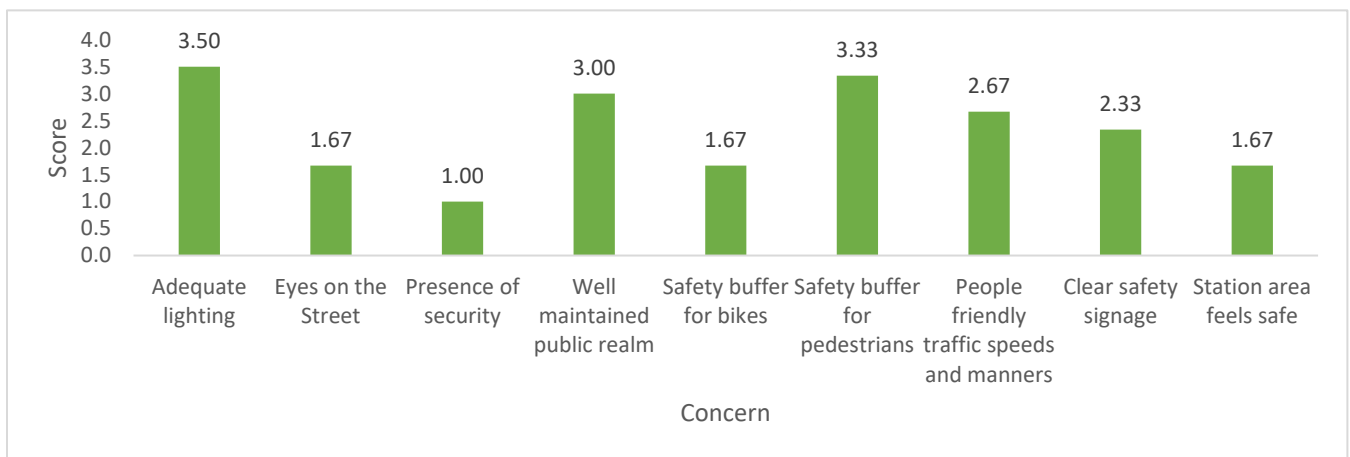
Auditors were also asked to rank their perceptions of several station area conditions categorized into the four categories of safety, aesthetics, accessibility, and transfers. Scores were given on a scale from one to five (five being the best possible score), or from strongly disagree to strongly agree. Amongst the categories, safety received the lowest overall average score. This score was closely followed by the transfers score (Figure 4.1).

**Figure 4.1: Overall Scores by Category**

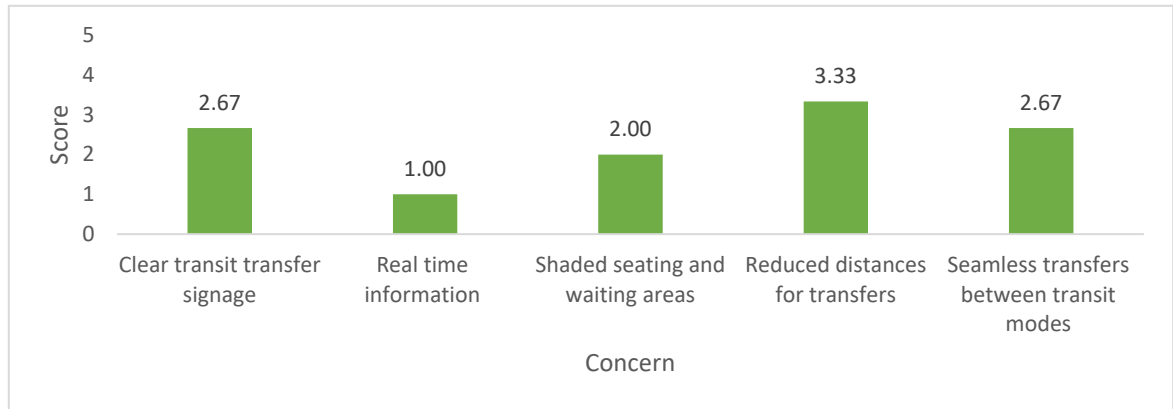


Within the safety category, auditors shared specific concern for the presence of security, eyes on the street, and the overall feeling of safety within the station area (Figure 4.2). Within the “transfers” category, auditors shared their concern for the availability of real time information (Figure 4.3). The aesthetics category received the second highest average score, however, auditors still raised concern for the placement of pedestrian amenities within the station area (Figure 4.4). The access category received the highest score across all categories, with the greatest support given to the streamlining of parking and drop-offs (Figure 4.5).

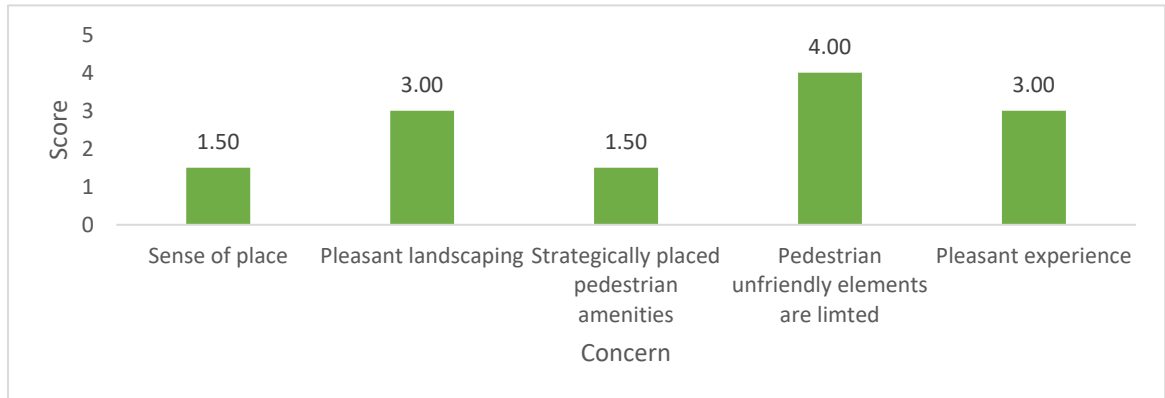
**Figure 4.2: Station Area Safety Scores**



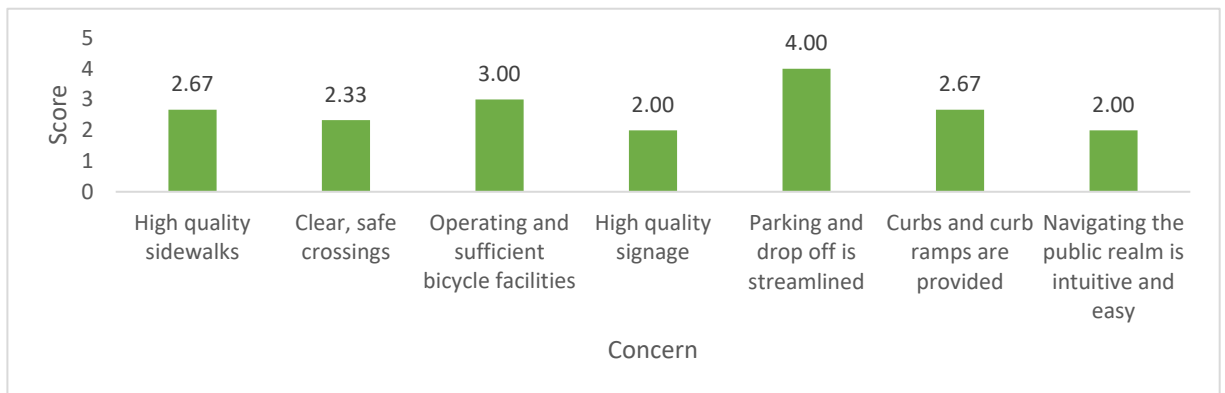
**Figure 4.3: Station Area Transfer Scores**



**Figure 4.4: Station Area Aesthetics Scores**



**Figure 4.5: Station Area Access Score**



The walk audit worksheets submitted can be found in Appendix A of this report.



### **4.3 Online Community Survey**

An online survey regarding station access at Blossom Hill Station was distributed via SurveyMonkey, collecting responses from participants between May 20 and June 10, 2020. The survey gathered initial feedback surrounding the type of improvements that transit users felt were needed at Blossom Hill Station. A total of 87 online survey responses were received.

Of the 87 survey respondents, the majority of participants (76 percent) highlighted a need for improved personal safety. This was proposed to be done through improved lighting, landscaping, and a safer freeway undercrossing environment. This was reflected in the open-ended survey questions as well, where respondents noted that safety concerns stemmed from the nearby homeless population, inadequate lighting, and sanitation concerns as a response to COVID-19.

The data gathered through the online survey also reflected that although the largest group of respondents (49 percent) only visited the station one to two times per month, most respondents arrived at the station by walking. Accordingly, survey responses indicated a strong need for pedestrian access improvements. This was reflected in open-ended survey questions as well, where respondents highlighted the need for improved sidewalks and crosswalks. Similarly, responses reflected strong support for the addition of the proposed Canoas Creek Pathway as a way to maximize both pedestrian and bicyclist connectivity between nearby neighborhoods and Blossom Hill Station. Additionally, survey respondents mentioned a lack of ADA-accessible connections to the station platform from the Velasco Drive station entrance. Respondents mentioned that only the stairs are available for use, and not the elevator or the escalator. A more detailed summary of the survey responses can be found in Appendix B.

## 5 Analysis of Access Patterns and Issues

The mode of access analysis, along with the walk audits and online community survey, help to provide an overview of station visitor access patterns as well as issues that may inhibit access to the station. As determined in the mode of access analysis, arrivals at the Blossom Hill Station in the morning are highest between 7:15 AM and 8:15 AM, peaking every half hour and reaching its highest peak at 8:15 AM. Peaks in VTA transit user arrivals correspond with northbound Blue Line service times, which correlate with the high percentage of northbound light rail boardings at the station in the morning.

During the evening, departures from the Blossom Hill Station peak between 5:00 PM and 6:30 PM, reaching the highest peak at 5:45 PM. Similar to observations in the morning, peaks in VTA transit user departure coincide with southbound Blue Line service times, correlating with the high percentage of southbound light rail alightings at the station in the morning. This indicates that passengers are traveling to northern areas of the VTA system in the morning and returning in the evening.

As the VTA parking lot off of Blossom Hill Road is the main entrance to Blossom Hill Station, about 88 percent of visitors observed accessed the station through the VTA parking lot. The majority of people accessed the parking lot by personal car or by car drop-off, followed by walking, and then VTA bus. To further support this finding, walk audit scoring noted a high need for streamlined parking and drop-off. It is important to note that a large number of arrivals by car arrived with the intent to take a private shuttle, either to the Apple or Facebook campuses. The number of people observed to be taking a private shuttle from the station was actually higher than the number of people arriving to take VTA transit. As VTA does not currently have a shuttle permit program in place, this is an important point to consider when developing future access improvements to the station.

The other 12 percent of visitors to Blossom Hill Station accessed the station from the north via Velasco Drive, with the majority accessing the entrance by walking, followed much farther behind by car and car drop-off. As this entrance is located next to the proposed Canoas Creek trail, there is an opportunity to improve active transportation infrastructure, with which to connect to the station entrance. Walk audit comments also indicated a need for improved pedestrian infrastructure.

Although about 70 percent of passengers surveyed at Blossom Hill Station indicated that they were not transferring between modes of transit at the station, 30 percent were transferring either from light rail to VTA bus or VTA bus to light rail, with most transfers occurring in the morning. Walk audit scoring related to transfers indicated a need for seamless transfers, including clear transit transfer information on-site.

## 6 Future Conditions and Needs Assessment

As noted earlier, a transit oriented development (TOD) project is proposed for the Blossom Hill Station area. Plans for the TOD project will impact circulation and access needs surrounding the station area, affecting parking, bicycle needs, carshare facilities, and VTA operations.

The Blossom Hill TOD is proposed to be built just south of the Blossom Hill Station, adjacent to the existing VTA parking lot. Given the adjacency, it is important to take into consideration the effects that the addition of the TOD project will impose on transit riders. It is also important to consider how the addition of this development will impose on transit rider parking both during and after the planned phases of construction.

The TOD project proposes that housing be added to two sites on the Blossom Hill Station site. Site A is proposed to offer housing at market rates, while Site B is proposed to offer affordable housing units. The proposed market rate building will offer approximately 239 units of housing and approximately 10,000 square feet of retail on the bottom level. In addition to providing automobile parking for the new homes and commercial space, the TOD also proposes additional bike and motorcycle parking spaces.

The proposed affordable housing building will offer approximately 84 housing units. In addition to the proposed housing units, Site B will also provide approximately 10,775 square feet of commercial space. To accommodate the needs of its residents, the affordable housing building will also offer additional parking spaces for automobiles and bicycles.

As of March 2020, the site plan notes that a total of 213 parking spaces will be available at the VTA surface lot for transit riders. The most current project site plan and parking exhibit at the time of this report can be found in Appendix C, but are subject to change.

Through the addition of the proposed TOD project, the number of parking stalls available to VTA transit users would be decreased from 481 to 213. Existing transit park-and-ride parking was generally observed to be underutilized, with only a portion of the existing 481 spaces being used for transit daily. Even so, vehicular access to the station may be affected by the proposed joint development project. For this reason, it is especially important to implement transportation demand strategies in order to encourage a reduction in vehicle trips as well as to improve the surrounding infrastructure which will enhance accessibility for all forms of non-vehicle travel. Moreover, it is also important to consider how the current parking supply will likely be impacted throughout the duration of the construction period for the TOD. Therefore, additional planning measures will need to be integrated to ensure that there are sufficient mitigations to accommodate access to the station during construction.

## 7 Proposed Access Improvements

The Phase 1 report of the Blossom Hill Station Access Study included preliminary access improvements to be made to the station area. The improvements proposed in this section were made based on the improvements mentioned in the Phase 1 report, the developer's Signature Project Application as of March 20, 2020, as well as the findings in this report. This includes the existing and future conditions assessments as well as feedback collected from community members through an online survey and a walk audit which was performed within the station area. The following sections provide suggested improvements for bicycle, pedestrian, on-site, transit, and vehicle access to the Blossom Hill Station Area.

### 7.1 Bicycle, Pedestrian, and On-Site Access Improvements

This section presents suggested improvements for both off-site and on-site access to the station organized by corridor and improvement type. The improvements proposed in this section were made based on feedback collected from community members through an online survey and a walk audit which was performed within the station area. Additionally, the proposed improvements are made in line with those identified by the San José Vision Zero Plan and the San José Better Bike Plan. Geographical illustrations of the suggested improvements resulting from this feedback are also provided.

#### Bicycle Improvements

The San José Better Bike Plan 2025 introduces improvements to the bicycle network and associated infrastructure surrounding the station. In addition, the VTA bicycle program ensures that buses and light rail vehicles are equipped with bicycle racks and that park and ride lots are equipped with bike racks and lockers. Feedback gathered through walk audits and community outreach events performed indicated a need for improved bicycle infrastructure.

Feedback gathered from the "Pains & Gains" activity performed at the community outreach event reflected a concern for a lack of bicycle lanes and bicycle racks/lockers. These views were further supported by the feedback gathered through the walk audit and online survey, which both highlighted a concern for the absence of buffered or protected bike lanes along Blossom Hill Road.

The quality of bicycle infrastructure also will be enhanced through the addition of the Canoas Creek Trail, which will provide a separate bike path alongside the station.

Moreover, in an effort to reduce the volume of visitors entering the station through the Blossom Hill Road entrance, an additional trail exit is proposed to be added onto Velasco Drive. Creating an additional exit from the Canoas Creek Trail onto Velasco Drive improves station accessibility for transit users who arrive by bicycle or foot. The Martial Cottle Park Plan Environmental Impact Review (EIR) document conducted by Santa Clara County shows two proposed exits near the station from the proposed Canoas Creek Trail. One is a pedestrian crossing beneath Highway 85 at Cahalan Avenue to provide neighborhood access to/from Martial Cottle Park, which currently exists, and the other is a connection to Blossom Hill Station off of Velasco Drive (Appendix D). Although the station entrance at Velasco Drive

is currently located on the east bank of the creek, current development plans include reconfiguring the station access at the underpass to allow the trail to be constructed along the east bank on Canoas Creek.

Additional bicycle access improvements include the addition of several bicycle friendly intersections. These bicycle friendly intersections will be created through the introduction of several treatments including through bike lanes and bike boxes at intersections along Blossom Hill Road, as well as a protected bike lane along the corridor. Descriptions of some of these treatments are listed below and a more detailed explanation of these proposed improvements can be found in Table 7.1 and in Figure 7.1.

- **Bike Box** – A bike box is a clearly designated space, usually painted in the form of a green box that places bicyclists ahead of oncoming vehicle traffic at the intersection, thus maximizing visibility.
- **Through Bike Lane** – Through bike lanes are bicycle lanes that continue through an intersection and are clearly designated with paint striping. The addition of through bike lanes provide both motorists and cyclists guidance when crossing the intersection, thus preventing conflicts between turning motorists and bicyclists.

### **Pedestrian Improvements**

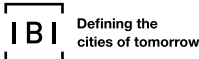
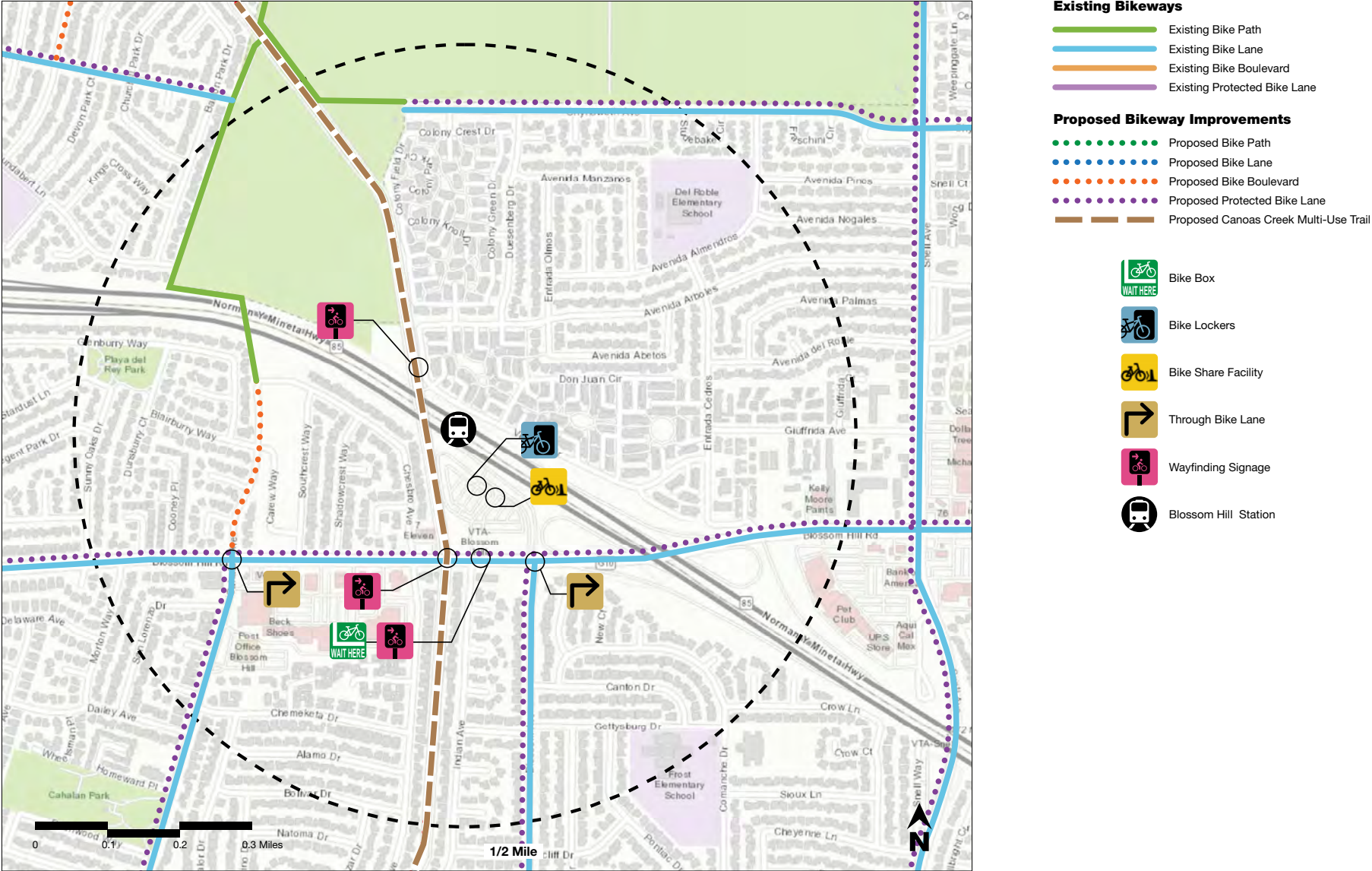
Improvements previously mentioned in the Phase 1 report of the Blossom Hill Station Access Study included the addition of the Canoas Creek Trail, which will not only improve station access for bicyclists but pedestrians as well. The integration of this trail also aligns with the Envision San José 2040 General Plan, as it provides a route for pedestrians to access the station which is completely separated from vehicular traffic. Improvements proposed in the Phase 1 report included improved landscaping, wayfinding signage, upgraded paving at the station's entrance, widened sidewalks along Blossom Hill Road, and the creation of a pedestrian oriented open space. Additionally, high visibility crosswalks are proposed to be added to the I-85 interchange on Blossom Hill Road. These are proposed to be added at the I-85 off-ramp and where the interchange intersects with the corridor. This improvement along with the protected bikeway along Blossom Hill Road, will further enhance pedestrian safety and the effectiveness of other traffic calming measures proposed. A more detailed explanation of these proposed improvements can be found in Table 7.1 and in Figure 7.2.

Feedback gathered from the walk audit identified a strong need for pedestrian access improvements including improved crosswalks and sidewalks, improved lighting, and the addition of pedestrian crossing improvements. These improvements further supported the improvements proposed in the Phase 1 Report. Pedestrian access improvements proposed in the Phase 1 Report included enhancements along the pedestrian pathway alongside the primary station access driveway from Blossom Hill Road and a widened sidewalk on the north side of Blossom Hill Road adjacent to the TOD.

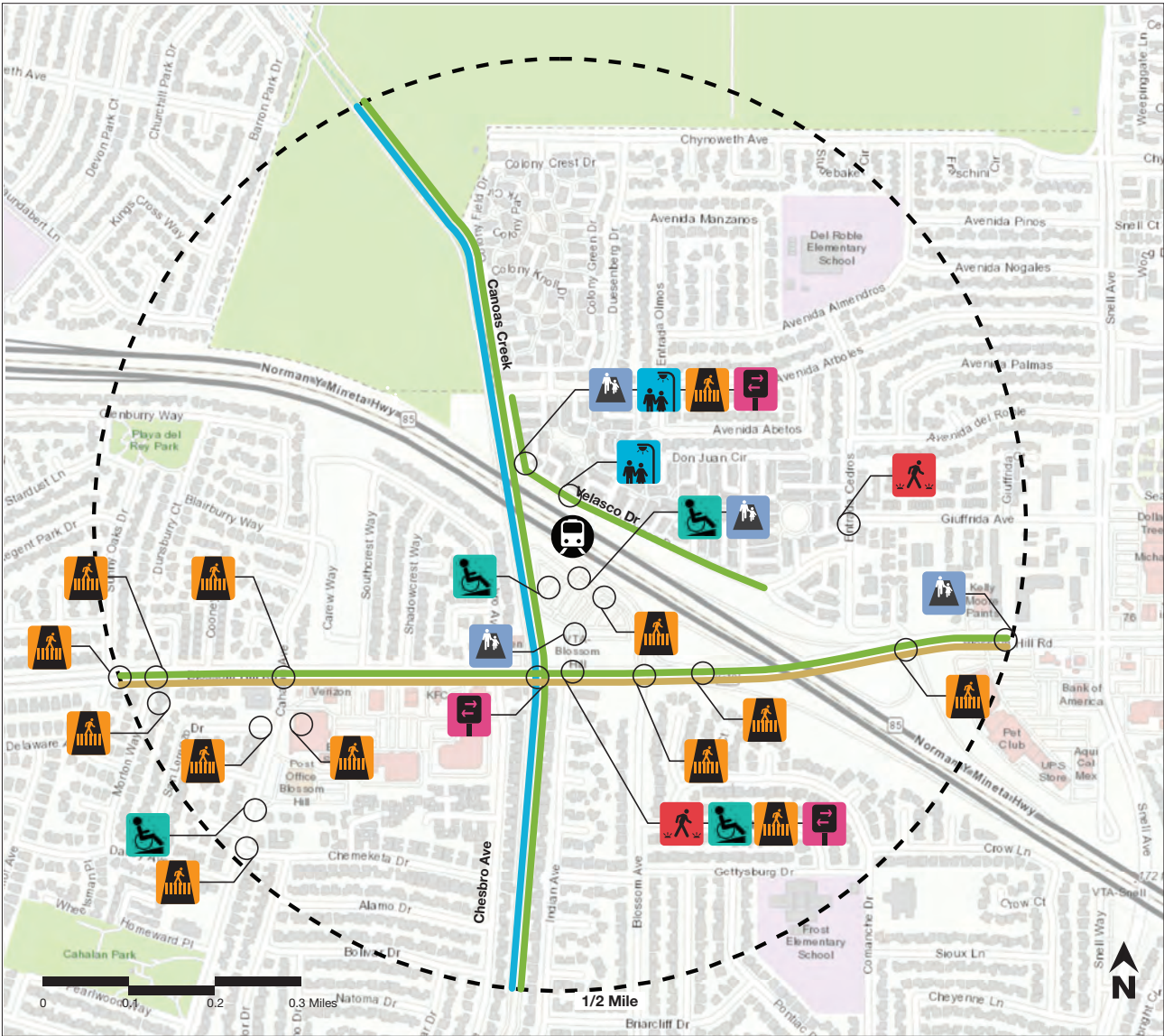
Additionally, the integration of these proposed improvements aligns with the two initiatives introduced by the VTA to improve pedestrian infrastructure: 1) the VTA Pedestrian Program which emphasizes the importance behind providing county-wide vibrant, safe, and comfortable pedestrian environments; 2) the VTA Pedestrian Access to Transit Plan, which reviews the existing pedestrian conditions within Santa Clara County.













# Figure 7.1: Proposed Bike Access Improvements

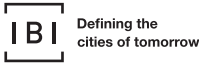


# Figure 7.2: Proposed Pedestrian Access Improvements



**Proposed Pedestrian Improvements**

-  Improved Pedestrian Lighting
-  Widen Sidewalk
-  Landscaping and Shade
-  ADA Ramps
-  Improved Lighting
-  New or Improved Crosswalk
-  New or Improved Sidewalk
-  Pedestrian Crossing Beacons
-  Wayfinding Signage
-  Tamien Station



### On-Site Access Improvements

On-site access improvements refer to improvements pertaining to the station itself, which includes the VTA parking lot, station platforms, station underpass, pedestrian pathways, and bus stop area.

Input gathered from the community outreach event indicated that Blossom Hill Station visitors were concerned with safety and security, thus supporting suggestions for improved lighting and additional security at the station. In addition, walk audit feedback also supported the need for improved lighting and security, particularly at the proposed Canoas Creek trail exit near Velasco drive and in the Velasco tunnel station entrance. Pavement repairs were also proposed at the Velasco tunnel station entrance.

Other on-site improvements include additional ADA ramps, additional crosswalks in the station’s parking lot, and bike lockers. Support for improved ADA accessibility at the Velasco Drive station entrance was further reflected in the comments gathered through the online survey. A more detailed explanation of these proposed improvements can be found in Table 7.1 and in Figures 7.1 and 7.2.

To further add to the on-site improvements listed here, it is noted that as of June 2020, VTA has asked that the developer provide additional on-site improvements. These improvements include the 1:1 replacement of the existing bike lockers at the station’s entrance with e-lockers. Additionally, VTA is requesting a 25 percent increase in short-term bike parking from what is required in Chapter 10 of the VTA Bicycle Technical Guidelines. Currently, the guidelines require transit stations to provide bicycle parking spaces equal to two percent of daily home-based boardings, 75 percent of which should be long-term parking spaces and 25 percent of which should be short-term parking spaces. The Guidelines are currently being updated to reflect the 25 percent increase. VTA has also recommended the developer provide parking for scooters and other micromobility devices near the station’s entrance.

**Table 7.1: Proposed Improvement by Corridor and Intersection**

CORRIDOR	INTERSECTION	PROPOSED IMPROVEMENT	REASONING
Blossom Hill Rd	Sunny Oaks Dr	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>New crosswalk</li> </ul> </li> </ul>	Improve pedestrian crossing and visibility
	Morton Way	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>New crosswalk</li> </ul> </li> </ul>	Improve pedestrian crossing and visibility
	Cahalan Ave	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>An additional crosswalk on the west side of intersection</li> </ul> </li> <li><b>Bike:</b> <ul style="list-style-type: none"> <li>A painted “through bike lane” that continues through the intersection</li> <li>Bike lane restriping in the turn lane</li> <li>Additional bicyclist signage</li> </ul> </li> </ul>	Maximize pedestrian crossing efficiency and improve cyclist visibility when crossing the intersection
	Chesbro Ave	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>Pedestrian crossing signage at the intersection</li> </ul> </li> </ul>	Improve pedestrian visibility



CORRIDOR	INTERSECTION	PROPOSED IMPROVEMENT	REASONING
	Canoas Creek Trail	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>Wayfinding signage directing pedestrians toward the station's entrance</li> </ul> </li> <li><b>Bike:</b> <ul style="list-style-type: none"> <li>Wayfinding signage directing cyclists toward the station's entrance and bike parking</li> </ul> </li> </ul>	Improve pedestrian and cyclist wayfinding to the station and amenities
	Station Entrance	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>An additional crosswalk on the east side of the intersection</li> <li>Pedestrian crossing beacons</li> <li>Additional ADA ramp</li> <li>Wayfinding signage directing pedestrians toward the station entrance</li> </ul> </li> <li><b>Bike:</b> <ul style="list-style-type: none"> <li>Wayfinding signage directing cyclists toward the station entrance</li> <li>Bike box queuing bicyclists ahead of vehicle traffic when at the intersection</li> </ul> </li> </ul>	Improve pedestrian accessibility and crossing visibility to vehicle traffic at the station entrance
	Blossom Ave	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>Pedestrian crossing signage at the intersection to increase crosswalk visibility</li> </ul> </li> <li><b>Bike:</b> <ul style="list-style-type: none"> <li>Through bike lane</li> </ul> </li> </ul>	Improve pedestrian visibility and improve cyclist visibility when crossing the intersection
	I-85 Interchange/Entrada Cedros	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>High-visibility crosswalk at the I-85 off-ramp and at the Entrada Centros intersection</li> </ul> </li> </ul>	Improve pedestrian crossing and visibility at the high-traffic off-ramps
	Snell Ave	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>A widened sidewalk at the shopping center's entrance</li> </ul> </li> </ul>	Improve pedestrian safety against vehicles entering and exiting the parking lot
	Cahalan Ave	San Lorenzo Dr	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>New crosswalk</li> </ul> </li> </ul>
Chemeketa Dr		<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>New crosswalk</li> </ul> </li> </ul>	Improve pedestrian crossing and visibility
Entrada Cedros	Giuffriada Ave	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>Improved lighting along Entrada Cedros and particularly at the intersection</li> </ul> </li> </ul>	Improve pedestrian safety

CORRIDOR	INTERSECTION	PROPOSED IMPROVEMENT	REASONING
Velasco Dr	Canoas Creek Trail	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>An improved sidewalk to fix broken pavement</li> <li>Wayfinding signage directing station visitors to the station entrance on Velasco</li> <li>Improved lighting along Velasco alongside the proposed Canoas Creek Trail</li> <li>An additional crossing across the Canoas Creek Trail to connect trail users to the station</li> </ul> </li> <li><b>Bike:</b> <ul style="list-style-type: none"> <li>Wayfinding signage to direct cyclists toward the station's entrance and bike parking</li> </ul> </li> </ul>	Improve pedestrian safety and connectivity to the Canoas Creek Trail
	Station Tunnel Entrance	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>Improved lighting</li> </ul> </li> </ul>	Improve pedestrian safety
VTA Station	Parking Lot	<ul style="list-style-type: none"> <li><b>Pedestrian:</b> <ul style="list-style-type: none"> <li>Additional ADA ramps</li> <li>A widened sidewalk in the station's parking lot, particularly on the side closest to Blossom Hill Road</li> <li>Crosswalk restriping to maximize pedestrian crossing visibility</li> <li>Real time signage</li> </ul> </li> <li><b>Bike:</b> <ul style="list-style-type: none"> <li>Additional bike lockers</li> </ul> </li> </ul>	Provide additional bike amenities and Improve pedestrian accessibility, safety, and visibility to vehicles in the station parking lot

## 7.2 Transit Access Improvements

Blossom Hill Station is served by one local VTA bus route and one VTA light rail line. Transit access improvements should be made to bus stops serving these routes in accordance with the 2016 VTA "Transit Passenger Environment Plan." The Transit Passenger Environment Plan classifies all bus stops within the VTA service area into the four following categories: basic, core, major, or community destination. Bus stop classification is determined based upon the number of weekday daily boardings at each station. Basic bus stops receive fewer than 40 weekday boardings, core stops receive between 40 and 199 weekday boardings, major stops receive over 200 weekday boardings, and community destinations are defined as major stops with a unique location within the community context. Based on

ridership data received from the VTA showing average daily ridership over a week in February 2020, the bus stops in the half mile radius study area were classified into their appropriate categories:

**Table 7.2: Bus Stop and LRT Stop Categorization According to the Transit Passenger Environment Plan**

Bus Stop Category	Route # 27 - Bus Stop	Boardings	Alightings
Basic	Blossom Hill & Entrada Cedros – Eastbound	2	7
	Blossom Hill & Chesbro – Westbound	7	3
	Blossom Hill & Cahalan – Eastbound	4	6
	Blossom Hill & Cahalan – Westbound	3	3
Core	Blossom Hill Station – Eastbound	21	32
	Blossom Hill Station – Westbound	29	22

The “Transit Passenger Environment Plan” assigns a typical set of amenities that should be available to passengers according to the bus stop category. Through a review of the existing conditions at each bus, it was determined that these bus stops were largely in compliance with the “Transit Passenger Environment Plan.” A review of the existing conditions for each location is detailed in Table 7.3.

**Table 7.3: Existing Bus Stop Conditions**

Amenities required by Transit Passenger Environment Plan	BASIC BUS STOP				CORE BUS STOP
	Blossom Hill & Entrada Cedros – Eastbound	Blossom Hill Chesbro – Westward	Blossom Hill & Cahalan – Eastbound	Blossom Hill & Cahalan – Westbound	Blossom Hill Station – Eastbound & Westbound
Waiting bench	✓	✓	✓	✓	✓
Standard bus stop sign	✓	✓	✓	✓	✓
Real-time Information (RTI) decal on standard bus stop sign	✓	✓	✓	✓	
One “U-rack” bicycle rack along facility; more if demand warrants					
Relies on street lighting	✓	✓	✓	✓	✓
Shelter					✓
Scheduled stop display / system map if shelter provided					✓
Leaning bar if space permits					
Trash can if space permits	✓	✓	✓		✓
In-shelter lighting; either solar or pedestrian-activated, if possible					

Minor improvements could still be made to each location which would improve the overall appearance and quality of each stop. Minor improvements could be made to the bus stops defined as core stops, such as additional lighting for passengers waiting in the evenings. Bus stops defined as core stops were

also identified to lack bicycle parking. The addition of bicycle parking at or nearby the transit stop would assist the city in accomplishing its goals defined in the San José Better Bike Plan.

As part of the joint development TOD project proposed for the Blossom Hill Station, VTA proposes to relocate the VTA bus stop currently located off-street adjacent to the park-and-ride lot to on-street bus stops along Blossom Hill Road. This will be accompanied by pedestrian crossing improvements across Blossom Hill Road at the signalized intersection that provides access to the station. The relocation of both the westbound and eastbound bus stops would eliminate the time consuming bus access loop that currently exists in the VTA parking lot. Removing the bus circulation needs on-site also allows for an improved layout for the park-and-ride lot and allows for more area on-site to be dedicated for plaza space and pedestrian/bicycle access. The new bus stop site was initially proposed to include a bus pull-out in both directions on Blossom Hill Road (Appendix C). Although this recommendation is in alignment with the recommendations previously posed in the Phase 1 Blossom Hill Access Study and developer plans, a bus pull-out is not the most preferred method for bus transit stops when intersecting with a protected bikeway. For this reason, a “shared cycle track stop” approach is recommended as a way to safely allow bus passengers to disembark while not interfering with bicyclist connectivity. This consists of in-line stopping and a bus boarding island on Blossom Hill Road.

### **7.3 Vehicular Access Improvements**

The existing conditions assessment found that the majority of passengers arriving to Blossom Hill Station arrived by vehicle, either by personal car or by car drop-off. Data retrieved through mode of access counts also found that the majority of station visitors entered through the main lot, which contributes to high volumes of traffic congestion at peak travel times. Additionally, the walk audit surveys showed strong support for streamlined parking and drop-off strategies.

The Blossom Hill Station parking lot will provide 213 parking spaces for transit users accessing the station. Due to the reduction in available parking to transit users and private shuttle users, it is vital that transportation demand strategies be implemented in order to mitigate the effects of this decrease. For example, as noted in the mode of access observations, many of these parking spaces are accessed by people using private shuttle services rather than VTA transit service. To mitigate this issue, the VTA might consider collaboration with these private shuttle providers to establish more efficient alternatives or pick-up and drop-off locations. This will also allow VTA to prioritize access improvements for passengers utilizing VTA transit.

Additional improvements proposed by the TOD project included suggestions to further streamline station access for arrivals by car. To achieve this, the plan proposes the relocation of the VTA bus stop from the station’s entrance to the intersection of Blossom Hill Road and Indian Avenue. In relocating this bus stop, conflicts between buses and automobiles caused by the bus access loop will be eliminated. Additionally, the integration of a pick-up/drop-off location helps to further streamline the passenger pick-up and drop-off activity at the station. This recommendation aligns with the improvements previously proposed in the Phase 1 report and was further supported by comments received through the “Pains and Gains” outreach activity.

## 8 Transportation Demand Management Strategies

Based upon the observation that the majority of trips to the Blossom Hill Station are occurring by vehicle, this section presents a summary of strategies to reduce single-occupancy trips and relieve traffic congestion and parking demand with the anticipated development of the Blossom Hill TOD joint development project.

To reduce single-occupancy vehicle trips to the station, the following recommendations should be considered:

- Extend the Canoas Creek Trail and provide direct connections from the trail to the station. Current development plans include reconfiguring the stairs at the Velasco Drive entrance to the station in order to allow for construction of the trail on the east bank of the creek. This will provide a trail connection to the station at Velasco Drive.
- Ensure the provision of additional bicycle parking on site. The planned joint development project proposes 355 bicycle parking spaces between both of the new buildings and 54 motorcycle parking spaces for the mixed-use building.
- Provide bicycle lockers on site to encourage trips by active transportation to the station by providing safe bicycle storage. VTA will require a 1:1 replacement of the existing keyed lockers to e-lockers (11 lockers, 22 spaces). The lockers should be placed near to and on the left side of the entrance. The lockers shall not impede pedestrian and bicycle access on the sidewalk connection between the station entrance and the trailhead. VTA will require two bicycle U racks to replace the existing hangar racks. The racks should be placed on the right side and near the station entrance or in a highly visible location.
- Implement bicycle share facilities on site to encourage trips by active transportation to and from the station. Bicycle and scooter share facilities can help fulfill first-last mile connections to and from transit for passengers.
- Provide free or reduced cost monthly VTA transit passes for residents of the TOD development to encourage travel by transit and active transportation modes. This can facilitate increased use of VTA transit service not only at Blossom Hill Station, but throughout the VTA network.
- Work with the companies providing private shuttle service at Blossom Hill Station to promote use of alternative modes of transportation as first-last mile connections to the station.

## 9 Cost Estimation

Cost estimates for proposed changes to automobile access and on-site bus circulation and stops, as well as on-site and off-site access improvements, were developed based on a combination of sources available, including unit cost information provided by VTA from the Story-Keyes Corridor Complete Streets Study completed near Tamien Light Rail Station in 2018. Unit costs have been adjusted for inflation to the year 2020.

Assumptions for all cost estimates are included in the cost estimate sheets presented in Appendix E. In general, cost estimates do not include construction inspection, design, right-of-way, or utility costs unless noted. The total cost estimates are organized by improvement type (on-site or off-site) in Table 9.1. Appendix E provides further details for each corridor.

**Table 9.1. Cost Estimates Summary**

Improvement Location	Street	From	To	Cost of Improvements	Total Costs
Off-Site	Blossom Hill Rd	Sunny Oaks	Snell	\$ 1,969,976	\$ 1,969,976
	Cahalan Ave	Chesbro	Chemeketa	\$ 121,612	
	Entrada Cedro	At Giuffrida		\$ 122,759	
	Velasco Dr	Avenida Arboles	Entrada Cedros	\$ 211,864	
On Site		VTA Station		\$ 268,225	\$ 268,225

## **APPENDIX A – WALK AUDIT WORKSHEETS**

# BLOSSOM HILL STATION ACCESS STUDY

## WALK AUDIT DATA COLLECTION TOOL

Quadrant: North

Morning / Evening

Date / Time / Weather: Feb 14/2020  
Cool to start @ 10.am  
Sunny warm

### OBJECTIVE

The goal of the technical walk audit is to evaluate on-the-ground conditions around the VTA Blossom Hill station, with special considerations to pedestrians and cyclists.

### WHAT TO LOOK FOR

Identify strengths, barriers, opportunities, and observed behavior conditions that can hinder/foster a safe, pleasant environment for pedestrians and cyclists.

Examples of conditions include but are not limited to:

- Barriers: missing/derelict sidewalk or bike paths, lack of lighting, high speeds, visibility concern, places to hide (safety concern), cleanliness, lack of crosswalk, curb ramp etc.
- Strengths: great seating, public art, high use spaces/businesses nearby, opportunities for multi-use paths, etc.
- Observed Behaviors: jaywalking, loitering, littering, transfer experience confusion, nervousness, mothers pushing strollers, aggressive driving, bicycling on sidewalks, illegal activities, etc.

Photo examples of these conditions are provided at the end of this document.

Place yourself in the shoes of various types of individuals: older adults, youth, women, persons with disabilities, non-English speakers, etc.

Take photos! Make a note of the location where the picture is taken, and send them to [jennifer.moore@ibigroup.com](mailto:jennifer.moore@ibigroup.com)

### SAFETY CONSIDERATIONS AND EMERGENCY CONTACT

- If you feel in danger, call 911 immediately. [REDACTED]
- If you have questions in the field, contact [REDACTED] - [REDACTED]
- Stay with your group. Stay alert and wear the safety equipment provided.
- Use the flashlight at night to see and be seen.
- Observe all traffic laws. Cross the street safely at designated locations.





## DIRECTIONS

Trace the route taken on the map. Stay within the area shown on the map.

Conditions may include strengths, barriers, or observed behaviors. Clearly mark the specific location or zone where the condition has been observed. Identify location of specific conditions with a letter (B for barrier, S for strength and O for observed behavior) and a number, and provide further explanation in the table on the following page.

Example of note:

On map mark O1 where you see some jaywalking. Add details as needed on the following page.

#

Notes

1. Velasco Tunnel lighting inadequate. Also doesn't seem safe
2. No pedestrian crosswalk / ADA ramp into tunnel
3. Sidewalk into tunnel need repairs
4. Canal trail and bridge - Access into tunnel
5. uneven street @ entrance to velasco tunnel
6. Handicap issue by canal and station
7. No continuous sidewalk through PANIC & Kide Lot

## SAFETY

### 1.1 Adequate Lighting

Regularly spaced and frequent lighting that is directed towards the sidewalk and any bikeways which provides sufficient illumination. Potential obstacles marked with reflectors or lighting.

### 1.2 Eyes-on-the-Street

Presence of highly transparent ground-floors, windows, and entries.

### 1.3 Presence of security/police

Presence of security figures ready to intervene if trouble occurs.

### 1.4 Well maintained public realm

Sidewalks are smooth and without cracks, vegetation is trimmed, etc.

### 1.5 Safety buffer for bikes

Bikes are adequately set back from vehicles. Consider type and quality of buffer – sufficient width, painted material, and vertical separation, such as bollards.

### 1.6 Safety buffer for pedestrians

Pedestrians set back from travel lanes via ample sidewalk width, landscaping, and street furniture.

### 1.7 People-friendly traffic speeds and manners

Drivers yield to pedestrians and traffic is slowed via narrow roadways, markings, no turn on red lights, etc.

### 1.8 Clear safety signage

Signage is large enough for both pedestrians and motorists to see, placed in easily visible areas, and clear enough to understand.

### 1.9 Station area feels safe

There is a feeling of safety as you walk through the station area. Consider the safety of all users – especially women, children, persons with a disability, and the elderly.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

## AESTHETICS

### 2.1 Sense of Place

Inclusion of unique street characteristic, landmarks, striping or a navigable streetscape or hierarchy that sets this space apart from other areas.

### 2.2 Pleasant Landscaping

Consistent landscaping that provides ample shade. Trees are well maintained and all tree wells are planted with street trees.

### 2.3 Strategically placed pedestrian amenities

There are a variety and sufficiently provided pedestrian amenities (seating, trash cans, water fountains) that are well maintained and inviting. Kiosks and vendors are present on pedestrian paths, are visually pleasing and are located in areas that do not interfere with foot traffic.

### 2.4 Pedestrian unfriendly elements are limited

There is a general lack of the following: unpleasant smells, blank walls, vacant lots, fences, noise pollution, unfriendly street conditions, trash.

### 2.5 Pleasant experience

There is a pleasant ambiance as you walk, bike, or use alternative transit throughout the station area. Consider the experience of all users – especially women, children, persons with a disability, and the elderly. Consider both day and night-time amenities. Care has been taken to make a nice environment for all users.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5



## ACCESSIBILITY

### 3.1 High quality sidewalks

Sidewalks are large enough for pedestrians to walk, pass, and jog comfortably in opposing directions. There are few disruptions to the sidewalk quality (e.g. smooth surface paving, signage, and poles are set back from the pedestrian right-of-way).

### 3.2 Clear, safe crossings

Signalized intersections allow ample time to cross, frequently allow passage, are a walkable distance (or provide a pedestrian refuge or median), are supplied with functioning push buttons, and are painted for safety.

### 3.3 Operating and sufficient bicycle facilities

Bicycle facilities are present, have a smooth surface, and provide riders with bike lanes, routes, pathways, adequate marking, parking, separated push buttons, bike stations and bike boxes.

### 3.4 High quality signage

Signage is located in clear view for pedestrians, bicyclists and other transit modes. Signage provides clear directional and locational information, regulatory warnings, and station area identity.

### 3.5 Parking and drop-off is streamlined

Adequate number of parking spaces (in park-and-ride if applicable), room for drop-off, on street parking serves as a buffer for pedestrians, parking time restrictions are in effect where necessary, and vehicles are prohibited from blocking the pedestrian right-of-way.

### 3.6 Curbs and curb ramps are provided

Curbs and curb ramps are present at all crossings and have a gentle slope.

### 3.7 Navigating the public realm is intuitive and easy

There are frequent and well marked passageways as you walk through the station area. Consider the experience of all users – especially women, children, persons with a disability, and the elderly at various times of the day.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

## TRANSFERS

### 4.1. Clear transit transfer signage

Transit information is posted for all modes. Wayfinding directional signage directs passengers to transfer points and connection locations.

### 4.2. Real-time information

Real-time signage is available and easy to see.

### 4.3. Shaded seating and waiting areas

Shaded seating areas are provided at bus stops and other major waiting locations.

### 4.4. Reduced distances for transfers

Bus stops are consolidated to shorten distances between transfers and decrease street crossings. Transfer points are clustered. Stops and stations are well-positioned to minimize transfer walking distances.

### 4.5. Seamless transfers between transit modes

Transferring to alternate modes of transit is streamlined throughout, with the presence of well-marked, nearby and obvious pathways. Pathways are direct and intuitive while transferring. Connections to transit are visible within clear line of sight from station or stop. People do not seem confused about transit transfers.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

FINAL SCORE: 59/130

## EXAMPLES OF CONDITIONS



**Broken sidewalk** - Photo Credit: Medium



**Jaywalking** - Photo Credit: City Journal



**Adequate Lighting** - Photo Credit: Franck Michel, Flickr



**Littering** - Photo Credit : Third Force News



**Distracted cyclist** - Photo Credit: MrTinDC - Flickr



**Missing Curb Ramp** - Photo Credit: Disability Rights Washington

## **SPOT CHECKS**

### **FOR IBI STAFF**

Information to be collected (Record on the map):

- Inventory of existing sidewalks, crosswalks, pedestrian signals, signage, lighting, ADA improvements within the 0.5 mile pedestrian catchment area [spot check]
- Record physical roadway and sidewalk widths and pavement/ sidewalk quality [spot check]
- Identify traffic signage (posted speed limit, parking restrictions, school zones, etc.) [spot check]
- Record operational roadway characteristics (number and width of travel lanes, turning lanes, center medians, and on-street parking) [spot check]
- Identification of bicycle access routes based on existing and planned bicycle facilities, input from local bicycle communities, and local knowledge of routes that provide access to the stations from all directions within the three-mile bicycle catchment area
- Record street classification (arterial, collector, local) and bicycle facility classification (Class I, II, or III)
- Record roadway ADT as well as posted and observed speeds
- Record roadway grade (none, low: less than 5%, moderate: 5%-10%, and steep: more than 10%)



# BLOSSOM HILL STATION ACCESS STUDY

## WALK AUDIT DATA COLLECTION TOOL

Quadrant: NE/SE

Morning / Evening

Date / Time / Weather: Feb 14/20 • 9:30am to 11am.  
Grey cool to start.  
Sunny warm @ 10am.

### OBJECTIVE

The goal of the technical walk audit is to evaluate on-the-ground conditions around the VTA Blossom Hill station, with special considerations to pedestrians and cyclists.

### WHAT TO LOOK FOR

Identify strengths, barriers, opportunities, and observed behavior conditions that can hinder/foster a safe, pleasant environment for pedestrians and cyclists.

Examples of conditions include but are not limited to:

- Barriers: missing/derelict sidewalk or bike paths, lack of lighting, high speeds, visibility concern, places to hide (safety concern), cleanliness, lack of crosswalk, curb ramp etc.
- Strengths: great seating, public art, high use spaces/businesses nearby, opportunities for multi-use paths, etc.
- Observed Behaviors: jaywalking, loitering, littering, transfer experience confusion, nervousness, mothers pushing strollers, aggressive driving, bicycling on sidewalks, illegal activities, etc.

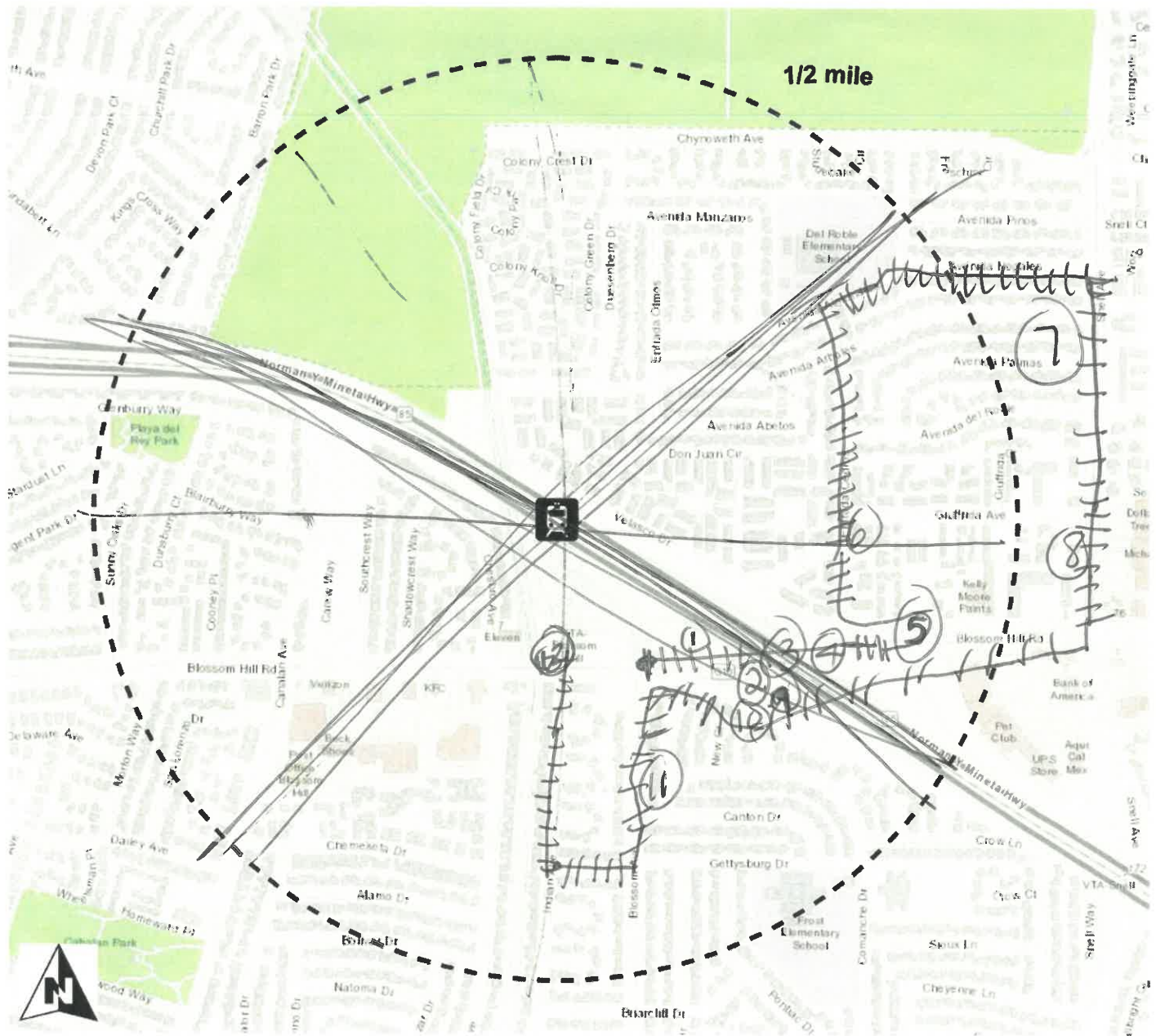
Photo examples of these conditions are provided at the end of this document.

Place yourself in the shoes of various types of individuals: older adults, youth, women, persons with disabilities, non-English speakers, etc.

Take photos! Make a note of the location where the picture is taken, and send them to [jennifer.moore@ibigroup.com](mailto:jennifer.moore@ibigroup.com)

### SAFETY CONSIDERATIONS AND EMERGENCY CONTACT

- If you feel in danger, call 911 immediately.
- If you have questions in the field, contact [REDACTED]
- Stay with your group. Stay alert and wear the safety equipment provided.
- Use the flashlight at night to see and be seen.
- Observe all traffic laws. Cross the street safely at designated locations.



## DIRECTIONS

Trace the route taken on the map. Stay within the area shown on the map.

Conditions may include strengths, barriers, or observed behaviors. Clearly mark the specific location or zone where the condition has been observed. Identify location of specific conditions with a letter (B for barrier, S for strength and O for observed behavior) and a number, and provide further explanation in the table on the following page.

Example of note:

On map mark O1 where you see some jaywalking. Add details as needed on the following page.

#	Notes
①	Noisy. Overhead Power lines, water valves
②	HC Access Barrier - @ ped crosswalk
③	Broken Sidewalk Barrier
④	No Ped Flasher or Bicy Buttons
⑤	No <del>and</del> ped access to Over N'hood - circuitous
⑥	Speeding cars; no bus svc.
⑦	No ped.   Bike
⑧	Lots of ped @ rt. ⑥ on/off, Shell Ave.
⑨	Need Ped Flasher
	⑩ N, S side of
⑪	1 Ped person
⑫	Sidewalk doesn't connect

## SAFETY

### 1.1 Adequate Lighting

Regularly spaced and frequent lighting that is directed towards the sidewalk and any bikeways which provides sufficient illumination. Potential obstacles marked with reflectors or lighting.

### 1.2 Eyes-on-the-Street

Presence of highly transparent ground-floors, windows, and entries.

### 1.3 Presence of security/police

Presence of security figures ready to intervene if trouble occurs.

### 1.4 Well maintained public realm

Sidewalks are smooth and without cracks, vegetation is trimmed, etc.

### 1.5 Safety buffer for bikes

Bikes are adequately set back from vehicles. Consider type and quality of buffer – sufficient width, painted material, and vertical separation, such as bollards.

### 1.6 Safety buffer for pedestrians

Pedestrians set back from travel lanes via ample sidewalk width, landscaping, and street furniture.

### 1.7 People-friendly traffic speeds and manners

Drivers yield to pedestrians and traffic is slowed via narrow roadways, markings, no turn on red lights, etc.

### 1.8 Clear safety signage

Signage is large enough for both pedestrians and motorists to see, placed in easily visible areas, and clear enough to understand.

### 1.9 Station area feels safe

There is a feeling of safety as you walk through the station area. Consider the safety of all users – especially women, children, persons with a disability, and the elderly.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

It was daylight so it was somewhat hard to tell but seemed sufficiently lit by streetlights - although on tall poles

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

Side streets - mostly shared road  
Main streets - good line painting but buffer could be improved.

1 2 3 4 5

1 2 3 4 5

Side streets had parking on both sides to slow traffic - right turn on main road could be hazardous

1 2 3 4 5

1 2 3 4 5



## AESTHETICS

### 2.1 Sense of Place

Inclusion of unique street characteristic, landmarks, striping or a navigable streetscape or hierarchy that sets this space apart from other areas.

### 2.2 Pleasant Landscaping

Consistent landscaping that provides ample shade. Trees are well maintained and all tree wells are planted with street trees.

### 2.3 Strategically placed pedestrian amenities

There are a variety and sufficiently provided pedestrian amenities (seating, trash cans, water fountains) that are well maintained and inviting. Kiosks and vendors are present on pedestrian paths, are visually pleasing and are located in areas that do not interfere with foot traffic.

### 2.4 Pedestrian unfriendly elements are limited

There is a general lack of the following: unpleasant smells, blank walls, vacant lots, fences, noise pollution, unfriendly street conditions, trash.

### 2.5 Pleasant experience

There is a pleasant ambiance as you walk, bike, or use alternative transit throughout the station area. Consider the experience of all users – especially women, children, persons with a disability, and the elderly. Consider both day and night-time amenities. Care has been taken to make a nice environment for all users.

Strongly Disagree

Strongly Agree

1 2 3 4 5

Specific Areas of Concern:

Blossom Hill & Snell are very open and lack a sense of place.

1 2 3 4 5

1 2 3 4 5

Not a lot of foot traffic currently so not a lot of amenities provided.

1 2 3 4 5

1 2 3 4 5

Side streets are fine  
Main roads are bit intimidating & unpleasant

## ACCESSIBILITY

### 3.1 High quality sidewalks

Sidewalks are large enough for pedestrians to walk, pass, and jog comfortably in opposing directions. There are few disruptions to the sidewalk quality (e.g. smooth surface paving, signage, and poles are set back from the pedestrian right-of-way).

### 3.2 Clear, safe crossings

Signalized intersections allow ample time to cross, frequently allow passage, are a walkable distance (or provide a pedestrian refuge or median), are supplied with functioning push buttons, and are painted for safety.

### 3.3 Operating and sufficient bicycle facilities

Bicycle facilities are present, have a smooth surface, and provide riders with bike lanes, routes, pathways, adequate marking, parking, separated push buttons, bike stations and bike boxes.

### 3.4 High quality signage

Signage is located in clear view for pedestrians, bicyclists and other transit modes. Signage provides clear directional and locational information, regulatory warnings, and station area identity.

### 3.5 Parking and drop-off is streamlined

Adequate number of parking spaces (in park-and-ride if applicable), room for drop-off, on street parking serves as a buffer for pedestrians, parking time restrictions are in effect where necessary, and vehicles are prohibited from blocking the pedestrian right-of-way.

### 3.6 Curbs and curb ramps are provided

Curbs and curb ramps are present at all crossings and have a gentle slope.

### 3.7 Navigating the public realm is intuitive and easy

There are frequent and well marked passageways as you walk through the station area. Consider the experience of all users – especially women, children, persons with a disability, and the elderly at various times of the day.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

Near the on/off ramps & at the bridge on Blossom Hill were the biggest concern.

1 2 3 4 5

Crossings at the hwy ramps didn't have flashers.

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5  
too much parking.

1 2 3 4 5

Only found one curb that was not a proper curb ramp

1 2 3 4 5

The side streets are circuitous

## TRANSFERS

### 4.1. Clear transit transfer signage

Transit information is posted for all modes. Wayfinding directional signage directs passengers to transfer points and connection locations.

### 4.2. Real-time information

Real-time signage is available and easy to see.

### 4.3. Shaded seating and waiting areas

Shaded seating areas are provided at bus stops and other major waiting locations.

### 4.4. Reduced distances for transfers

Bus stops are consolidated to shorten distances between transfers and decrease street crossings. Transfer points are clustered. Stops and stations are well-positioned to minimize transfer walking distances.

### 4.5. Seamless transfers between transit modes

Transferring to alternate modes of transit is streamlined throughout, with the presence of well-marked, nearby and obvious pathways. Pathways are direct and intuitive while transferring. Connections to transit are visible within clear line of sight from station or stop. People do not seem confused about transit transfers.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

1 2 3 4 5

1 2 3 4 5

Shaded at the station but the stops on Snell are not.

1 2 3 4 5

1 2 3 4 5

FINAL SCORE:

78/120

# BLOSSOM HILL STATION ACCESS STUDY

## WALK AUDIT DATA COLLECTION TOOL

Quadrant: *NE/SE*

Morning / Evening

Date / Time / Weather: *Feb 4 / 2020*

*ADDITIONAL NOTES*

### OBJECTIVE

The goal of the technical walk audit is to evaluate on-the-ground conditions around the VTA Blossom Hill station, with special considerations to pedestrians and cyclists.

### WHAT TO LOOK FOR

Identify strengths, barriers, opportunities, and observed behavior conditions that can hinder/foster a safe, pleasant environment for pedestrians and cyclists.

Examples of conditions include but are not limited to:

- Barriers: missing/derelict sidewalk or bike paths, lack of lighting, high speeds, visibility concern, places to hide (safety concern), cleanliness, lack of crosswalk, curb ramp etc.
- Strengths: great seating, public art, high use spaces/businesses nearby, opportunities for multi-use paths, etc.
- Observed Behaviors: jaywalking, loitering, littering, transfer experience confusion, nervousness, mothers pushing strollers, aggressive driving, bicycling on sidewalks, illegal activities, etc.

Photo examples of these conditions are provided at the end of this document.

Place yourself in the shoes of various types of individuals: older adults, youth, women, persons with disabilities, non-English speakers, etc.

Take photos! Make a note of the location where the picture is taken, and send them to [jennifer.moore@ibigroup.com](mailto:jennifer.moore@ibigroup.com)

### SAFETY CONSIDERATIONS AND EMERGENCY CONTACT

- If you feel in danger, call 911 immediately. [REDACTED]
- If you have questions in the field, contact [REDACTED]
- Stay with your group. Stay alert and wear the safety equipment provided.
- Use the flashlight at night to see and be seen.
- Observe all traffic laws. Cross the street safely at designated locations.







# BLOSSOM HILL STATION ACCESS STUDY

## WALK AUDIT DATA COLLECTION TOOL

Quadrant: *SW Quadrant*

Morning / Evening

Date / Time / Weather: *Feb 14 / 20*  
*Cool to start.*  
*Sunny/Warm @ 10:00am*

### OBJECTIVE

The goal of the technical walk audit is to evaluate on-the-ground conditions around the VTA Blossom Hill station, with special considerations to pedestrians and cyclists.

### WHAT TO LOOK FOR

Identify strengths, barriers, opportunities, and observed behavior conditions that can hinder/foster a safe, pleasant environment for pedestrians and cyclists.

Examples of conditions include but are not limited to:

- Barriers: missing/derelict sidewalk or bike paths, lack of lighting, high speeds, visibility concern, places to hide (safety concern), cleanliness, lack of crosswalk, curb ramp etc.
- Strengths: great seating, public art, high use spaces/businesses nearby, opportunities for multi-use paths, etc.
- Observed Behaviors: jaywalking, loitering, littering, transfer experience confusion, nervousness, mothers pushing strollers, aggressive driving, bicycling on sidewalks, illegal activities, etc.

Photo examples of these conditions are provided at the end of this document.

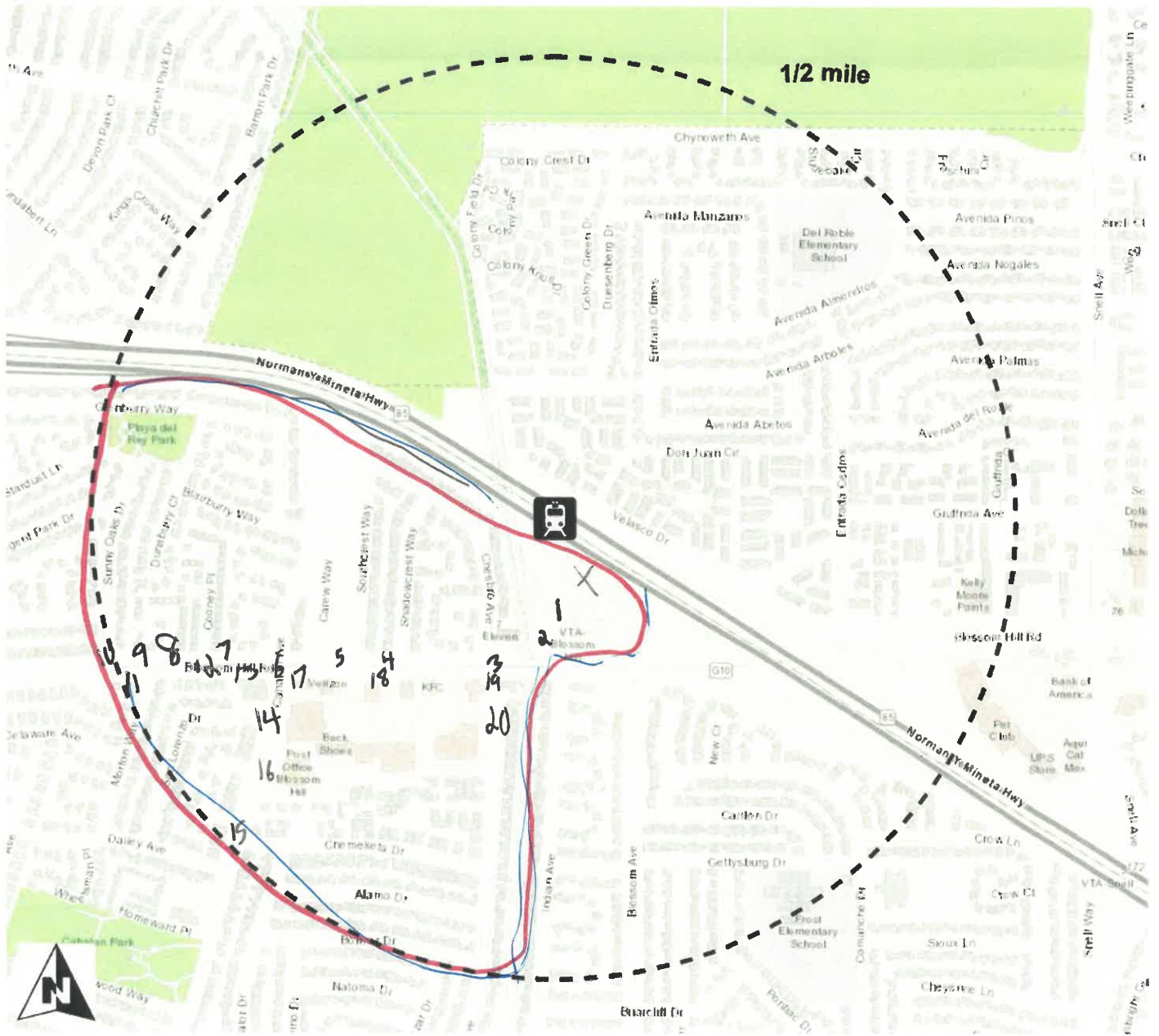
Place yourself in the shoes of various types of individuals: older adults, youth, women, persons with disabilities, non-English speakers, etc.

Take photos! Make a note of the location where the picture is taken, and send them to [jennifer.moore@ibigroup.com](mailto:jennifer.moore@ibigroup.com)

### SAFETY CONSIDERATIONS AND EMERGENCY CONTACT

- If you feel in danger, call 911 immediately. [REDACTED]
- If you have questions in the field, contact [REDACTED]
- Stay with your group. Stay alert and wear the safety equipment provided.
- Use the flashlight at night to see and be seen.
- Observe all traffic laws. Cross the street safely at designated locations.





## DIRECTIONS

Trace the route taken on the map. Stay within the area shown on the map.

Conditions may include strengths, barriers, or observed behaviors. Clearly mark the specific location or zone where the condition has been observed. Identify location of specific conditions with a letter (B for barrier, S for strength and O for observed behavior) and a number, and provide further explanation in the table on the following page.

Example of note:

On map mark O1 where you see some jaywalking. Add details as needed on the following page.

#	Notes
1.	Lack of sidewalks in parking lot on creek side
2	Goodwill donation truck in " " " near " "
3 -	Non-directional ramps @ Chesbro (photos) transverse crosswalks Long cycle times
4 -	No crosswalks @ B.H. & entrance Dick's/Unicy Burger
5 -	Unbuffered bike lanes on " " when space available; person walking
6	Unnecessary park chop; sidewalk crosswalk closed right leg; transverse crosswalk w diagonal curb no dome
7	Sidewalk & landscaping swapped
8	Person crossing at unmarked & hostile cross Farmhouse & B.H.
9.	Three obstructions less than 36" at least once.
10.	Unmarked crossing at Sunny Oaks/Rielly & B.H. no curb cuts at median
11	Landscape encroach & trash; mature tree canopy
12	Same as #10 at Morton
13	How packed is B.H. very low usage in morning
14	No marked crosswalks & no curb cuts on east side of Cahalen & San Lorenzo
15	" " " as far as they can see. Very large turn radii on tiny side streets 1 pedestrian spotted crossing took 25 seconds waiting for non-yielding traffic
16.	Post Office - wide sidewalks, no crosswalks or street trees; no walk ways from " " to Post Office; only cut through of bushes ADA non-compliant walkway
17	C & B.H. south east corner missing curb cut to X-Cahalen 2 pedestrian spotted
18	Retail all has pedestrian access
19	Trash cans at all 4 corners w Chesbro
20	Narrow sidewalks on Chesbro; 1 pedestrian; 1 unsheltered person On-street parking is well utilized
21	Narrow sidewalk @ bridge 3 pedestrians on B.H.
22	Missing B.H. crosswalk at Indian <sup>th</sup> but sidewalk @ station on east side of entrance; 2 runners; why right turn pocket into Indian?
23	Main ped exit route has "no crossing" sign where a high quality crosswalk should be.

## SAFETY

### 1.1 Adequate Lighting

Regularly spaced and frequent lighting that is directed towards the sidewalk and any bikeways which provides sufficient illumination. Potential obstacles marked with reflectors or lighting.

### 1.2 Eyes-on-the-Street

Presence of highly transparent ground-floors, windows, and entries.

### 1.3 Presence of security/police

Presence of security figures ready to intervene if trouble occurs.

### 1.4 Well maintained public realm

Sidewalks are smooth and without cracks, vegetation is trimmed, etc.

### 1.5 Safety buffer for bikes

Bikes are adequately set back from vehicles. Consider type and quality of buffer – sufficient width, painted material, and vertical separation, such as bollards.

### 1.6 Safety buffer for pedestrians

Pedestrians set back from travel lanes via ample sidewalk width, landscaping, and street furniture.

### 1.7 People-friendly traffic speeds and manners

Drivers yield to pedestrians and traffic is slowed via narrow roadways, markings, no turn on red lights, etc.

### 1.8 Clear safety signage

Signage is large enough for both pedestrians and motorists to see, placed in easily visible areas, and clear enough to understand.

### 1.9 Station area feels safe

There is a feeling of safety as you walk through the station area. Consider the safety of all users – especially women, children, persons with a disability, and the elderly.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

Not Evaluated

1 2 3 4 5

1 2 3 4 5

N/A

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

## AESTHETICS

### 2.1 Sense of Place

Inclusion of unique street characteristic, landmarks, striping or a navigable streetscape or hierarchy that sets this space apart from other areas.

### 2.2 Pleasant Landscaping

Consistent landscaping that provides ample shade. Trees are well maintained and all tree wells are planted with street trees.

### 2.3 Strategically placed pedestrian amenities

There are a variety and sufficiently provided pedestrian amenities (seating, trash cans, water fountains) that are well maintained and inviting. Kiosks and vendors are present on pedestrian paths, are visually pleasing and are located in areas that do not interfere with foot traffic.

### 2.4 Pedestrian unfriendly elements are limited

There is a general lack of the following: unpleasant smells, blank walls, vacant lots, fences, noise pollution, unfriendly street conditions, trash.

### 2.5 Pleasant experience

There is a pleasant ambiance as you walk, bike, or use alternative transit throughout the station area. Consider the experience of all users – especially women, children, persons with a disability, and the elderly. Consider both day and night-time amenities. Care has been taken to make a nice environment for all users.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

1 2 3 4 5

## ACCESSIBILITY

### 3.1 High quality sidewalks

Sidewalks are large enough for pedestrians to walk, pass, and jog comfortably in opposing directions. There are few disruptions to the sidewalk quality (e.g. smooth surface paving, signage, and poles are set back from the pedestrian right-of-way).

### 3.2 Clear, safe crossings

Signalized intersections allow ample time to cross, frequently allow passage, are a walkable distance (or provide a pedestrian refuge or median), are supplied with functioning push buttons, and are painted for safety.

### 3.3 Operating and sufficient bicycle facilities

Bicycle facilities are present, have a smooth surface, and provide riders with bike lanes, routes, pathways, adequate marking, parking, separated push buttons, bike stations and bike boxes.

### 3.4 High quality signage

Signage is located in clear view for pedestrians, bicyclists and other transit modes. Signage provides clear directional and locational information, regulatory warnings, and station area identity.

### 3.5 Parking and drop-off is streamlined

Adequate number of parking spaces (in park-and-ride if applicable), room for drop-off, on street parking serves as a buffer for pedestrians, parking time restrictions are in effect where necessary, and vehicles are prohibited from blocking the pedestrian right-of-way.

### 3.6 Curbs and curb ramps are provided

Curbs and curb ramps are present at all crossings and have a gentle slope.

### 3.7 Navigating the public realm is intuitive and easy

There are frequent and well marked passageways as you walk through the station area. Consider the experience of all users – especially women, children, persons with a disability, and the elderly at various times of the day.

Strongly Disagree

Strongly Agree

1 (2) 3 4 5  
Specific Areas of Concern: Obstructing poles, uneven

(1) 2 3 4 5  
Many missing legs; no quality treatments

1 2 (3) 4 5  
Need to be buffered

(1) 2 3 4 5  
Few and faded signage, only one sign

1 2 3 4 5

1 (2) 3 4 5  
Many are missing

(1) 2 3 4 5  
Missing walkways & cross walks, diagonal ramps (wheelchair & strollers)



## TRANSFERS

### 4.1. Clear transit transfer signage

Transit information is posted for all modes. Wayfinding directional signage directs passengers to transfer points and connection locations.

### 4.2. Real-time information

Real-time signage is available and easy to see.

### 4.3. Shaded seating and waiting areas

Shaded seating areas are provided at bus stops and other major waiting locations.

### 4.4. Reduced distances for transfers

Bus stops are consolidated to shorten distances between transfers and decrease street crossings. Transfer points are clustered. Stops and stations are well-positioned to minimize transfer walking distances.

### 4.5. Seamless transfers between transit modes

Transferring to alternate modes of transit is streamlined throughout, with the presence of well-marked, nearby and obvious pathways. Pathways are direct and intuitive while transferring. Connections to transit are visible within clear line of sight from station or stop. People do not seem confused about transit transfers.

Strongly Disagree

Strongly Agree

1 2 3 4 5  
Specific Areas of Concern:

1 2 3 4 5  
None visible at station entrance

1 2 3 4 5  
Station has some, stops near station have none

1 2 3 4 5

1 2 3 4 5

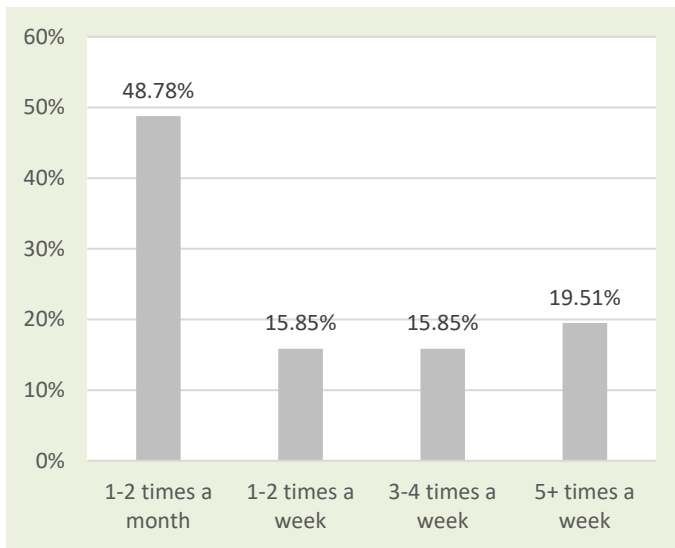
FINAL SCORE: 34/90 answered

## **APPENDIX B – ONLINE COMMUNITY SURVEY SUMMARY**

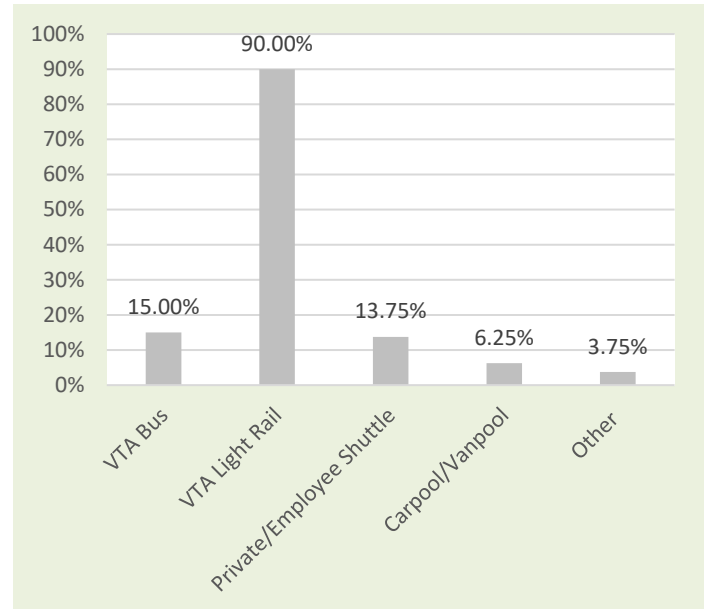
# BLOSSOM HILL STATION ACCESS SURVEY

- There were 87 respondents for the Blossom Hill Station Access Survey.
- Data was collected from May 20 to June 10.
- The survey had seven station access related questions, three demographic questions, and an option to submit an email for more information.
- Average age of respondent is between 35 and 44.
- 37% of respondents identified as female, 55% of respondents identified as male, 1% identified as non-binary, and 7% preferred not to answer this question.
- 57% of respondents identified as white, 21% as Asian, and 9% as Hispanic.

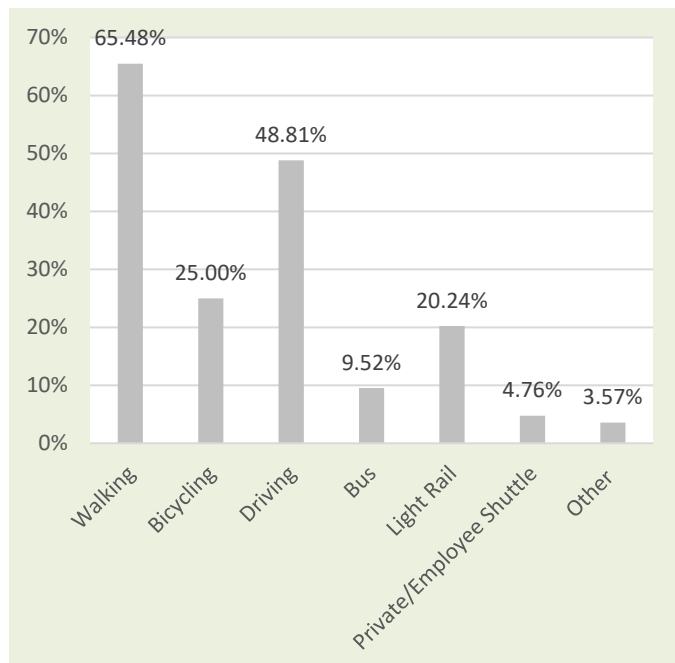
## How often do you use the Tamien light rail/bus or Caltrain Station?



## What mode of travel do you access at the Blossom Hill Station?



## What modes of travel do you use to get to the Tamien Station?

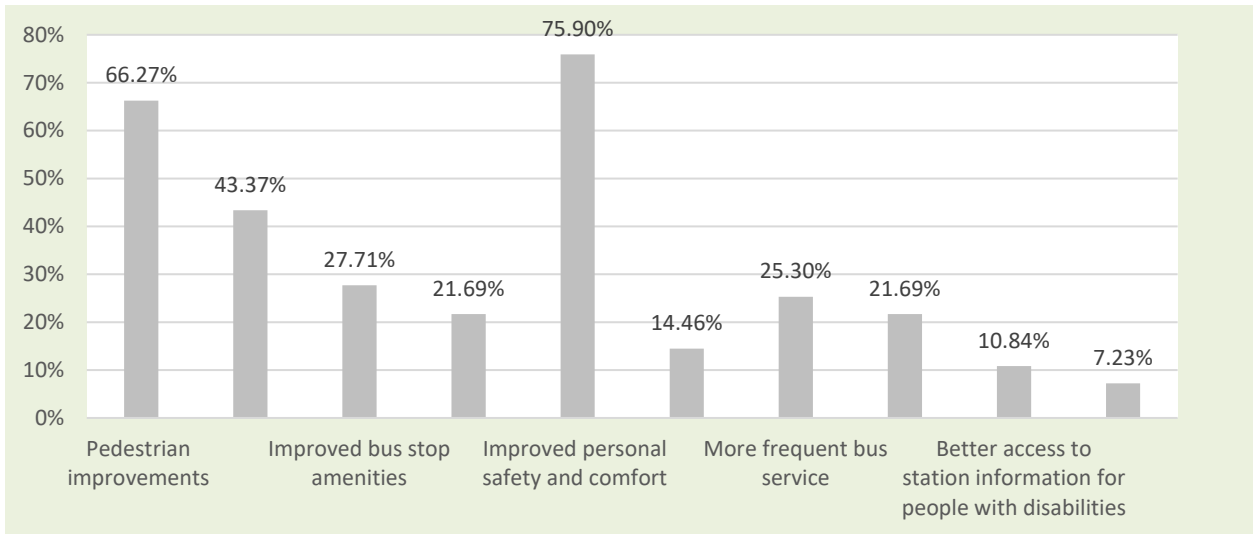


## What proposed station access improvements do you like or support the most on the streets around the station?

There were 49 open ended responses. There were:

- 14 mentions of the Canoas Creek Path
- 8 mentions of improved bike access
- 7 mentions of traffic calming measures
- 6 mentions of personal safety
- 4 mentions of new or improved crosswalks
- 3 mentions of improved bus/transit service
- 2 mentions of ADA accessibility
- 1 mention of improved wayfinding
- 1 mention of widened sidewalks

## How could access to the Blossom Hill Station be improved?



### What improvements would you like to see at Blossom Hill Station?

There were 29 open ended responses.

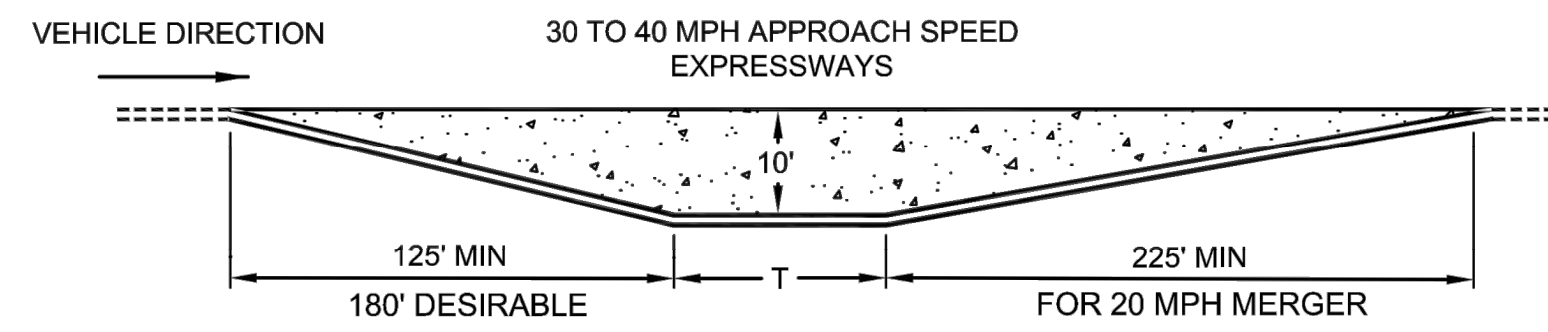
There were:

- 5 mentions of bicycle access improvements
- 3 mentions of improved lighting
- 3 mentions of parking improvements
- 3 mentions of personal safety
- 3 mentions of improved transit service
- 3 mentions of introducing housing and retail development
- 2 mentions of ADA accessibility
- 2 mentions of new or improved sidewalks
- 1 mention of traffic calming measures
- 1 mention of improved wayfinding

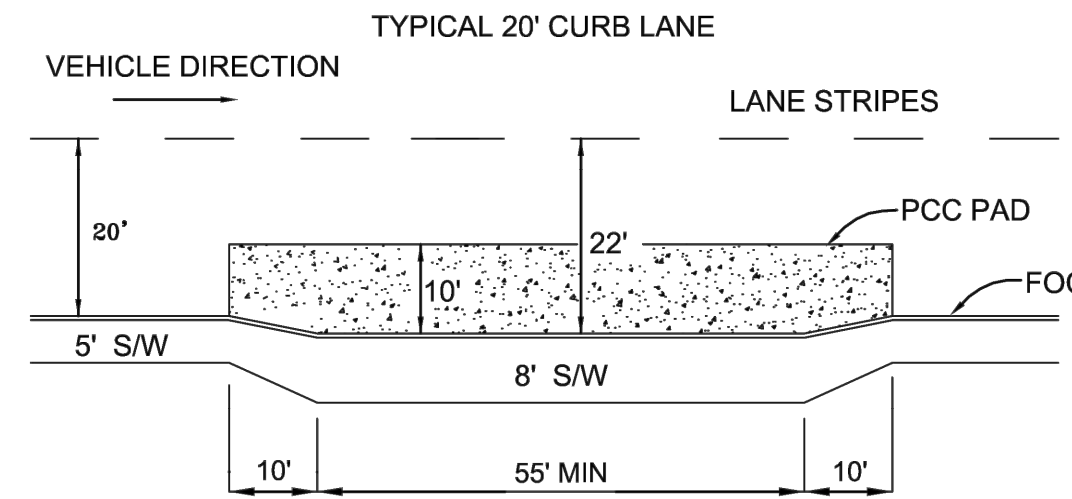
## **APPENDIX C – PROJECT SITE PLAN AND PARKING EXHIBIT**



**DETAIL 1**



**DETAIL 2**



**CONSTRUCTION NOTES:**

- 1 6" VERTICAL CURB AND GUTTER
- 2 CSJ CURB AND GUTTER
- 3 CSJ VALLEY GUTTER
- 4 6" VERTICAL CURB
- 5 DRIVEWAY APRON
- 6 EXISTING VERTICAL CURB TO REMAIN

**LEGEND**

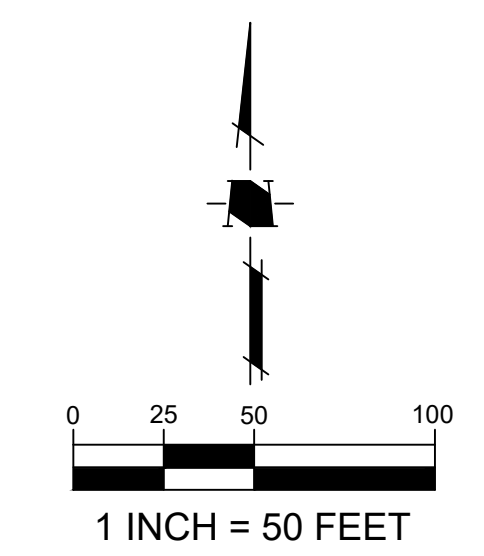
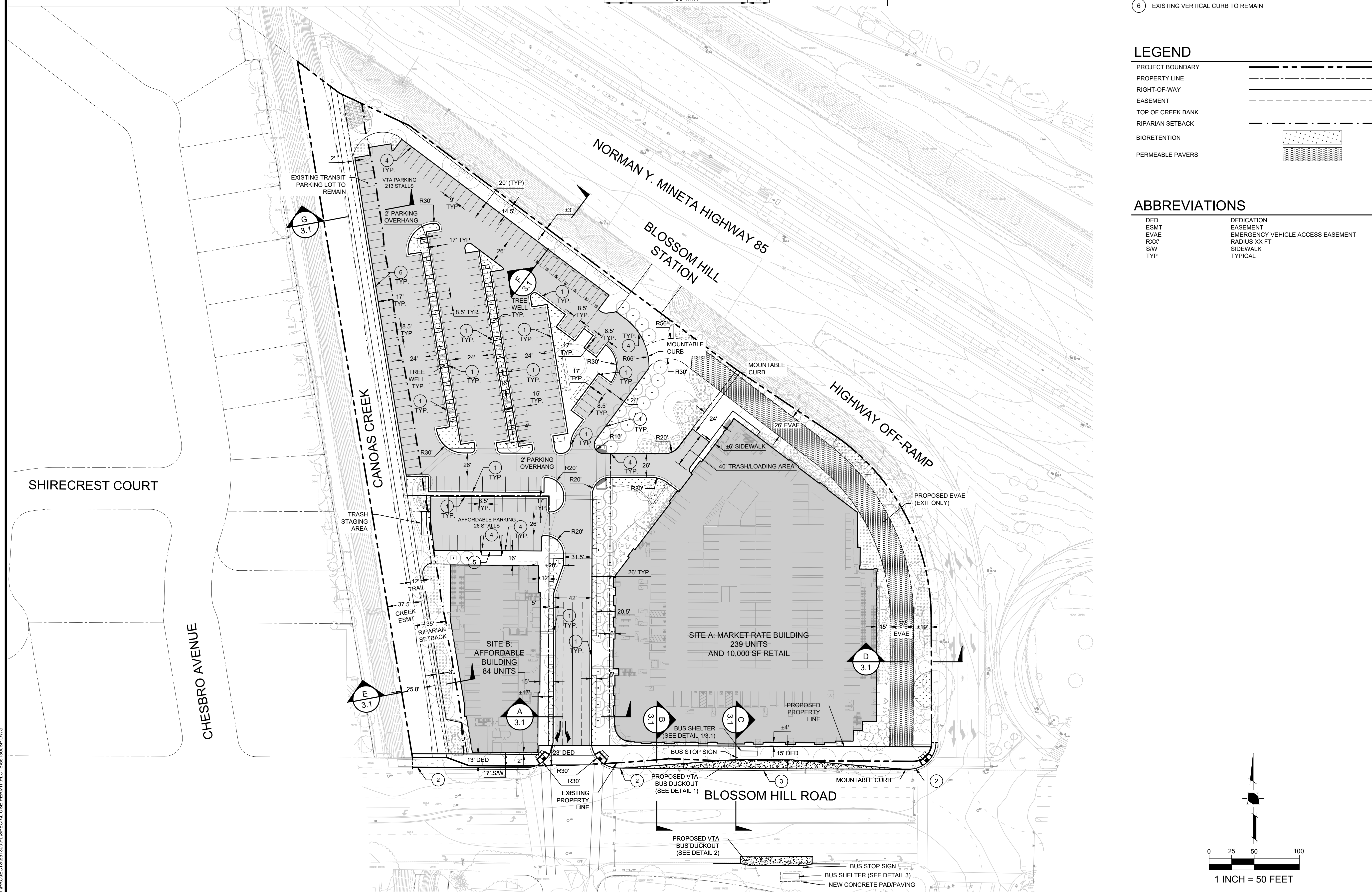
PROJECT BOUNDARY	---
PROPERTY LINE	---
RIGHT-OF-WAY	---
EASEMENT	---
TOP OF CREEK BANK	---
RIPARIAN SETBACK	---
BIORETENTION	[Pattern]
PERMEABLE PAVERS	[Pattern]

**ABBREVIATIONS**

DED	DEDICATION
ESMT	EASEMENT
EVAE	EMERGENCY VEHICLE ACCESS EASEMENT
RXX	RADIUS XX FT
SW	SIDEWALK
TYP	TYPICAL



**SPECIAL USE PERMIT**  
**SP -**  
**VTA BLOSSOM HILL STATION TOD**  
**GREEN REPUBLIC BLOSSOM HILL LLC**



NO	DATE	DESCRIPTION

**SITE PLAN**

**C3.0**

S:\PROJECTS\51300\PL\SP\PERMIT\PLOTS\51300SP.DWG

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**SPECIAL USE PERMIT**  
**SP -**  
**VTA BLOSSOM HILL STATION TOD**  
**GREEN REPUBLIC BLOSSOM HILL LLC**

NO	DATE	DESCRIPTION
PROJECT NO:		5513.00
CAD DWG FILE:		551300PARKING EXHIBIT.DWG
DESIGNED BY:		MP/BC
DRAWN BY:		JC
CHECKED BY:		VM
DATE:		March 13, 2020
SCALE:		1" = 50'
©		HMMH

**PARKING EXHIBIT**

**C4.0**

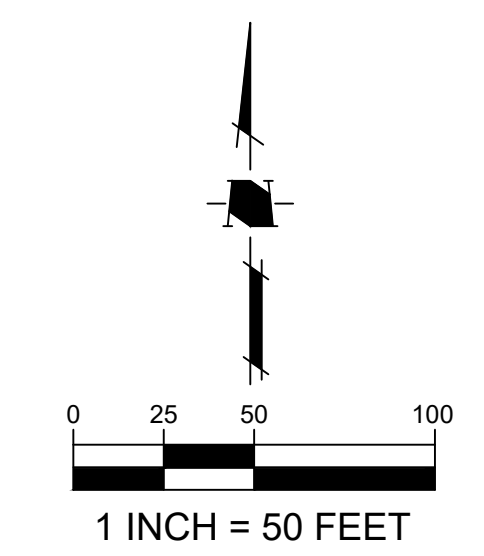
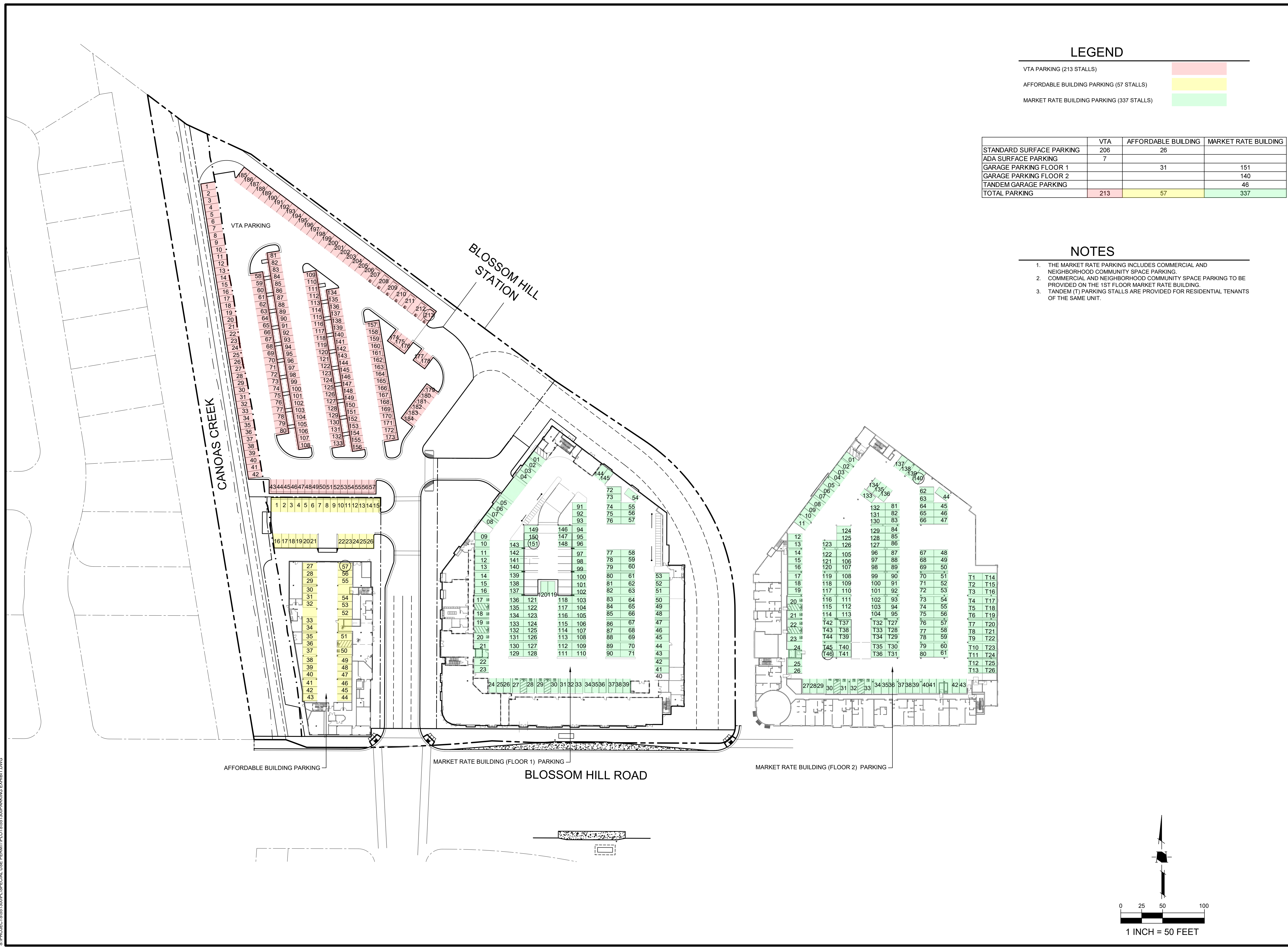
**LEGEND**

VTA PARKING (213 STALLS)	
AFFORDABLE BUILDING PARKING (57 STALLS)	
MARKET RATE BUILDING PARKING (337 STALLS)	

	VTA	AFFORDABLE BUILDING	MARKET RATE BUILDING
STANDARD SURFACE PARKING	206	26	
ADA SURFACE PARKING	7		
GARAGE PARKING FLOOR 1		31	151
GARAGE PARKING FLOOR 2			140
TANDEM GARAGE PARKING			46
<b>TOTAL PARKING</b>	<b>213</b>	<b>57</b>	<b>337</b>

**NOTES**

1. THE MARKET RATE PARKING INCLUDES COMMERCIAL AND NEIGHBORHOOD COMMUNITY SPACE PARKING.
2. COMMERCIAL AND NEIGHBORHOOD COMMUNITY SPACE PARKING TO BE PROVIDED ON THE 1ST FLOOR MARKET RATE BUILDING.
3. TANDEM (T) PARKING STALLS ARE PROVIDED FOR RESIDENTIAL TENANTS OF THE SAME UNIT.

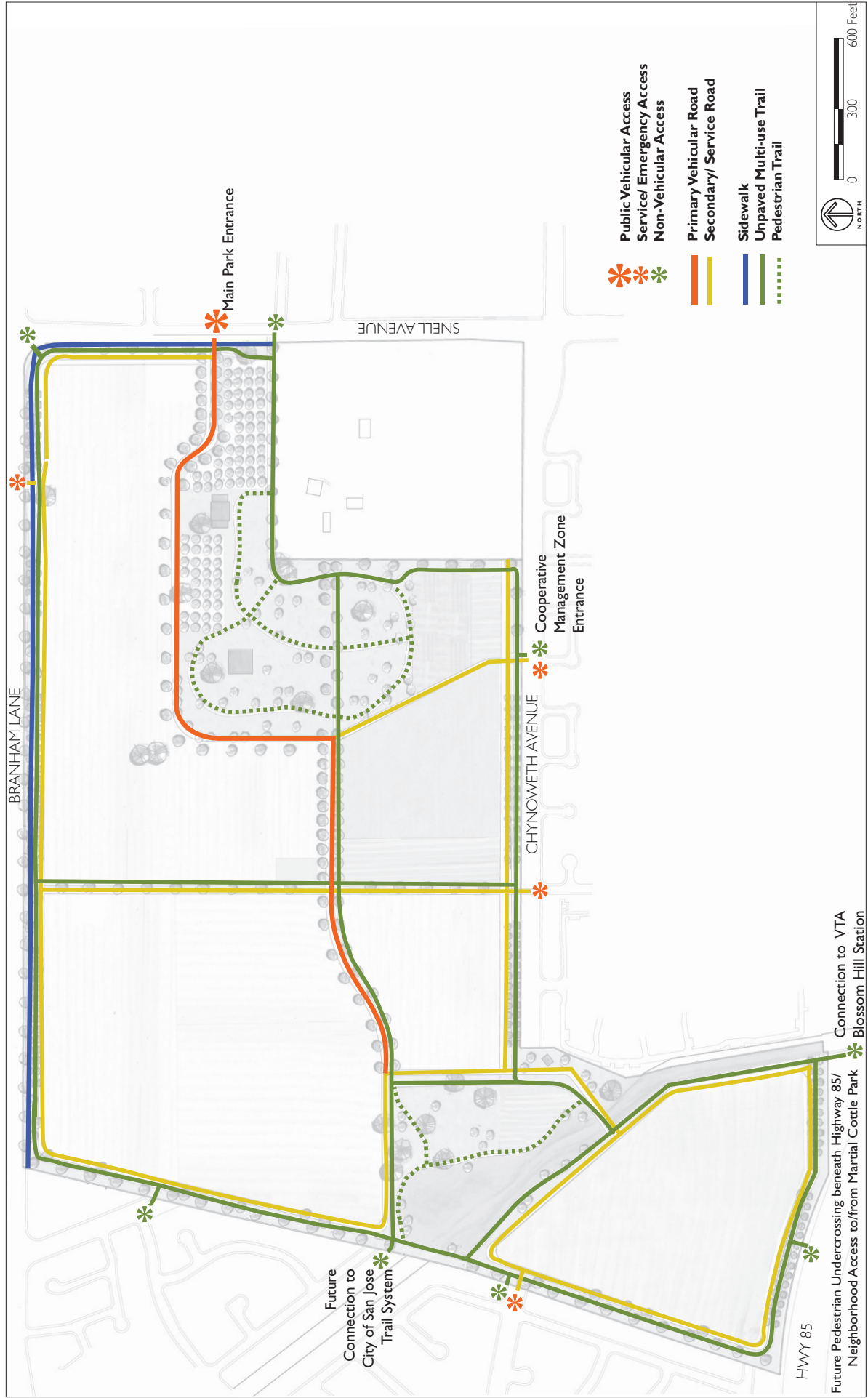


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## **APPENDIX D – MARTIAL COTTLE PARK PLAN CIRCULATION EXHIBIT**





Source: DC&E, 2010.

Future Pedestrian Undercrossing beneath Highway 85/ Neighborhood Access to/from Martial Cottle Park

FIGURE 3 - 5  
 CIRCULATION PLAN

## **APPENDIX E – COST ESTIMATES**

**VTA Blossom Hill TOD Access Study**  
**Conceptual Cost Estimate for Off-Site and On-Site Improvements**  
**August 4, 2020**

**Off-Site Summary**

ID	Item	Amount
A	Civil	\$ 487,602
B	Signing / Striping	\$ 447,301
C	Traffic / Electrical	\$ 116,600
D	Traffic / Electrical Labor (25% of T/E)	\$ 29,150
E	Furnishing	\$ 66,332
F	Landscaping / Irrigation	\$ 1,485
G	Traffic Control & TMP Estimate	\$ 90,000
H	Water Pollution Control Estimate	\$ 10,000
I	Maintain WPCP / Perform Filings Estimate	\$ 8,000
J	Project Construction Survey Estimate	\$ 20,000
<b>K</b>	<b>Materials and Permits Subtotal (A - J)</b>	<b>\$ 1,276,470</b>
L	Mobilization (10% of K)	\$ 127,647
<b>M</b>	<b>Construction Subtotal (K + L)</b>	<b>\$ 1,404,116</b>
N	Contingency (% of M)	15%
	Contingency Amount	\$ 210,617
<b>O</b>	<b>Total Construction Cost (M + N)</b>	<b>\$ 1,614,733</b>
P	Eng./Design (10% of O)	\$ 161,473
Q	Administration (5% of O)	\$ 80,737
R	Constr. Mgmt (7% of O)	\$ 113,031
	<b>Total Project Cost</b>	<b>\$ 1,969,974</b>

**CIVIL**

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Curb (6") & Gutter (24")	LF	\$ 51.50	185	\$ 9,528
Curb Ramp - Corner	EA	\$ 2,800.00	6	\$ 16,800
Curb Ramp - Mid Block	EA	\$ 2,500.00	1	\$ 2,500
Median / Median Island	SF	\$ 15.50	150	\$ 2,325
Raised Ped Transit Stop Platform (50' Length)	EA	\$ 25,000.00	1	\$ 25,000
Asphalt Filler Strip (2' wide)	LF	\$ 56.00	85	\$ 4,760
PCC - Filler Strip (6" wide)	LF	\$ 5.20	150	\$ 780
PCC Sidewalk - 4" Depth / 2' Wide	LF	\$ 20.60	290	\$ 5,974
Slurry Seal + Crack Sealing	SF	\$ 0.75	545,000	\$ 408,750
Saw-cut of existing Concrete Pavement	LF	\$ 4.00	40	\$ 160
Saw-cut of existing Asphalt Pavement	LF	\$ 3.00	235	\$ 705
Remove existing Curb & Gutter	LF	\$ 20.00	180	\$ 3,600
Remove existing sidewalk, curb ramps & driveway	SF	\$ 7.00	960	\$ 6,720
<b>SUBTOTAL</b>				<b>\$ 487,602</b>

**SIGNING / STRIPING**

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Install Limit Line	LF	\$ 8.50	1,026	\$ 8,721
Install 4" Striping (Dashed) - Thermoplastic	LF	\$ 2.50	19,648	\$ 49,120
Install 8" Striping - Thermoplastic	LF	\$ 10.00	2,340	\$ 23,400
Install Double Yellow Line (4") - Thermoplastic	LF	\$ 3.00	1,450	\$ 4,350
Install Continental Crosswalk - Thermoplastic (12')	LF	\$ 80.00	2,000	\$ 160,000
Install Turn Arrow - Thermoplastic	EA	\$ 500.00	39	\$ 19,500
Bike Route Signing	MI	\$ 1,650.00	1	\$ 1,650
Install Bike Buffer (2' wide) - Thermoplastic	LF	\$ 6.00	3,630	\$ 21,780
Install Bike Buffer (4' wide) - Thermoplastic	LF	\$ 12.00	3,435	\$ 41,220
Install Bike Lane Marking - Thermoplastic	EA	\$ 350.00	32	\$ 11,200
Install Sharrow - Thermoplastic	EA	\$ 500.00	20	\$ 10,000
Install Greenback Sharrow - Thermoplastic	EA	\$ 700.00	1	\$ 700
Install Green Thermoplastic	SF	\$ 10.00	1,280	\$ 12,800
Install Sign on Existing Post	EA	\$ 80.00	22	\$ 1,760
Install Sign on New Post	EA	\$ 360.00	10	\$ 3,600
Install Green Bike Lane Conflict Marking - Thermop.	LF	\$ 20.00	3,875	\$ 77,500
<b>SUBTOTAL</b>				<b>\$ 447,301</b>

**TRAFFIC / ELECTRICAL**

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Street Light - Basic	EA	\$7,500	4	\$ 30,000
Pedestrian Scale Lighting	EA	\$6,180	10	\$ 61,800
Install Rapid Flashing Ped Beacon	EA	\$ 24,800.00	1	\$ 24,800
<b>SUBTOTAL</b>				<b>\$ 116,600</b>

**SITE FURNISHINGS**

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Bollard (Steel with Plastic Sleeve)	EA	\$ 412.00	161	\$ 66,332
<b>SUBTOTAL</b>				<b>\$ 66,332</b>

**LANDSCAPE / IRRIGATION**

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Clearing and Grubbing	SF	\$ 1.50	990	\$ 1,485
<b>SUBTOTAL</b>				<b>\$ 1,485</b>

### On-Site Summary

ID	Item	Amount
A	Civil	\$ 69,200
B	Signing / Striping	\$ 2,400
C	Traffic / Electrical	\$ -
D	Traffic / Electrical Labor (25% of T/E)	\$ -
E	Furnishing	\$ 73,799
F	Landscaping / Irrigation	\$ -
G	Traffic Control & TMP Estimate	\$ 10,000
H	Water Pollution Control Estimate	\$ 5,000
I	Maintain WPCP / Perform Filings Estimate	\$ 5,000
J	Project Construction Survey Estimate	\$ 10,000
<b>K</b>	<b>Materials and Permits Subtotal (A - J)</b>	<b>\$ 175,399</b>
L	Mobilization (10% of K)	\$ 17,540
<b>M</b>	<b>Construction Subtotal (K + L)</b>	<b>\$ 192,939</b>
N	Contingency (% of M)	15%
	Contingency Amount	\$ 28,941
<b>O</b>	<b>Total Construction Cost (M + N)</b>	<b>\$ 221,880</b>
P	Eng./Design (10% of O)	\$ 22,188
Q	Administration (5% of O)	\$ 11,094
R	Constr. Mgmt (7% of O)	\$ 15,532
	<b>Total Project Cost</b>	<b>\$ 270,694</b>

### CIVIL

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Curb Ramp - Corner	EA	\$ 2,800.00	2	\$ 5,600
PCC Sidewalk - 4" Depth / 10' Wide	LF	\$ 103.00	400	\$ 41,200
Remove existing sidewalk, curb ramps & driveways	SF	\$ 7.00	3,200	\$ 22,400
<b>SUBTOTAL</b>				<b>\$ 69,200</b>

### SIGNING / STRIPING

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Install Continental Crosswalk - Thermoplastic (12')	LF	\$ 80.00	30	\$ 2,400
<b>SUBTOTAL</b>				<b>\$ 2,400</b>

### SITE FURNISHINGS

DESCRIPTION	UNIT	UNIT PRICE	QUANTITY	TOTAL
Bike Locker	EA	\$ 2,200.00	11	\$ 24,200
Bike Rack	EA	\$ 800.00	2	\$ 1,600
Stair Demolition	SF	\$ 7.00	291	\$ 2,037
Stair Platform (Bottom) - 8' Wide	SF	\$ 82.40	76	\$ 6,262
Stair Side Walls (Reinforced Concrete) - 4' H	SF	\$ 25.00	448	\$ 11,200
Stair Railing	LF	\$ 35.00	100	\$ 3,500
Stair Construction (30' Rise over 40')	LS	\$ 25,000.00	1	\$ 25,000
<b>SUBTOTAL</b>				<b>\$ 73,799</b>