



MEMORANDUM

Date: January 14, 2020
To: Tim Oster, CTC Inc.
Ryan O'Connell, City of Emeryville
From: Rob Rees, Fehr & Peers
Subject: **Emeryville Quiet Zone Transportation Impact Assessment Study**

OK19-0312

This memorandum summarizes the analysis and findings from the *Final Emeryville Quiet Zone Transportation Impact Assessment* dated September 25, 2019 which was prepared for the proposed Emeryville Quiet Zone (project) located on 65th, 66th, and 67th street crossings of the Union Pacific Railroad.

Alternatives Considered

The study evaluated the transportation impacts of the proposed Quiet Zone, which is proposed to construct a permanent closure of 66th Street only (Option 1) or a permanent closure of 66th and 67th street (Option 2).

Through FHWA and ITE guidance, it was determined that traffic over closely spaced crossings should be consolidated to a nearby crossing with flashing-lights and gates if alternative routes have enough capacity to accommodate the diverted traffic safely and efficiently. The best alternative with one crossing closure was determined to be closing 66th Street because the alternative routes for traffic on 66th Street had a reasonable travel time and distance. The impact on pedestrian and bicycle travel was evaluated as well and found to be a reasonable. Additionally, the closure of 66th Street was analyzed rather than closure of 67th Street because a closure at 66th Street with signalization at 67th Street would have better signal spacing for coordination, rather than a closure at 67th Street with signalization at 66th Street. Vehicle queues at 67th Street caused by a gate down event would be less likely to impact operation at 65th Street. Last, 66th Street has more room for emergency vehicles to turn around.



Findings and Recommendations

The analysis considered traffic operations at twelve intersections and several road segments including vehicle delay and level of service (LOS) as well as vehicle queueing. The analysis also considered the north / south vehicle travel time through the study area. The study focused on the weekday evening (4:00 to 6:00 PM) commute period which coincides with the time-period when adjacent street traffic demands are greatest. The study intersections included:

- | | |
|---|--|
| 1. Ashby Avenue at 7 th Street | 7. 66 th Street at Hollis Street |
| 2. Potter Street at Bay Street | 8. 65 th Street at Shellmound Street |
| 3. I-80 Off-Ramp at Shellmound Street | 9. 65 th Street at Overland Street |
| 4. 67 th Street at Shellmound Street | 10. 65 th Street at Hollis Street |
| 5. 67 th Street at Hollis Street | 11. 64 th Street at Shellmound Avenue |
| 6. 66 th Street at Shellmound Street | 12. Powell Street at Hollis Street |

Traffic operations were established using methodologies in the *2010 Highway Capacity Manual* (HCM) which calculates delay experienced by drivers traveling through the study area taking into consideration many factors such as traffic volumes, vehicle fleet mix, lane geometry, traffic signal phasing and timing, and pedestrian timing. Micro-simulation software was used to establish traffic operations for Option 1 and Option 2 including the effects of railroad gate downtimes on traffic operations. Several Measures of Effectiveness (MOEs) were used in the study including:

- Intersection Operations
- Vehicle Queue Lengths
- Driver Travel Time
- Transit Travel Time

Other MOEs include bike and pedestrian connectivity and emergency services. Consideration was also given to economic impact and benefit.

Table 1 summarizes the report findings and lists the report's recommendations. Based on the analysis findings, implementation of Option 1, the closure of 66th street is recommended. In addition to the evaluation, **Table 2** provides the City several considerations to improve operations for motorists, pedestrians and bicyclists in the study area.



Table 1: Findings and Recommendation Matrix

Measure of Effectiveness	Option 1	Option 2	Recommendation
Intersection Operations	Intersections operate at acceptable levels with manageable driver delay.	Intersections on 65 th Street operate at unacceptable levels with substantial driver delay.	Implement Option 1.
Vehicle Queues	Queues on Shellmound Street improve over today with some degradation in queuing on Hollis Street.	Substantial queue deterioration at 65 th Street intersections with Shellmound, Overland, and Hollis streets as well as at the railroad crossing.	Implement Option 1, change coordination patterns along Hollis Street to minimize northbound queuing.
Travel Times: northbound between 64 th Street and either I-80 or Ashby Avenue.	Increase vehicle travel time one to two minutes over existing conditions.	Increase vehicle travel time three to five minutes over existing conditions.	Implement Option 1.
Bike and Pedestrian Connectivity	Better than today with intersection controls on 67 th Street to connect Aquatic Park with north Emeryville.	Degraded with only 65 th Street providing east/west connectivity in north Emeryville.	Implement Option 1 and consider providing a low-cost pedestrian walkway on 67 th Street.
Transit	Enhanced bus stop at 67 th Street with intersection control. One- to two-minute degradation in transit travel time.	No bus stop enhancements and three- to five-minute degradation in transit travel time.	Implement Option 1.
Emergency Services	Reduced circulation with one 750-foot cul-de-sac on 66 th Street.	Reduced circulation with two 750-foot cul-de-sacs on 66 th and 67 th street.	Implement Option 1; however, emergency services would be worse over existing conditions where all streets remain open.
Economic Impact and Benefit	South side of 66 th Street served by EmeryTech less impacted by 66 th Street closure than industrial uses on 67 th Street	Industrial uses on both 66 th and 67 th Street would have circuitous access to I-80 with both streets closed.	Implement Option 1; however, business impact on 66 th Street, particularly the north side, would be worse over existing condition where all streets remain open.

Source: Fehr & Peers, 2020



Table 2: Proposed Road Improvements Matrix

Proposed Improvements	Secondary Impact	Option 1	Option 2
1. Shellmound Street at 65 th Street <ul style="list-style-type: none"> Provide 300-foot northbound right-turn lane and 120-foot southbound left-turn lane. Optimize signal timings. 	Remove seven northbound parking spaces and three southbound parking spaces on Shellmound Street approaching 65 th Street.	X	X
2. Hollis Street at 65 th Street <ul style="list-style-type: none"> Optimize signal timings. 	-	X	X
3. Restripe Potter Street between the I-80 eastbound on-ramp and Bay Street for 2 westbound lanes to increase storage approaching the ramp meter.	Remove eastbound lane which is unused.	X	X
4. Shellmound Street at 67 th Street <ul style="list-style-type: none"> Signalize the intersection. Provide a 75-foot southbound left-turn lane. 	Widen Shellmound Street between 67 th Street and the I-80 eastbound off-ramp at Bay Street.	X	
5. Hollis Street at 67 th Street <ul style="list-style-type: none"> Signalize the intersection. Provide 75-foot southbound left-turn lane. Provide 75-foot northbound left-turn lane. 	Remove up to 7 northbound and 5 southbound parking spaces on Hollis Street.	X	
6. Shellmound Street at 66 th Street <ul style="list-style-type: none"> Close the at-grade railroad crossing. 	66 th Street becomes a 750-foot cul-de-sac with access only to Hollis Street.	X	
7. Shellmound Street at 67 th and 66 th Streets <ul style="list-style-type: none"> Close the at-grade railroad crossings. 	66 th and 67 th streets become 750-foot cul-de-sacs with access only to Hollis Street.		X

Source: Fehr & Peers, 2020

Final

Emeryville Quiet Zone

Transportation Impact Assessment

Prepared for:
City of Emeryville

September 25, 2019

OK19-0312

FEHR  PEERS

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1. Executive Summary

This report presents the analysis and findings of the transportation assessment prepared for the proposed Emeryville Quiet Zone (project) located on 65th, 66th, and 67th street crossings of the Union Pacific Railroad.

Alternatives Considered

The purpose of this study is to evaluate the transportation impacts of the proposed Quiet Zone, which is proposed to construct a permanent closure of 66th Street only (Option 1) or a permanent closure of 66th and 67th street (Option 2). **Table 5** summarizes the transportation characteristics for each option. Under Option 1, closure of 66th street was analyzed rather than closure of 67th street because a closure at 66th Street with signalization at 67th Street would have better signal spacing for coordination, rather than a closure at 67th Street with signalization at 66th Street. Vehicle queues at 67th Street caused by a gate down event would be less likely to impact operation at 65th Street. Last, 66th Street has more room for emergency vehicles to turn around.

Findings and Recommendations

The analysis considered traffic operations at twelve intersections including vehicle delay and level of service (LOS) as well as vehicle queueing at each study intersection. The analysis also considered the north / south vehicle travel time through the study area which included the following intersections:

- | | |
|---|--|
| 1. Ashby Avenue at 7 th Street | 7. 66 th Street at Hollis Street |
| 2. Potter Street at Bay Street | 8. 65 th Street at Shellmound Street |
| 3. I-80 Off-Ramp at Shellmound Street | 9. 65 th Street at Overland Street |
| 4. 67 th Street at Shellmound Street | 10. 65 th Street at Hollis Street |
| 5. 67 th Street at Hollis Street | 11. 64 th Street at Shellmound Avenue |
| 6. 66 th Street at Shellmound Street | 12. Powell Street at Hollis Street |

Table E-1 (following page) summarizes the report findings and lists the report's recommendations.



Table E-1: Findings and Recommendation Matrix

Measure of Effectiveness	Option 1	Option 2	Recommendation
Intersection Operations	Intersections operate at acceptable levels with manageable driver delay.	Intersections on 65 th Street operate at unacceptable levels with substantial driver delay.	Implement Option 1.
Vehicle Queues	Queues on Shellmound Street improve over today with some degradation in queuing on Hollis Street.	Substantial queue deterioration at 65 th Street intersections with Shellmound, Overland, and Hollis streets as well as at the railroad crossing.	Implement Option 1, change coordination patterns along Hollis Street to minimize northbound queuing.
Travel Times: northbound between 64 th Street and either I-80 or Ashby Avenue.	Increase vehicle travel time one to two minutes over existing conditions.	Increase vehicle travel time three to five minutes over existing conditions.	Implement Option 1.
Bike and Pedestrian Connectivity	Better than today with intersection controls on 67 th Street to connect Aquatic Park with north Emeryville.	Degraded with only 65 th Street providing east/west connectivity in north Emeryville.	Implement Option 1 and consider providing a low-cost pedestrian walkway on 67 th Street.
Transit	Enhanced bus stop at 67 th Street with intersection control. One- to two-minute degradation in transit travel time.	No bus stop enhancements and three- to five-minute degradation in transit travel time.	Implement Option 1.
Emergency Services	Reduced circulation with one 750-foot cul-de-sac on 66 th Street.	Reduced circulation with two 750-foot cul-de-sacs on 66 th and 67 th street.	Implement Option 1; however, emergency services would be worse over existing conditions where all streets remain open.

Source: Fehr & Peers, 2019

Based on the summary of the analysis above, implementation of Option 1, the closure of 66th street is recommended.

In addition to the evaluation above **Table E-2** provides the following for the City's consideration to improve intersection operations for motorists, pedestrians and bicyclists in the study area



Table E-2: Road Improvement Summary Matrix

Proposed Improvements	Secondary Impact	Option 1	Option 2
1. Shellmound Street at 65 th Street <ul style="list-style-type: none"> Provide 300-foot northbound right-turn lane and 120-foot southbound left-turn lane. Optimize signal timings. 	Remove seven northbound parking spaces and three southbound parking spaces on Shellmound Street approaching 65 th Street.	X	X
2. Hollis Street at 65 th Street <ul style="list-style-type: none"> Optimize signal timings. 	-	X	X
3. Restripe Potter Street between the I-80 eastbound on-ramp and Bay Street for 2 westbound lanes to increase storage approaching the ramp meter.	Remove eastbound lane which is unused.	X	X
4. Shellmound Street at 67 th Street <ul style="list-style-type: none"> Signalize the intersection. Provide a 75-foot southbound left-turn lane. 	Widen Shellmound Street between 67 th Street and the I-80 eastbound off-ramp at Bay Street.	X	
5. Hollis Street at 67 th Street <ul style="list-style-type: none"> Signalize the intersection. Provide 75-foot southbound left-turn lane. Provide 75-foot northbound left-turn lane. 	Remove up to 7 northbound and 5 southbound parking spaces on Hollis Street.	X	
6. Shellmound Street at 66 th Street <ul style="list-style-type: none"> Close the at-grade railroad crossing. 	66 th Street becomes a 750-foot cul-de-sac with access only to Hollis Street.	X	
7. Shellmound Street at 67 th and 66 th Streets <ul style="list-style-type: none"> Close the at-grade railroad crossings. 	66 th and 67 th streets become 750-foot cul-de-sacs with access only to Hollis Street.		X

Source: Fehr & Peers, 2019

Report Organization

The remainder of this report is divided into three chapters:

- **Chapter 2 – Introduction** discusses the purpose and organization of the report as well as the recommendations.
- **Chapter 3 – Existing Conditions** describes the transportation system in the project vicinity, including the surrounding roadway network evening and Saturday peak period intersection turning movement volumes, existing bicycle, pedestrian, and transit facilities, and existing intersection operations.
- **Chapter 4 – Existing with Project Traffic Conditions** addresses the existing conditions with the project and discusses project vehicular impacts.



2. Introduction

This report presents the analysis and findings of the transportation assessment prepared for the proposed Emeryville Quiet Zone (project) located on 65th, 66th, and 67th street crossings of the Union Pacific Railroad. This chapter discusses the study purpose, analysis methods, and report organization.

Study Purpose

The purpose of this study is to evaluate the transportation impacts of the proposed Quiet Zone, which is proposed to construct a permanent closure of 66th Street only (Option 1) or a permanent closure of 66th and 67th street (Option 2). The tracks are currently used for both passenger (Amtrak) and freight rail, with data collected in 2013 showing that an average of 58 trans per weekday and 45 trains per weekend day travel through the corridor. When there is back-to-back train activity, the rail crossings can be blocked for extended periods of time, creating congestion along the Shellmound Street corridor and intersecting roadways. The assessment evaluated the effects on circulation for all modes, including emergency response under various scenarios.

Study Locations and Analysis Scenarios

The transportation assessment includes the weekday evening (4:00 to 6:00 PM) and Saturday (1:00 to 3:00 PM) peak periods to coincide with the time-periods when adjacent street traffic demands are greatest and when the project generates the most traffic. Based on the expected distribution patterns of a roadway closure, 12 study locations were identified for inclusion in the assessment, as shown on **Figure 1**.

- | | |
|---|--|
| 1. Ashby Avenue at 7 th Street | 7. 66 th Street at Hollis Street |
| 2. Potter Street at Bay Street | 8. 65 th Street at Shellmound Street |
| 3. I-80 Off-Ramp at Shellmound Street | 9. 65 th Street at Overland Street |
| 4. 67 th Street at Shellmound Street | 10. 65 th Street at Hollis Street |
| 5. 67 th Street at Hollis Street | 11. 64 th Street at Shellmound Avenue |
| 6. 66 th Street at Shellmound Street | 12. Powell Street at Hollis Street |





Study Intersection

Figure 1

Study Locations

For this study, the following scenarios were evaluated:

- **Existing** – Existing (2019) conditions based on recent traffic counts.
- **Existing with Project Option 1** – Permanent closure of 66th Street only.
- **Existing with Project Option 2** – Permanent closure of 66th and 67th Street.

Intersection Operations

At signalized intersections, the *2010 Highway Capacity Manual* (HCM) method calculates control delay at an intersection based on average control vehicular delay. Inputs to the analysis include traffic volumes, lane geometry, signal phasing and timing, pedestrian crossing times, and peak hour factors. Control delay is defined as the delay directly associated with the traffic control device (i.e., a stop signs or a traffic signal) and specifically includes initial deceleration delay, queue move-up time, stopped delay, and final acceleration delay. These delay estimates are considered indicators of driver discomfort and frustration, fuel consumption and lost travel time. The relationship between average control delay and LOS for signalized intersections is summarized in **Table 1**.

Table 1: Signalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Progression is extremely favorable, and most vehicles arrive during the green phase. Most vehicles do not stop at all. Short cycle lengths may also contribute to low delay.	< 10.0
B	Progression is good, cycle lengths are short, or both. More vehicles stop than with LOS A, causing higher levels of average delay.	> 10.0 to 20.0
C	Higher congestion may result from fair progression, longer cycle lengths, or both. Individual cycle failures may begin to appear at this level, though many still pass through the intersection without stopping.	> 20.0 to 35.0
D	The influence of congestion becomes more noticeable. Longer delays may result from some combination of unfavorable progression, long cycle lengths, or high V/C ratios. Many vehicles stop, and the proportion of vehicles not stopping declines. Individual cycle failures are noticeable.	> 35.0 to 55.0
E	This level is considered by many agencies to be the limit of acceptable delay. These high delay values generally indicate poor progression, long cycle lengths, and high V/C ratios. Individual cycle failures are frequent occurrences.	> 55.0 to 80.0
F	This level is considered unacceptable with oversaturation, which is when arrival flow rates exceed the capacity of the intersection. This level may also occur at high V/C ratios below 1.0 with many individual cycle failures. Poor progression and long cycle lengths may also be contributing factors to such delay levels.	> 80.0

Source: *Highway Capacity Manual* (2010).

Operations of the unsignalized intersections were evaluated using the method contained in Chapter 17 of the 2010 HCM. The LOS rating is based on the weighted average control delay expressed in seconds per vehicle (**Table 2**). At two-way or side-street stop-controlled intersections, LOS is calculated for each controlled movement, the left-turn movement from the major street, as well as for the overall intersection. For approaches composed of a single lane, the delay is computed as the average of all movements in that lane. For all-way stop controlled locations, LOS is computed for the overall intersection.

Table 2: Unsignalized Intersection LOS Criteria

Level of Service	Description	Delay in Seconds
A	Little or no delays	< 10.0
B	Short traffic delays	> 10.0 to 15.0
C	Average traffic	> 15.0 to 25.0
D	Long traffic delays	> 25.0 to 35.0
E	Very long traffic delays	> 35.0 to 50.0
F	Extreme traffic delays with intersection capacity exceeded	> 50.0

Source: *Highway Capacity Manual* (2010).

3. Existing Conditions

This chapter describes multimodal transportation facilities in the project study area, including the surrounding roadway network, transit, pedestrian, and bicycle facilities in the project site vicinity. Existing intersection operations are also described.

Roadway System

The project is in the City of Emeryville, with study intersections along Shellmound Street, Hollis Street, Bay Street and Potter Street (Berkeley). These roadway segments carry a high volume of traffic during peak times of the day and week and provide access to parts of Emeryville, as well as access between Emeryville and Interstate 80 (I-80). The following discusses the major roadways that provide circulation in the area.

I-80 is a freeway connecting San Francisco through the northern United States to the East Coast. The freeway is oriented in a north/south direction to the west of the project site. I-80 generally provides five lanes in each direction (four mixed-flow lanes and one high-occupancy vehicle lane) through the East Bay. The I-80 corridor is highly congested most hours of the day causing a substantial number of drivers to use the local road system in the study area, including Shellmound Street and Hollis Street, rather than the freeway. The **I-80/Ashby Avenue interchange** is located at the northern edge of the study area. Its eastbound on-ramp serving the Shellmound Street corridor is congested throughout much of the weekday afternoon and early evening with the level of congestion varying depending on the combination of recurring freeway congestion and freeway incidents. Improvements to the interchange are being considered by the Alameda County Transportation Commission (Alameda CTC). The interchange improvements would not impact Emeryville's planned railroad improvements and would be implemented after the railroad improvements are complete.

Shellmound Street is a north-south oriented street immediately west of the railroad tracks that extends from the I-80 eastbound off-ramp intersection in the north to Horton Street in the south where it turns into the continuation of 40th Street. Within the vicinity of the project, Shellmound Street has one lane in each direction, a speed limit of 25 miles per hour (mph) and is a designated transit street with Class II bicycle facilities. On-street parking is allowed on portions of the roadway. Sidewalks are provided on both sides of the street south of 67th Street while only the west side of the street north of 67th Street. Shellmound Street becomes **Bay Street** north of the I-80 eastbound off-ramp where it continues to Bolivar Drive at Aquatic Park as an unimproved road. Bay Street has a speed limit of 25 mph and provides one travel lane in each direction with sharrow markings and a sidewalk on the west side of the roadway that ends at after the Ashby Avenue overcrossing.

Hollis Street is a north-south oriented street 750 feet east of the railroad tracks. It typically provides one lane in each direction with a speed limit of 30 mph and turn pockets at select intersections. Hollis Street begins at Peralta Street in Oakland and continues north to Folger Avenue in Berkeley where it becomes Seventh Street. Hollis Street is a designated transit street and has no bike facilities within the project vicinity. On-street parking is allowed on portions of the roadway and sidewalks are provided on both sides of the street.

Overland Avenue is a north-south oriented street between 65th Street and 62nd Street with one travel lane in each direction. Overland Avenue is a designated Bicycle Boulevard, with sharrow markings in the northbound and southbound directions. On-street parking is allowed on the east side of the street adjacent to sidewalks. The speed limit is 25 mph and Overland Avenue intersects 65th Street at a signalized intersection immediately east of the railroad tracks.

65th Street is an east-west roadway crossing the railroad tracks with a speed limit of 25 mph between La Coste Street and Idaho Street. It provides one travel lane and one bike lane in each direction until the Emeryville Greenway, after which it transitions to a bi-directional street with sharrow markings. On-street parking is allowed on both sides of the roadway adjacent to sidewalks. The at-grade railroad crossing at 65th Street is signalized along with Shellmound Street and Overland Avenue and controlled by railroad crossing arms.

66th Street is an east-west roadway between Shellmound Street and Sacramento Street with a speed limit of 25 mph. It provides one travel lane in each direction, with no bicycle facilities. On-street parking is allowed on both sides of the roadway and there are limited pedestrian facilities on 66th Street in the vicinity of the railroad crossing. The railroad at-grade crossing is at the unsignalized Shellmound Street intersection and controlled by railroad crossing arms.

67th Street is an east-west roadway with a posted speed limit of 25 mph between Shellmound Street and Sacramento Street. It provides one travel lane in each direction with no bicycle facilities. On-street parking is allowed on both sides of the roadway and there are no pedestrian facilities on 67th Street in the vicinity of the railroad crossing. The railroad at-grade crossing is at the unsignalized Shellmound Street intersection and controlled by railroad crossing arms.

Potter Street is an east-west roadway between the eastbound I-80 on-ramp and Bay Street with a speed of 25 mph. Although it is striped for one travel lane in each direction the eastbound direction does not serve any uses and there are no eastbound vehicle movements on the street. On-street parking is not allowed. Potter Street functions as a continuation of the on-ramp.

Existing Pedestrian and Bicycle Facilities

Pedestrian facilities in the study area include sidewalks, crosswalks, and pedestrian signals. Crosswalks are provided at all signalized study intersections. Generally, sidewalks are provided on both sides of the street within the project vicinity. The following locations do not provide a sidewalk and / or do not provide a direct ADA path.

- Bay Street north of the Ashby Avenue overcrossing has no sidewalks.
- Shellmound Street, south of 67th Street, provides sidewalks on both sides of the street while north of 67th Street sidewalks are provided on the west side of the street which continue to and across the Ashby Avenue overcrossing. There are no pedestrian crosswalk facilities on Shellmound Street at either 66th Street or 67th Street.
- 67th Street from Shellmound Street to Hollis Street provides some sidewalks and some sidewalk space is used for perpendicular parking. There are no sidewalk facilities in the vicinity of the railroad at-grade crossing. The street curb-to-curb is 48 feet and the right of way appears to be about 80 feet. So, there is enough width to provide pedestrian space on one or both sides of the street while maintaining much of the parking either using parking curb stops and/or converting the parking to either angle or parallel parking.
- 66th Street provides sidewalks on portions of Shellmound Street to Hollis Street, but has obstructions or vehicles placed in the sidewalk. Unlike 67th Street pedestrian space on 66th Street is formalized with parking curb stops, along the Emery Tech frontage (south side of 66th Street).

Bicycle facilities in Emeryville include the following:

- **Bike paths (Class I)** – Bike paths provide a separate right-of-way and are designated for the exclusive use of people riding bicycles and walking.
- **Bike lanes (Class II)** – Bike lanes provide designated street space for bicyclists, typically adjacent to the outer vehicle travel lanes. Bike lanes include special lane markings, pavement legends, and signage. Bike lanes may be enhanced with painted buffers between vehicle lanes and/or parking, and green paint at conflict zones (such as driveways or intersections).
- **Bike routes (Class III)** – Bike routes provide enhanced mixed-traffic conditions for bicyclists through signage, striping, and/or traffic calming treatments, and to provide continuity to a bikeway network. Bike routes are typically designated along gaps between bike trails or bike lanes, or along low-volume, low-speed streets.
- **Separated Bikeway (Class IV)** – Separated bikeways, also referred to as cycle tracks or protected bikeways, are for exclusive use of bicycles which are physically separated from motor vehicle traffic. Separated Bikeways were adopted by Caltrans in 2015. Types of separation may include, but are not limited to, grade separation, flexible posts, physical barriers, or on-street parking.

Existing and proposed bicycle facilities within the immediate vicinity of the project area are displayed on **Figure 2**. While Figure 2 provides an overall context for bike circulation in the area the following describes the bike facilities in the immediate vicinity of the railroad grade crossings being considered in the analysis.

- 65th Street has a class II bicycle lane that extends from the Emeryville Greenway to Shellmound Street. 66th and 67th Street do not have any bicycle facilities.
- Shellmound Street has a class II bicycle lane up until the I-80 eastbound off-ramp where it transitions to a class III bike route along Bay Street to Aquatic Park. Hollis Street does not provide any bicycle facilities.
- A Class I bicycle path is proposed along the east side of the railroad tracks connecting 65th and 67th streets. The path would be implemented through redevelopment of existing parcels along the path's alignment and potentially an easement granted in the railroad right-of-way.

On-Street Parking Observations

On-street parking is permitted on most of the streets surrounding the project area. Observations of parking occupancy indicate that the on-street parking supplies are generally fully occupied in proximity to the at-grade railroad crossings at 66th and 67th streets as well as along Shellmound Street. Most of the parking on 66th and 67th streets between Shellmound Street and Hollis Street is perpendicular parking and the cars are often parked in the sidewalk zone where pedestrians would be expected to walk. In general, it may be feasible to provide pedestrian space using parking curb stops to establish a pedestrian corridor between the parked cars and the adjacent building frontages on either 66th or 67th streets.

Existing Transit Service

Bus transit service is provided in the study area by AC Transit and Emery-Go-Round. Rail transit is provided by Amtrak and the Bay Area Rapid Transit (BART) system. **Figure 3** shows the existing transit facilities and routes in the study area which include shuttles, buses, rail services, including the location of stops closest to the site. Each transit service is described below.

AC Transit

Several AC Transit Routes serve the study area. AC Transit connects the study area to neighboring cities in the East Bay as well as the MacArthur BART Station and Downtown Oakland. Within our project vicinity, AC transit routes 29 and 36 provide service along Shellmound Street and 65th Street where the routes continue to Hollis Street. AC Transit routes J and Z also provide service on 65th Street and Hollis Street. There is no transit service on either 66th or 67th streets and there is no transit service on Shellmound Street north of 65th Street. The nearest bus stops to 66th and 67th streets are on 65th Street at Shellmound Street and on Hollis Street at 65th Street and 67th Street.



Existing

- Class 1 Bike Path
- Class 2 Bike Lane
- Class 3 Bike Route
- Bicycle Boulevard

Proposed

- - Class 1 Bike Path
- - Class 2 Bike Lane
- - Class 3 Bike Route
- - Bicycle Boulevard



Figure 2

Existing and Proposed Bicycle Facilities



Figure 3

Existing Transit Facilities

Emery-Go-Round

The Emery-Go-Round system is comprised of four routes, two of which serve the project area: the Hollis and Shellmound-Powell routes. Buses on the Hollis route, which stop at the Hollis Street / 65th Street intersection, operate on 10-minute headways during the peak hours and 15- to 20-minute headways during off-peak hours. Buses on the Shellmound-Powell route stop on Shellmound Street at 65th Street and operate on 10- to 20-minute headways throughout the day.

Existing Traffic Counts

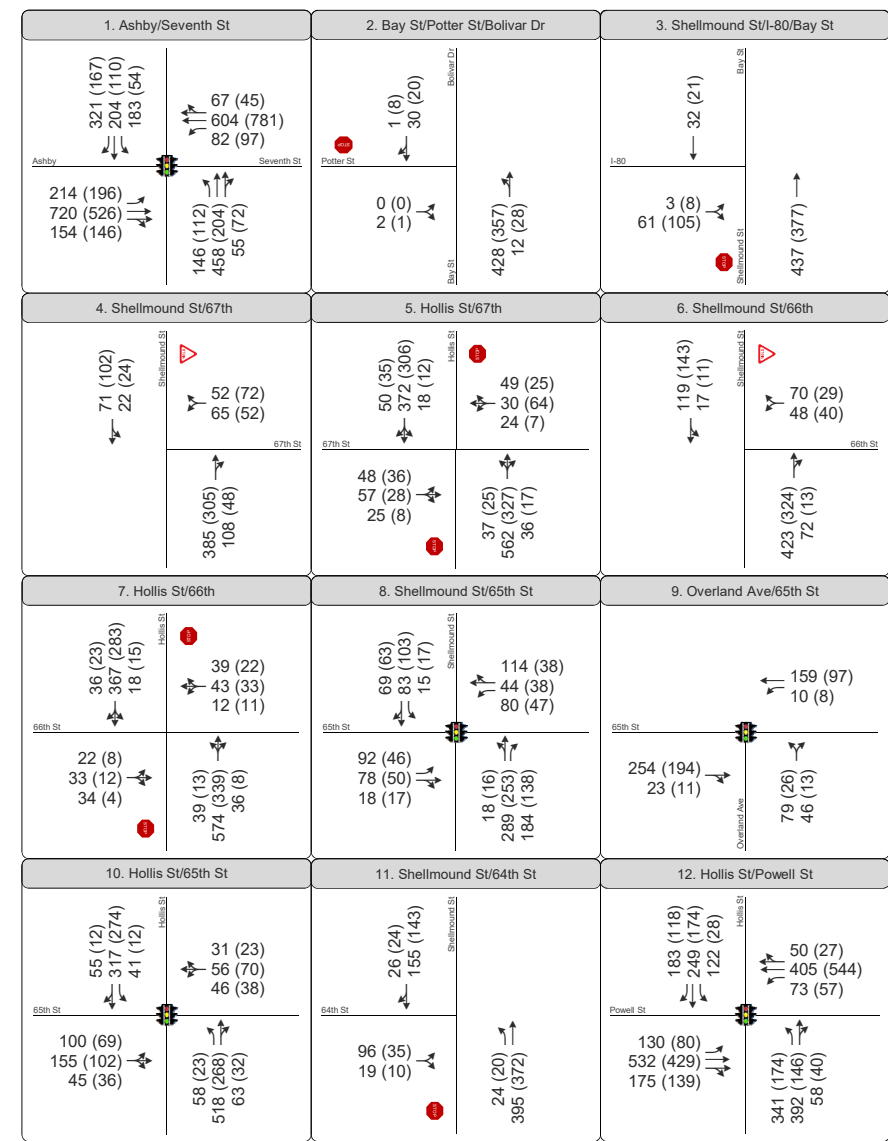
The City of Emeryville provided Weekday evening (4:00 to 6:00 PM), and Saturday afternoon (1:00 to 3:00 PM) for some of the study intersections, additional peak period intersection turning movement counts were collected for the remaining study intersections, including separate counts for pedestrians and bicyclists. The evening peak hour is generally between 5:00 and 6:00 PM and the Saturday peak hour is generally between 2:00 and 3:00 PM. For the study intersections, the single global hour with the highest traffic volumes during the count periods was determined to be the weekday between 5:00 and 6:00 PM and so this data was used as the basis for the intersection analysis.

Balanced peak hour intersection volumes used in the analysis as well as existing lane configurations and traffic controls are summarized on **Figure 4**. Pedestrian and bicycle volumes are presented on **Figure 5**. Train data was collected from 7:00 AM to 7:00 PM for both a Weekday and Saturday time period. Data collected included the number and types of trains, and the gate down time. The number of trains during the weekday peak hour between 5:00 and 6:00 PM was incorporated into the analysis. Traffic counts and data collection for existing conditions are provided in **Appendix A**.

Existing Roadway Operations

Intersection Operations

Existing study intersection operations were evaluated using Vissim micro-simulation software and the methods described in Chapter 1 for the weekday evening peak hour between 5:00 and 6:00 PM. The analysis results including intersection delay and associated level of service are summarized in **Table 3**. The model was calibrated to observed motor vehicle queues and based on auto, bike, and pedestrian volumes, lane configurations, and traffic control presented on Figure 4 and Figure 4. Saturday peak hour was not analyzed as it had lower volumes in almost all vehicle turning movements. The weekday PM peak hour is the most congested period and so represents the worst-case operation that would occur each weekday. A global peak hour factor of 0.96 was used at all intersections for the existing intersection analysis. Detailed intersection LOS calculation worksheets are presented in **Appendix B**.



XX (YY) PM (Saturday) Peak Hour Traffic Volumes

Signalized Intersection

Stop Sign

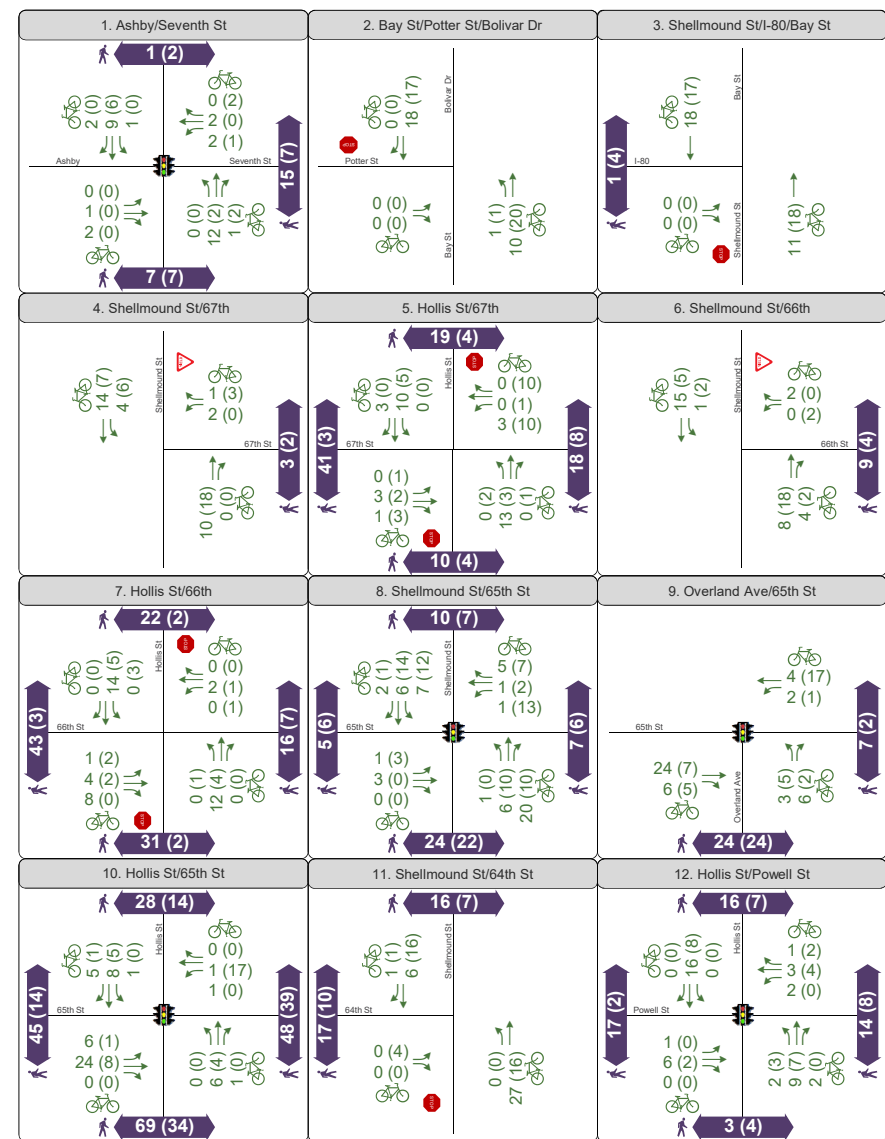
Yield Sign

Study Intersection



Figure 4

Existing Conditions Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls



x (y) PM (Saturday) Peak Hour Pedestrian Volumes
 x (y) PM (Saturday) Peak Hour Bicycle Volumes
 Signalized Intersection
 Stop Sign
 Yield Sign
 Study Intersection



Figure 5

Existing Pedestrian and Bicycle Volumes

Table 3: Existing Weekday PM Peak Hour Intersection LOS Summary

Intersection	Control ¹	Peak Hour	Delay ²	LOS
1. Ashby Avenue at 7 th Street	Signal	PM	52	D
2. Potter Street at Bay Street	SSSC	PM	--	F
3. I-80 Off-Ramp at Shellmound Street	SSSC	PM	20 (23)	C (C)
4. 67 th Street at Shellmound Street	Yield ³	PM	22 (31)	C (D)
5. 67 th Street at Hollis Street	SSSC	PM	19 (44)	C (E)
6. 66 th Street at Shellmound Street	Yield ³	PM	5 (22)	A (C)
7. 66 th Street at Hollis Street	SSSC	PM	15 (31)	C (D)
8. 65 th Street at Shellmound Street	Signal	PM	50	D
9. 65 th Street at Overland Street	Signal	PM	38	D
10. 65 th Street at Hollis Street	Signal	PM	35	D
11. 64 th Street at Shellmound Avenue	SSSC	PM	4 (14)	A (B)
12. Powell Street at Hollis Street	Signal	PM	43	D

Notes:

Bold indicates intersection operations below acceptable thresholds i.e., Level of Service F

1. Signal = signalized intersection, SSSC = side street stop control, Yield = yield control

2. Average intersection delay is calculated for all signalized intersections using the HCM method for vehicles as presented in seconds. For side-street controlled intersections, delays for the worst approach and average intersection delay are shown as intersection average (worst approach).

3. Yield controlled intersections were analyzed as SSSC intersections

Source: Fehr & Peers, 2019.

The City considers intersections operating at LOS E or better as operating within an acceptable range. The unsignalized Potter Street / Bay Street intersection operates at unacceptable levels. Motor vehicle queues formed at the ramp meter to the eastbound I-80 on-ramp cause poor operating conditions because the queue generally extends back along Potter Street and onto Bay Street much of the peak hour. The on-ramp is included in Caltrans dynamic metering system for eastbound I-80; even so, the vehicle queues impact local street operations.

Vehicle Queues

Average and maximum vehicle queues were estimated using the Vissim 11 micro-simulation software and the general extents were confirmed during field observations. The existing average and maximum vehicle queue results at the study intersections is provided in **Appendix C**. The vehicle queues, shown in **Table 4**, are generally contained within the existing vehicle storage. Exceptions include:

- Extensive vehicle queues form at the ramp meter to the I-80 eastbound on-ramp and occasionally extend back to 66th Street.
- Northbound 7th Street queues approaching Ashby Avenue occasionally extend past 67th Street.
- At 65th Street, the Shellmound Street southbound left-turn and the northbound right-turn exceed capacity during the maximum queues.

Table 4: Existing Conditions Peak Hour Vehicle Queue Summary

Intersection	Movement	Available Storage ¹	PM Peak Queue ²	
			Average	Maximum
1. Ashby Avenue at 7 th Street	NB Thru	950	475	1,575³
	SB Left	125	75	250
	SB Thru	125	75	250
	SB Right	125	25	175
2. Potter Street at Bay Street	NB Left	550	250	-- ⁴
3. I-80 Off-Ramp at Shellmound Street	NB Thru	140	50	-- ⁴
4. 67 th Street at Shellmound Street	NB Thru	300	75	-- ⁴
5. 67 th Street at Hollis Street	NB Thru	300	100	-- ³
	SB Thru	950	25	150
6. 66 th Street at Shellmound Street	NB Thru	300	25	-- ⁴
7. 66 th Street at Hollis Street	NB Thru	300	75	-- ³
	SB Thru	300	25	125
8. 65 th Street at Shellmound Street	NB Right	300	100	425
	SB Left	125	25	75
	EB Left	100	50	150
9. Overland Avenue at Shellmound Street	WB Thru	650	50	225
10. 65 th Street at Hollis Street	NB Thru	675	150	475
	NB Left	125	25	75
	SB Thru	300	50	250

Notes:

1. Reflects the total length of the left-turn pocket from the stop-bar in feet, not including the bay taper, which can provide an additional 50 to 70 feet of storage outside of the adjacent travel lane.
 2. Average and maximum vehicle queue calculated by Vissim 11 software.
 3. For reported maximum queue at Ashby Avenue the distance incorporates upstream intersections through 67th Street to 66th Street. Queue distance is not presented at these upstream intersections.
 4. Maximum queue formed at the ramp meter to eastbound I-80 extends back through Potter and Bay streets and along Shellmound Street to about 66th Street. Queue distance is not presented at these upstream intersections.
- Source: Fehr & Peers, 2019.

Travel Times

Travel time was estimated using the Vissim 11 micro-simulation software for origin-destination pairs within the project vicinity to understand general travel time characteristics. Vehicles traveling northbound through the area generally experience travel times of 4 to 6 minutes when traveling between 64th and Shellmound streets to either Ashby Avenue or eastbound I-80. While southbound travel times are generally about 2 minutes. The longer northbound travel times reflect the northbound vehicle queuing that occurs on both Hollis Street and Shellmound Street leaving the City of Emeryville.

4. Existing with Project Traffic Conditions

This chapter provides an overview of the project description and evaluates potential off-site traffic impacts under Existing with Project conditions.

Project Transportation Characteristics

The project proposes to construct a permanent closure of 66th Street (Option 1) or a permanent closure of 66th and 67th streets (Option 2). **Table 5** summarizes the improvements associated with each option.

Table 5: Road Improvement Summary Matrix

Proposed Improvements	Secondary Impact	Option 1	Option 2
8. Shellmound Street at 65 th Street <ul style="list-style-type: none"> Provide 300-foot northbound right-turn lane and 120-foot southbound left-turn lane. Optimize signal timings. 	Remove seven northbound parking spaces and three southbound parking spaces on Shellmound Street approaching 65 th Street.	X	X
9. Hollis Street at 65 th Street <ul style="list-style-type: none"> Optimize signal timings. 	-	X	X
10. Restripe Potter Street between the I-80 eastbound on-ramp and Bay Street for 2 westbound lanes to increase storage approaching the ramp meter.	Remove eastbound lane which is unused.	X	X
11. Shellmound Street at 67 th Street <ul style="list-style-type: none"> Signalize the intersection. Provide a 75-foot southbound left-turn lane. 	Widen Shellmound Street between 67 th Street and the I-80 eastbound off-ramp at Bay Street.	X	
12. Hollis Street at 67 th Street <ul style="list-style-type: none"> Signalize the intersection. Provide 75-foot southbound left-turn lane. Provide 75-foot northbound left-turn lane. 	Remove up to 7 northbound and 5 southbound parking spaces on Hollis Street.	X	
13. Shellmound Street at 66 th Street <ul style="list-style-type: none"> Close the at-grade railroad crossing. 	66 th Street becomes a 700-foot cul-de-sac with access only to Hollis Street.	X	
14. Shellmound Street at 67 th and 66 th Streets <ul style="list-style-type: none"> Close the at-grade railroad crossings. 	66 th and 67 th streets become 700-foot cul-de-sacs with access only to Hollis Street.		X

Source: Fehr & Peers, 2019

Analysis of Existing with Project Conditions

Intersection Operations

Existing with Project intersection operations were evaluated. The Existing with Project analysis results for both options are presented in **Table 6**, and are based on the traffic volumes presented on **Figure 6** (Option 1) and **Figure 7** (Option 2) as well as the proposed improvements presented in Table 5.

Table 6: Existing with Project Weekday PM Peak Hour Intersection LOS Summary

Intersection	Control ¹	Existing		With Project Option 1		With Project Option 2	
		Delay ²	LOS	Delay ²	LOS	Delay ²	LOS
1. Ashby Avenue at 7 th Street	Signal	52	D	53	D	70	E
2. Potter Street at Bay Street	SSSC	--	F	40 (42)	E (E)	16 (16)	C (C)
3. I-80 Off-Ramp at Shellmound Street	SSSC	20 (23)	C (C)	9 (9)	A (A)	1 (6)	A (A)
4. 67 th Street at Shellmound Street	Yield ³ /Signal ⁴	22 (31)	C (D)	21	C	n/a	n/a
5. 67 th Street at Hollis Street	SSSC/ Signal ⁵	19 (44)	C (E)	30	C	--	F
6. 66 th Street at Shellmound Street	Yield ³	5 (22)	A (C)	n/a	n/a	n/a	n/a
7. 66 th Street at Hollis Street	SSSC	15 (31)	C (D)	16 (26)	C (D)	--	F
8. 65 th Street at Shellmound Street	Signal	50	D	40	D	110	F
9. 65 th Street at Overland Avenue	Signal	38	D	43	D	80	F
10. 65 th Street at Hollis Street	Signal	35	D	50	D	104	F
11. 64 th Street at Shellmound Avenue	SSSC	4 (14)	A (B)	2 (10)	A (A)	--	F
12. Powell Street at Hollis Street	Signal	43	D	43	D	43	D

Notes:

Bold indicates intersection operations below acceptable thresholds i.e., Level of Service F

1. Signal = signalized intersection, SSSC = side street stop control, Yield = yield control

2. Average intersection delay is calculated for all signalized intersections using the HCM method for vehicles as presented in seconds. For side-street controlled intersections, delays for the worst approach and average intersection delay are shown as intersection average (worst approach).

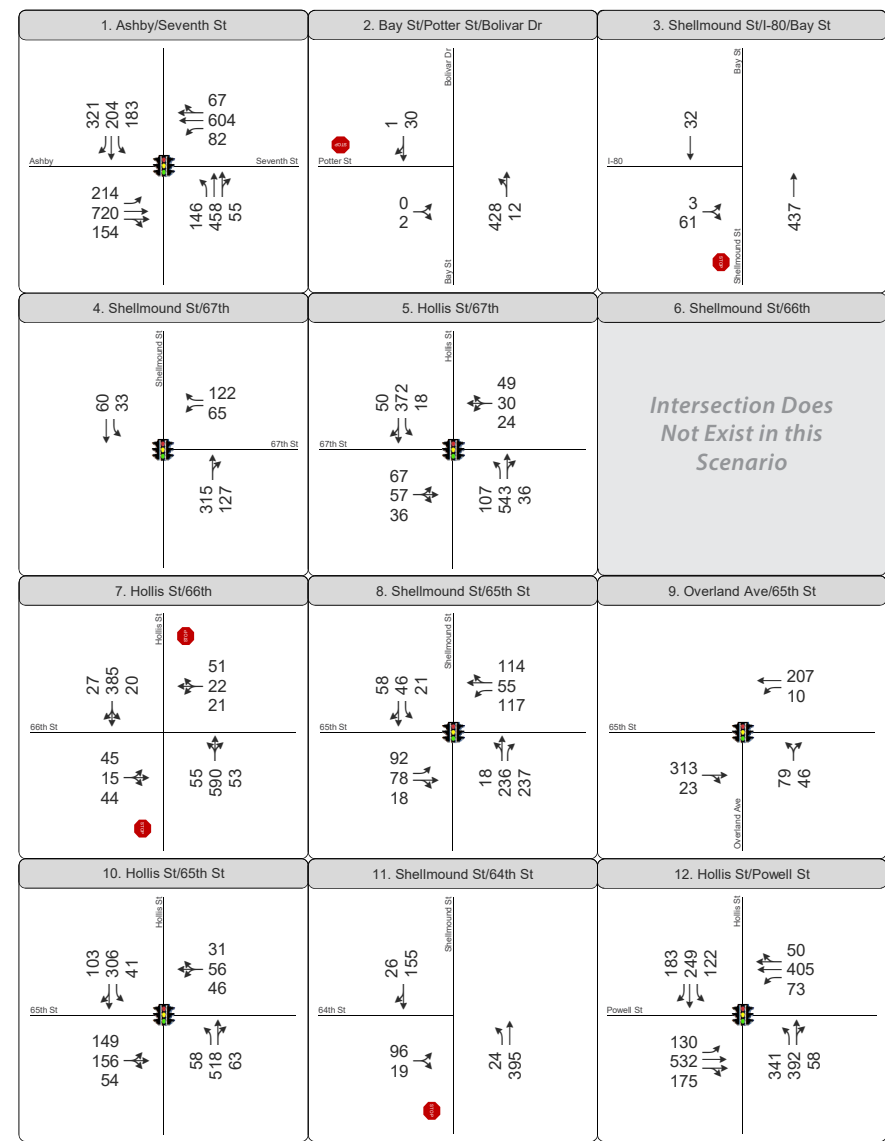
3. Yield controlled intersections were analyzed as SSSC intersections.

4. SSSC in existing, signalized in option 1. Intersection does not exist in option 2.

5. SSSC in existing and option 2, signalized in option 1.

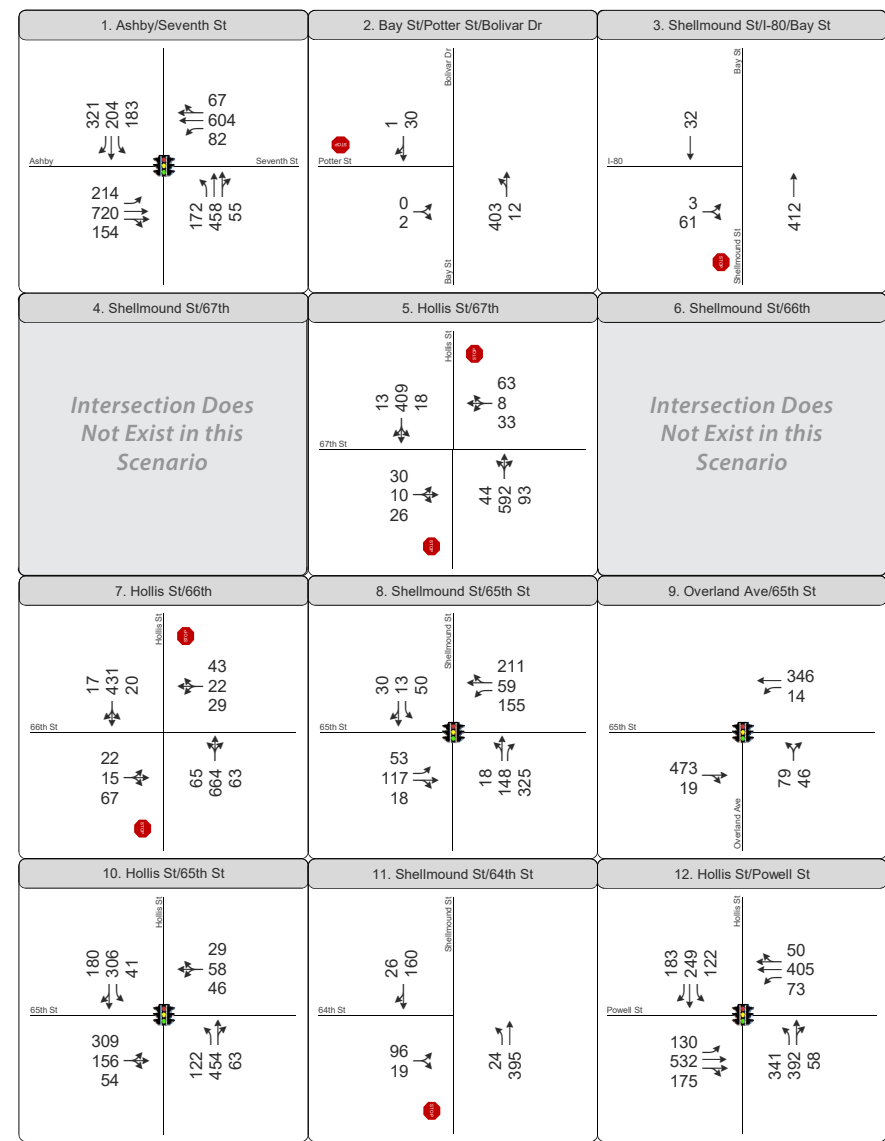
Source: Fehr & Peers, 2019.

With Option 1 proposed improvements, including closure of 66th Street at-grade railroad crossing, all study intersections would continue to operate at LOS E or better. The 65th Street signalized intersections at Overland Avenue / Shellmound Street and at Hollis Street would have the highest increase in delay, but the level of service would not degrade below a level of service D. Intersections along Shellmound Street would improve because:



XX PM Peak Hour Traffic Volumes Signalized Intersection Stop Sign Yield Sign Study Intersection





XX PM Peak Hour Traffic Volumes Signalized Intersection Stop Sign Yield Sign Study Intersection



Figure 7

Existing with Option 2 Peak Hour Intersection Traffic Volumes, Lane Configurations and Traffic Controls

- Additional vehicle storage approaching the ramp meter at the I-80 eastbound on-ramp would mean that cars no longer queue back onto Shellmound Street.
- Additional left- and right-turn lane storage at the Shellmound Street intersection with 65th Street would improve north/south vehicle flow on Shellmound Street at 65th Street, particularly when the railroad crossing gates are down.

Option 2, closure of both 66th and 67th street at-grade railroad crossings, would degrade the intersection operations as traffic shifts to the 65th Street corridor resulting in level of service F at the 65th Street intersections with Shellmound Street / Overland Avenue and with Hollis Street. In addition, the poor intersection operations at 65th Street contributes to added north/south congestion on Hollis Street which causes both 66th and 67th streets to operate at level of service F and north/south congestion on Shellmound Street causing level of service F at the 64th Street intersection.

Recommendation: Option 1 is preferred over Option 2 for intersection operations.

Vehicle Queues

The average and maximum vehicle queues are shown in **Table 7** and vehicle queue worksheets at the study intersections are provided in **Appendix C**.

Option 1 and Option 2 would both resolve the extensive existing vehicle queues that form at the ramp meter to the I-80 eastbound on-ramp. With the added vehicle storage approaching the ramp meter the vehicle queues no longer extend back onto Shellmound Street.

Northbound 7th Street vehicle queues approaching Ashby Avenue would continue to be extensive with Option 1 and slightly worse compared to existing conditions because Option 1 signalizes the Hollis Street intersection with 67th Street and the maximum queue from Ashby Avenue extends back through the signalized 67th Street intersection causing further breakdown in operations on Hollis Street with maximum queues extending back to 65th Street. This can be partially minimized by changing the coordination patterns along Hollis Street.

Vehicle queues resulting from Option 2 would be substantially worse than either Existing or Option 1 conditions. Northbound vehicle queues from Ashby Avenue would extend back through the study corridor beyond 64th Street while southbound queues at the Hollis Street intersection with 65th Street would extend back beyond 67th Street. In addition, westbound vehicle queues on 65th Street at Overland Street would regularly extend back to Hollis Street. The recommendations based on vehicle queue results are provided following the page after Table 7.

Table 7: Weekday PM Peak Hour Vehicle Queue Distances

Intersection	Movement	Available Storage ¹	Existing PM Peak Queue ²		Existing with Project Option 1 PM Peak Queue ²		Existing with Project Option 2 PM Peak Queue ²	
			Avg	Max	Avg	Max	Avg	Max
1. Ashby Avenue at 7 th Street	NB Thru	950	475	1,575³	525	2,175³	400	2,350³
	SB Left	125	75	250	75	225	75	250
	SB Thru	125	75	250	75	250	125	175
	SB Right	125	25	175	25	175	50	200
2. Potter Street at Bay Street	NB Left	550	250	-- ⁴	100	175	25	75
3. I-80 Off-Ramp at Shellmound Street	NB Thru	140	50	-- ⁴	0	50	0	25
4. 67 th Street at Shellmound Street	NB Thru	300	75	-- ⁴	50	325	n/a	n/a
5. 67 th Street at Hollis Street	NB Thru	300	100	-- ³	125	-- ³	75	-- ³
	SB Thru	950	25	150	50	300	500	-- ⁵
6. 66 th Street at Shellmound Street	NB Thru	300	25	-- ⁴	n/a	n/a	n/a	n/a
	SB Thru	300	75	-- ³	75	-- ³	125	-- ³
7. 66 th Street at Hollis Street	NB Thru	300	75	-- ³	75	-- ³	125	-- ³
	SB Thru	300	25	125	25	175	225	-- ⁵
8. 65 th Street at Shellmound Street	NB Right	300	100	425	100	350	550	825
	SB Left	125	25	75	25	75	25	100
	EB Left	100	50	150	50	150	25	100
9. Overland Avenue at Shellmound Street	WB Thru	650	50	225	100	275	350	2325⁴
10. 65 th Street at Hollis Street	NB Thru	675	150	475	200	575	375	-- ³
	NB Left	125	25	75	25	100	200	600
	SB Thru	300	50	250	50	275	275	1,675⁵

Notes:

1. Reflects the total length of the left-turn pocket from the stop-bar in feet, not including the bay taper, which can provide an additional 50 to 70 feet of storage outside of the adjacent travel lane.
2. Average and maximum vehicle queue calculated by Vissim 11 software.
3. For reported maximum queue at Ashby Avenue the distance incorporates upstream intersections through 67th Street to 66th Street (and 65th Street for Option 2). Queue distance is not presented at these upstream intersections.
4. Maximum queue formed at the ramp meter to eastbound I-80 extends back through Potter and Bay streets and along Shellmound Street to about 66th Street. Queue distance is not presented at these upstream intersections.
5. For reported maximum queue at 65th Street the distance incorporates upstream intersections through 66th Street to 67th Street. Queue distance is not presented at these upstream intersections.

Source: Fehr & Peers, 2019.

Recommendation: Option 1 is preferred over Option 2 for vehicle queues. Although, Option 1 would provide worse vehicle queuing on northbound Hollis Street compared to the No Project.

Recommendation: Change the coordination patterns along Hollis Street through Emeryville to minimize northbound queueing.

Travel Times

Travel times were assessed when traveling both northbound and southbound between 64th Street and either Ashby Avenue or eastbound I-80. Travel times under Option 1 would generally increase by one to two minutes compared to existing conditions. While travel times under Option 2 would increase by three to five minutes over existing conditions. The increased travel time with Option 2 reflects increased intersection congestion and vehicle queuing resulting from closure of both the 66th and 67th Street causing more traffic to use 65th Street.

Recommendation: Option 1 is preferred over Option 2 for travel time through the study area; although, Option 1 travel times would be one to two minutes longer than the existing condition.

Bikes and Pedestrians

Option 1 would signalize the 67th Street intersections with Shellmound Street and with Hollis Street which would improve east/west connectivity for both pedestrians and bicyclists who choose to use the 67th Street corridor to access Aquatic Park, and so is more desirable than the existing condition. Currently, 67th Street between Shellmound Street and Hollis Street does not have a continuous pedestrian walkway on either side of the roadway. The corridor's curb-to-curb and right-of-way is wide enough to provide a pedestrian walkway on one or potentially both sides of the road.

Option 2 would reduce bike and pedestrian connectivity between Shellmound and Hollis Streets with only one railroad crossing in north Emeryville at 65th Street. Access to Aquatic Park for those living or working in north Emeryville or the southern part of West Berkeley would be to travel south, cross the railroad tracks at 65th Street and then travel north to the park. Option 2 is less desirable than Option 1 for bike and pedestrian connectivity.

Recommendation: Option 1 is preferred over Option 2 for bike and pedestrian connectivity and Option 1 provides improved connectivity over existing conditions.

Recommendation: Consider a low-cost pedestrian walkway with Option 1 using parking curb stops so that there is a 6-foot minimum separation between the parked cars and the building frontage on 67th Street between Shellmound and Hollis streets.

Transit

Transit extends into north Emeryville to 65th Street with some transit continuing north on Hollis Street into Berkeley. Option 1, by providing a signalized intersection at 67th Street, would provide improved access to the bus stops (compared to existing conditions) by providing signalized pedestrian crossings. On the other hand, it would also cause an increase in north/south travel time during the PM peak hour for buses along Hollis Street north of 65th Street. Option 2 is less desirable than Option 1 because the increase in travel time would be greater impacting bus travel times on Hollis Street and 65th Street and transit riders would need to cross Hollis Street at unsignalized intersections to access bus stops.

Recommendation: Option 1 is preferred over Option 2 for transit service within the study area; however, the transit travel times on Hollis Street, north of 65th Street, would be worse by one to two minutes over existing conditions.

Emergency Services

Emeryville's Public Works is in on-going discussions with Alameda County Fire Department and Emeryville's Police Department regarding the at-grade crossing closures and their preliminary feedback has been synthesized in this section. Option 1 and Option 2 would both impact emergency services including police and fire. Option 2, because it closes both 66th and 67th streets would be more impactful to police and fire. Under either option police would need to revise patrol response patterns. Either option results in cul-de-sacs that are 750 feet long, so an effective turnaround would be needed at the railroad tracks. The turnaround would need to be a combination of paving treatments and raised elements to minimize the likelihood that drivers would park their cars within the turnaround. Given the width of both 66th and 67th street the turnaround would be non-standard and would need to be designed to the satisfaction of fire chief. Gates at the railroad crossing should be explored with either option so fire personnel can access the tracks and crossing in emergencies.

Truck safety was raised as a concern. Both streets have trucking activities and with Option 1 consideration should be made to maintaining lane widths on 67th Street wide enough to safely accommodate the truck movements. Option 1 would benefit trucking activities because 67th Street would be signalized at both Shellmound and Hollis streets; whereas today these intersections are unsignalized. Option 2 is less desirable from a safety perspective because trucks using 66th and 67th streets today would be required to use 65th Street which is an east/west bike facility. In addition, both 66th and 67th streets at Hollis Street would be unsignalized with Option 2 making truck maneuvers to/from these streets more difficult particularly with the added congestion on Hollis Street with Option 2.

Recommendation: Option 1 is preferred over Option 2 for emergency services; however, emergency services would be worse over today where all streets remain open.

Economic Impact and Benefit

Option 1 and Option 2 will have economic impacts relating to both existing and prospective businesses located in the project vicinity. Most of the businesses adjacent to 66th and 67th streets are industrial in nature, including building materials, contractor yards, exporting/warehousing and manufacturing. Many of these businesses rely on large truck deliveries to and from the properties. One exception is the EmeryTech building, located along the south side of 66th Street. This building contains approximately 228,000 square feet occupied principally by office uses, including the headquarters of Clif Bar, a private university, a data management company and other similar uses. Consequently, this property sees more employment traffic than others in the area. EmeryTech's parking structure is accessed via 66th Street, adjacent to the existing railroad grade crossing.

All of the properties currently benefit from proximate access to Interstate 80 via either 66th and 67th streets. Closure of either or both of the existing railroad grade crossings will impact these properties' access routes, requiring more circuitous routes to access the interstate. Discussions with owners of these properties indicate that the desirability of these properties is due in part to this efficient access; consequently, both Option 1 and Option 2 may have a negative impact on property values in this area. Additionally, businesses that utilize access to Interstate 80 for deliveries can be expected to see an increase in their operating costs (and corresponding decrease in profitability) due to the additional maneuvering required.

However, because EmeryTech is more suitable for office users, the benefits of the closure and implementation of the quiet zone may partially offset these impacts for this property, due to the presumed reduction in noise disturbances from passing trains. This benefit is relatively less important for the industrial users.

Recommendation: Option 1 is preferred over Option 2 due to reduced impacts to vehicular access to commercial properties. A robust program of business outreach during the feasibility and design stage of the project will be necessary to fully evaluate economic impacts.

Appendix A:

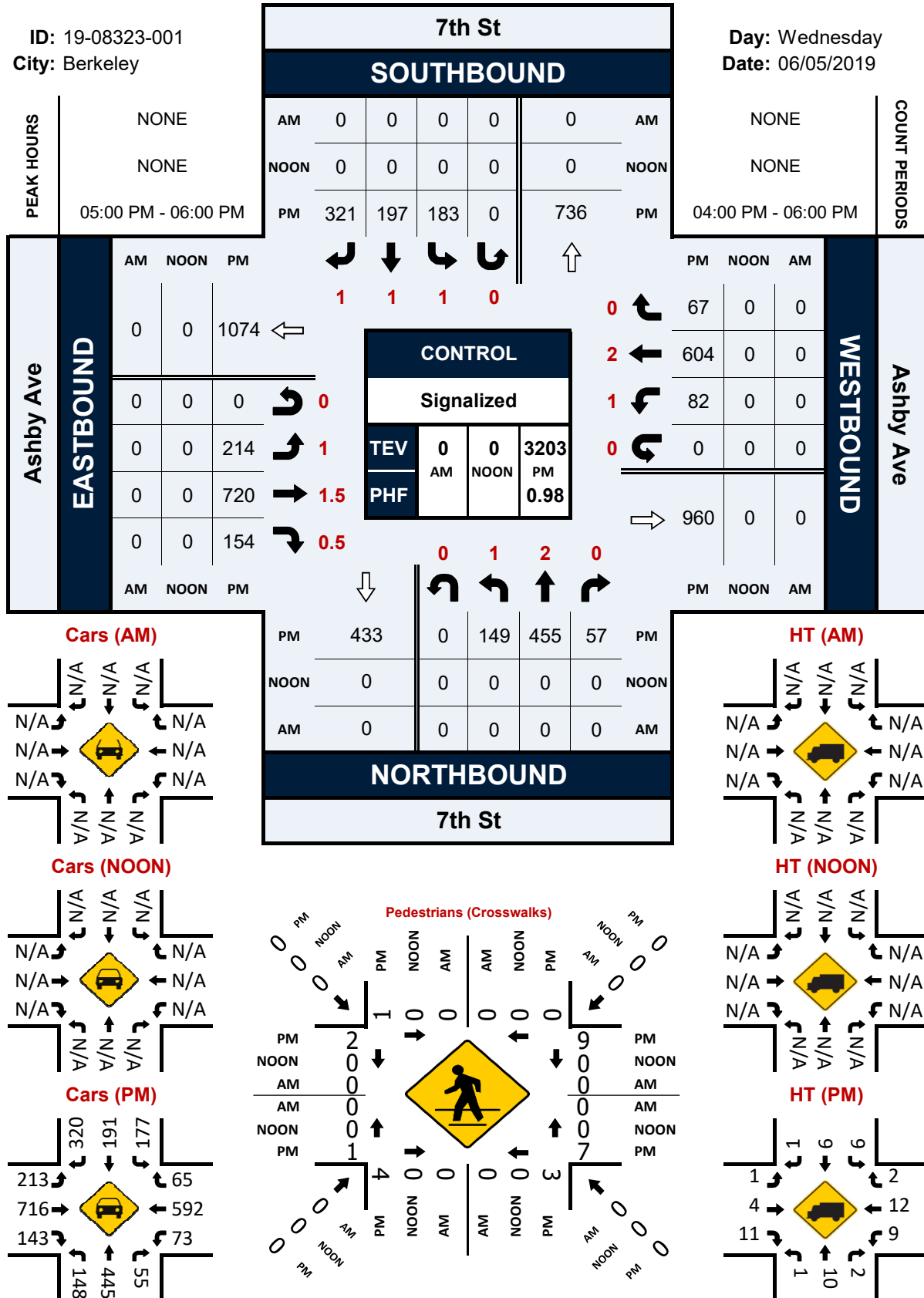
Traffic Count Sheets

7th St & Ashby Ave

Peak Hour Turning Movement Count

ID: 19-08323-001
City: Berkeley

Day: Wednesday
Date: 06/05/2019

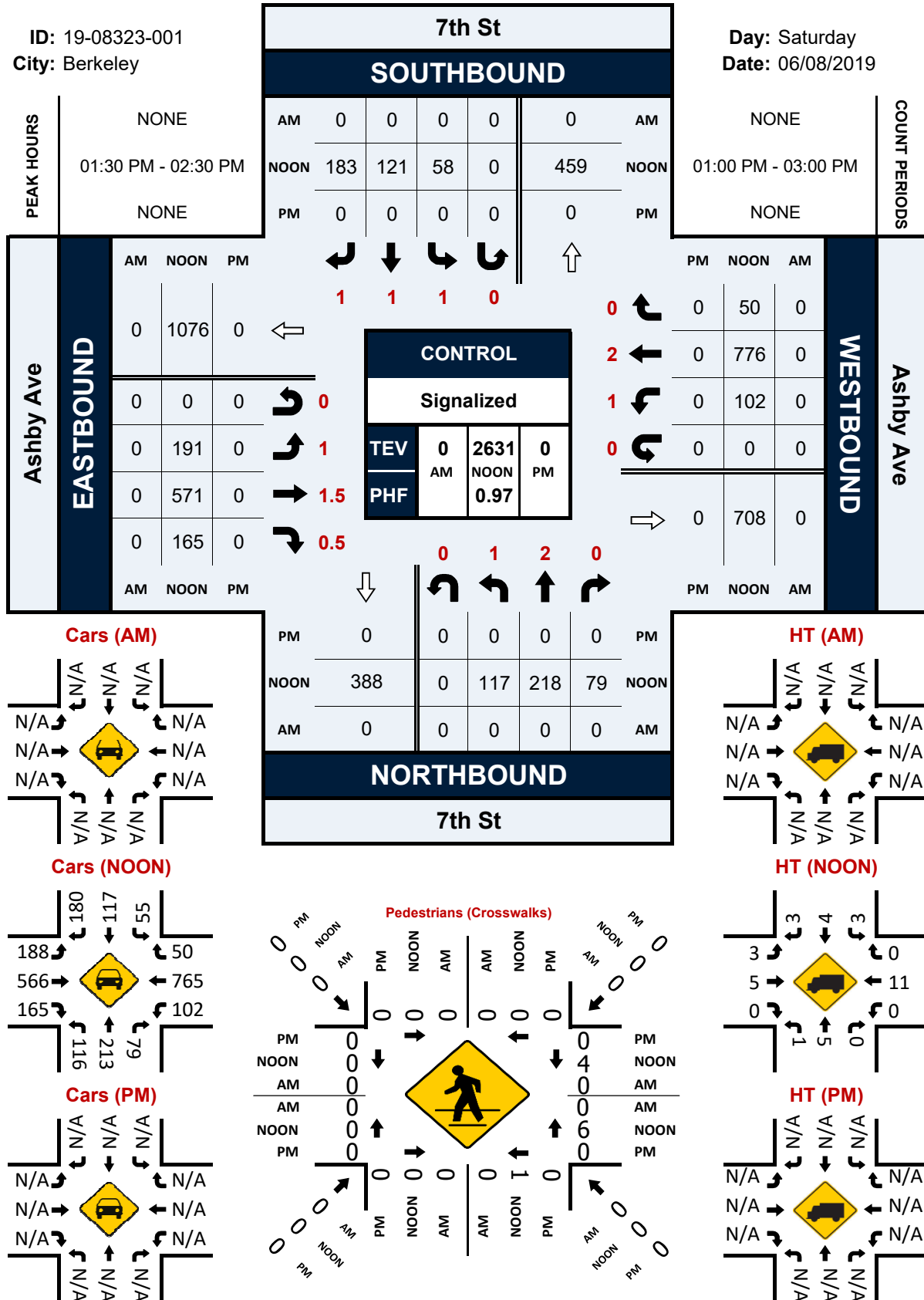


7th St & Ashby Ave

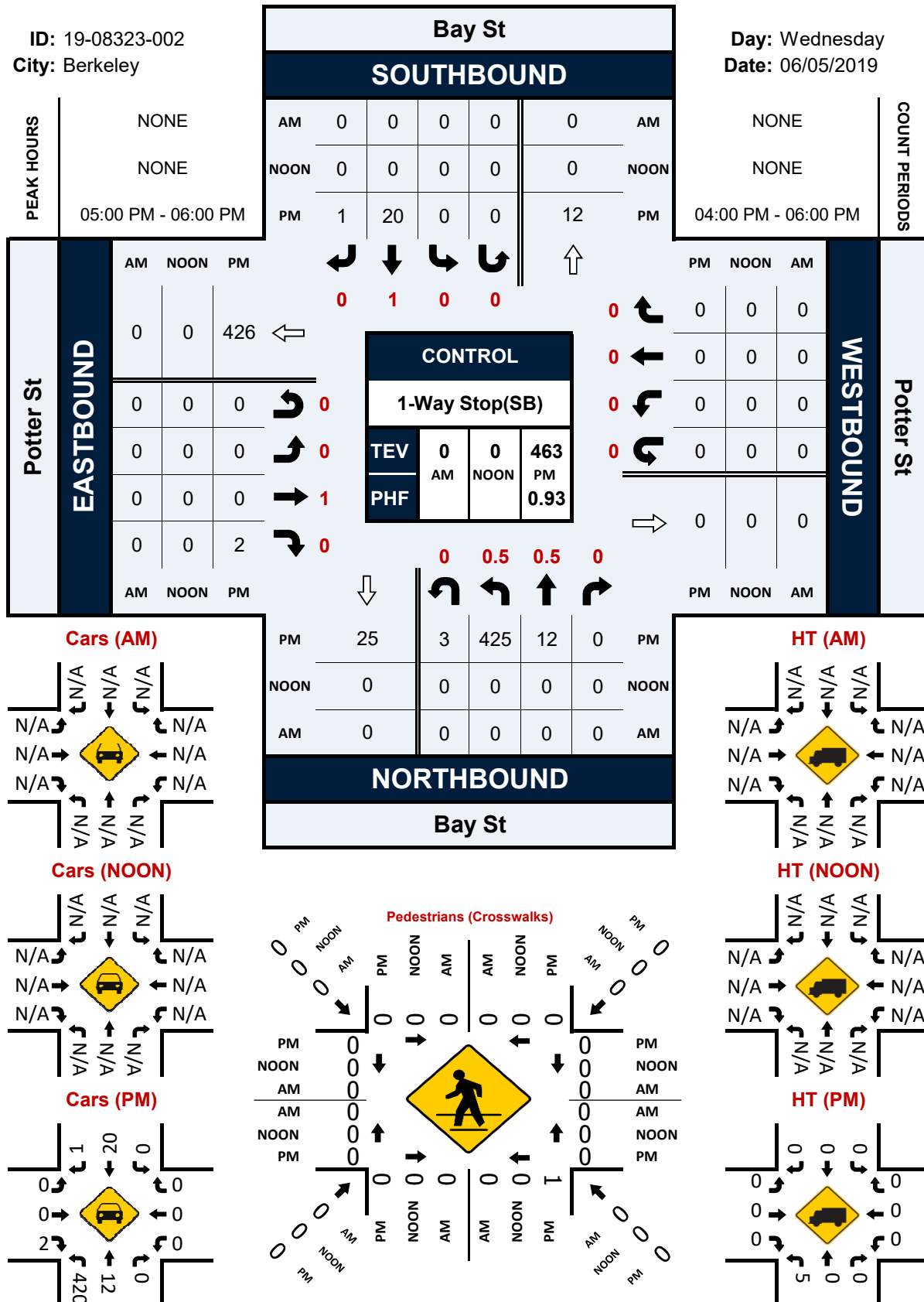
Peak Hour Turning Movement Count

ID: 19-08323-001
City: Berkeley

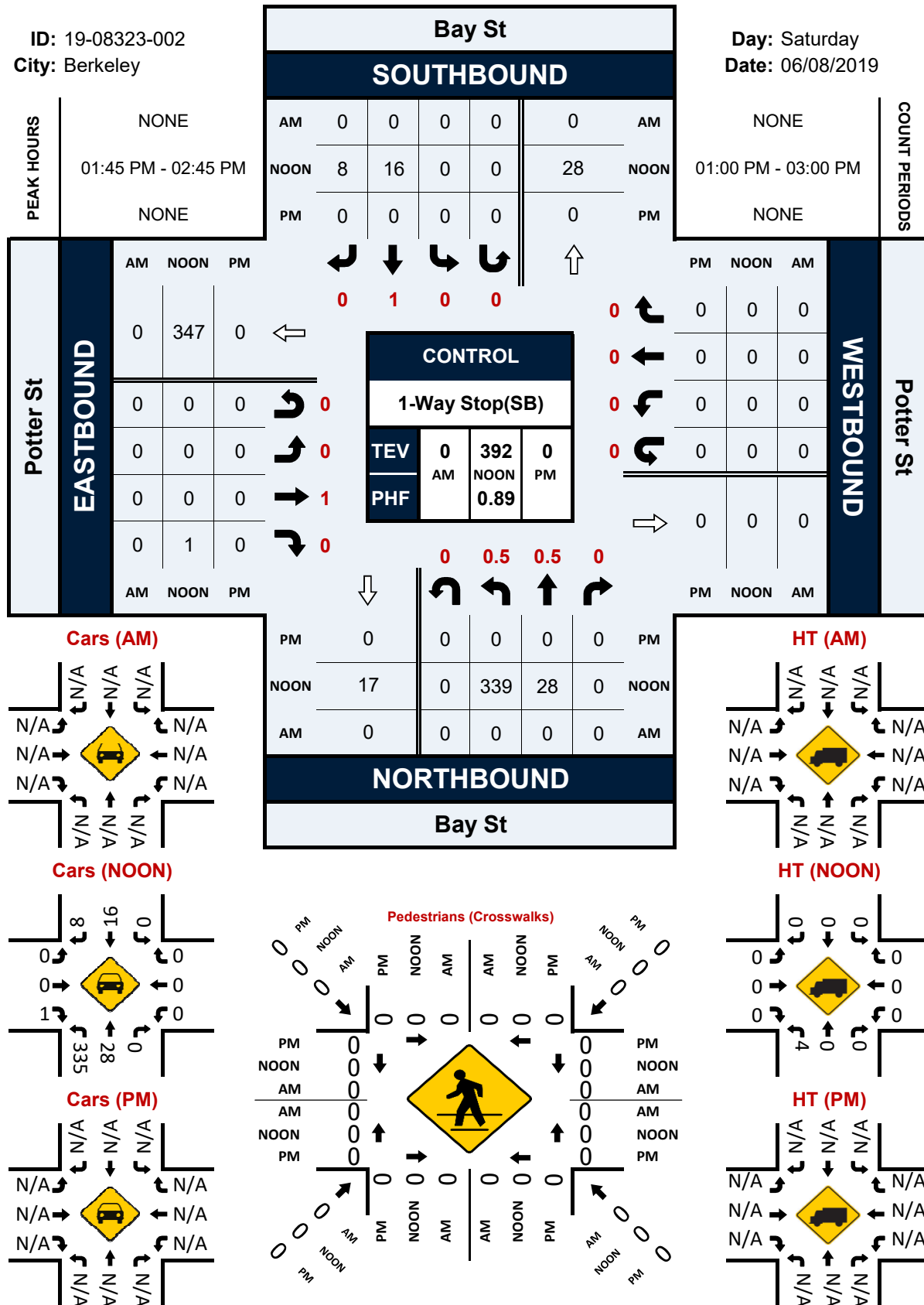
Day: Saturday
Date: 06/08/2019

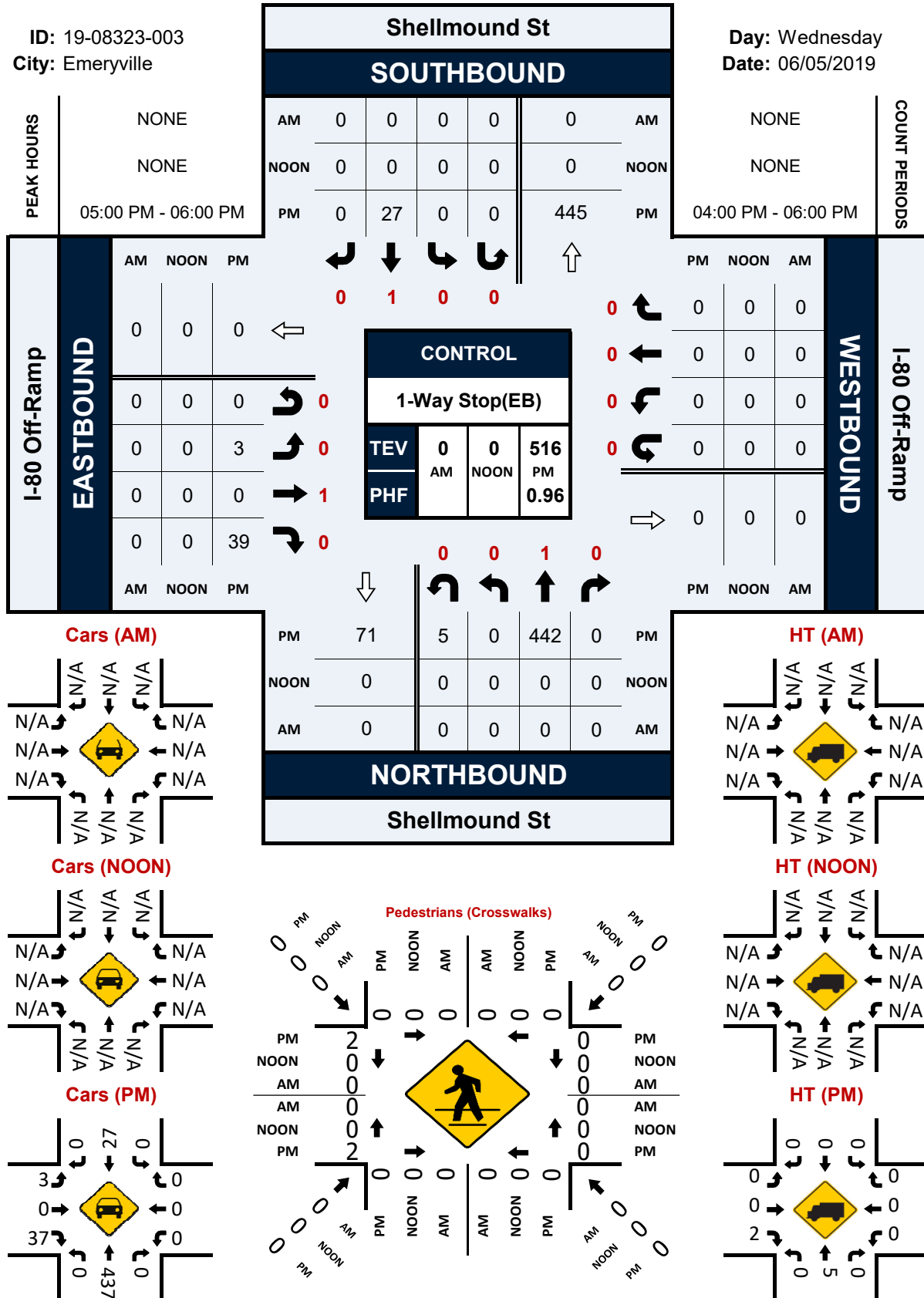


Day: Wednesday
Date: 06/05/2019



Day: Saturday
Date: 06/08/2019



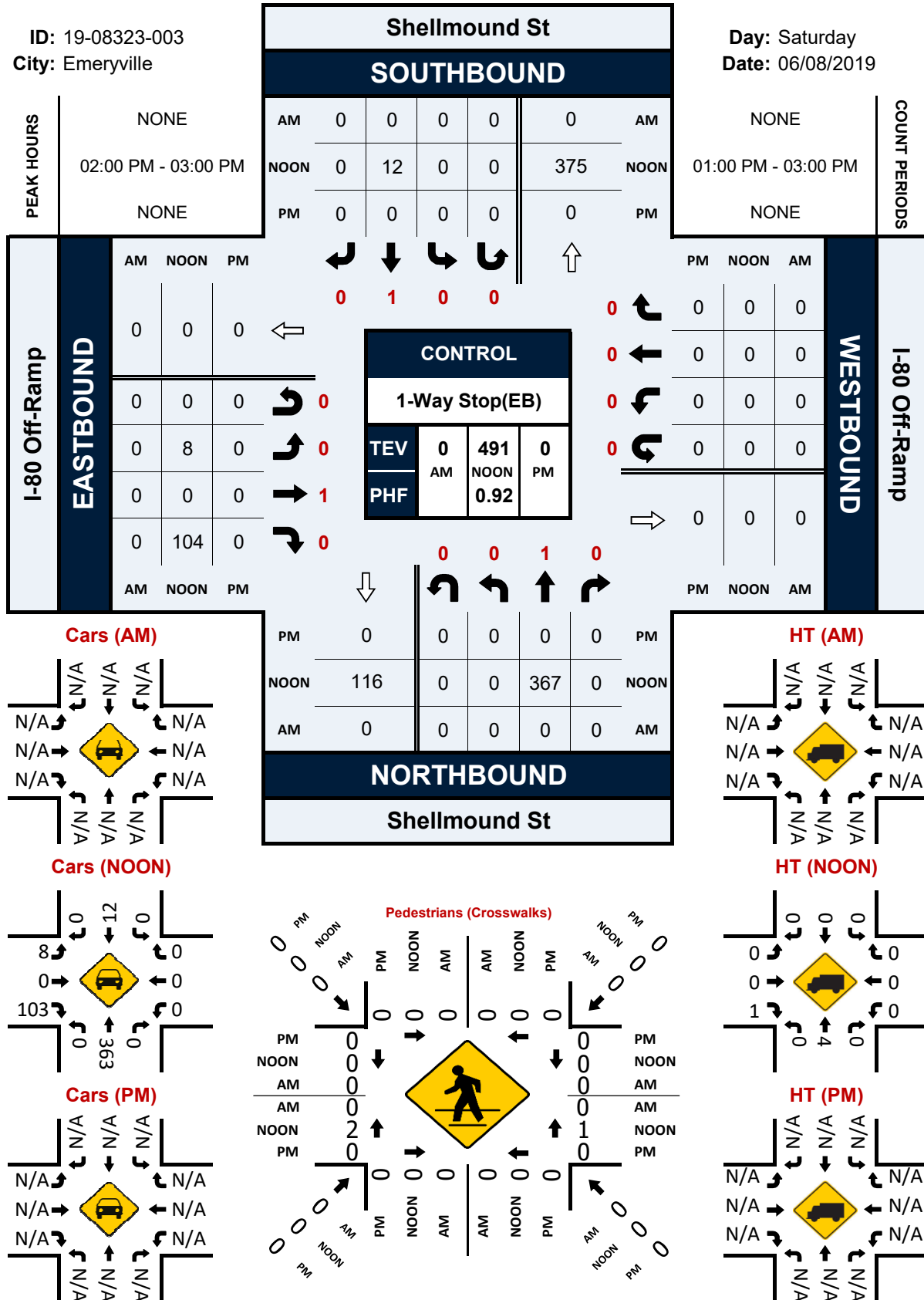


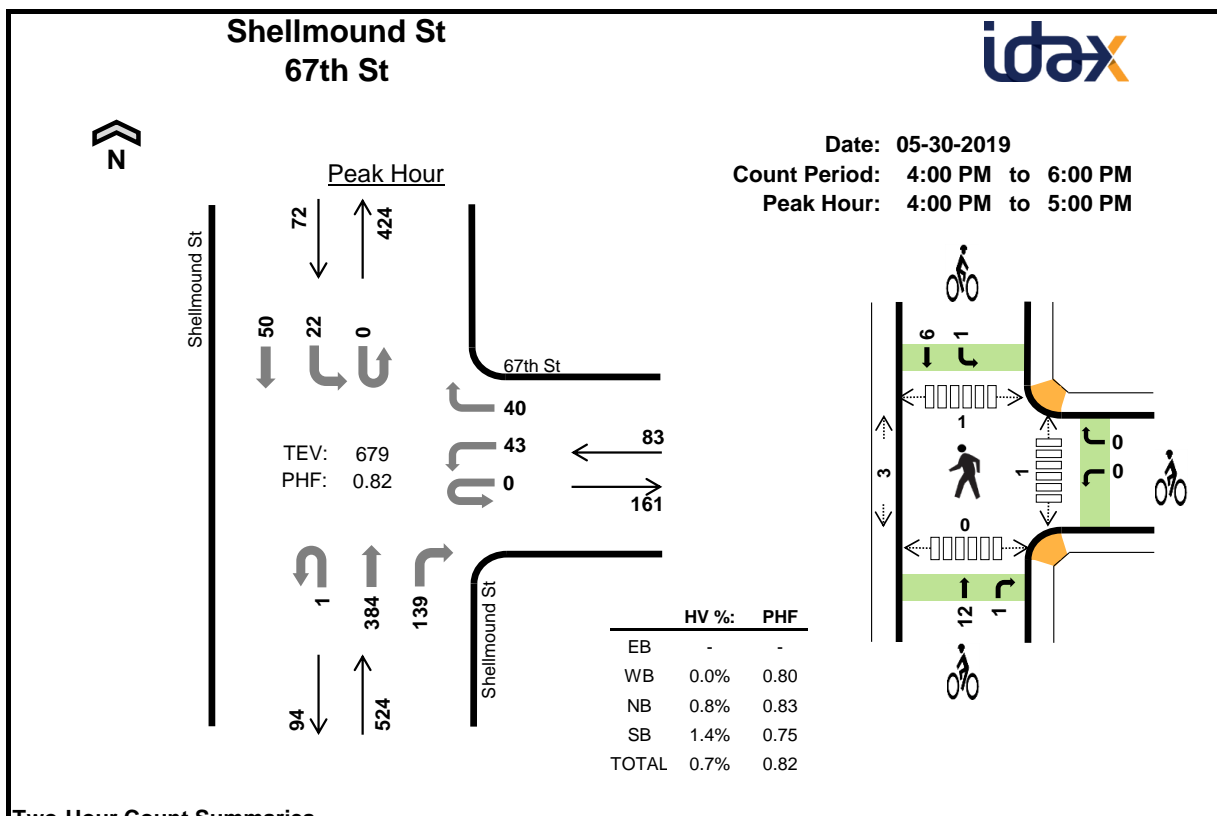
Shellmound St & I-80 Off-Ramp

Peak Hour Turning Movement Count

ID: 19-08323-003
City: Emeryville

Day: Saturday
Date: 06/08/2019



**Two-Hour Count Summaries**

Interval Start		n/a				67th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	0	0	0	0	10	0	16	0	0	112	46	0	6	18	0	208	0
4:15 PM		0	0	0	0	0	14	0	8	0	0	92	32	0	6	11	0	163	0
4:30 PM		0	0	0	0	0	7	0	6	0	0	99	34	0	8	11	0	165	0
4:45 PM		0	0	0	0	0	12	0	10	1	0	81	27	0	2	10	0	143	679
5:00 PM		0	0	0	0	0	17	0	18	0	0	87	27	0	7	13	0	169	640
5:15 PM		0	0	0	0	0	16	0	10	0	0	97	30	0	6	15	0	174	651
5:30 PM		0	0	0	0	0	19	0	10	0	0	85	27	0	5	10	0	156	642
5:45 PM		0	0	0	0	1	10	0	10	0	0	87	24	0	4	11	0	147	646
Count Total		0	0	0	0	1	105	0	88	1	0	740	247	0	44	99	0	1,325	0
Peak Hour	All	0	0	0	0	0	43	0	40	1	0	384	139	0	22	50	0	679	0
	HV	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0	5	0
	HV%	-	-	-	-	-	0%	-	0%	0%	-	1%	1%	-	0%	2%	-	1%	0

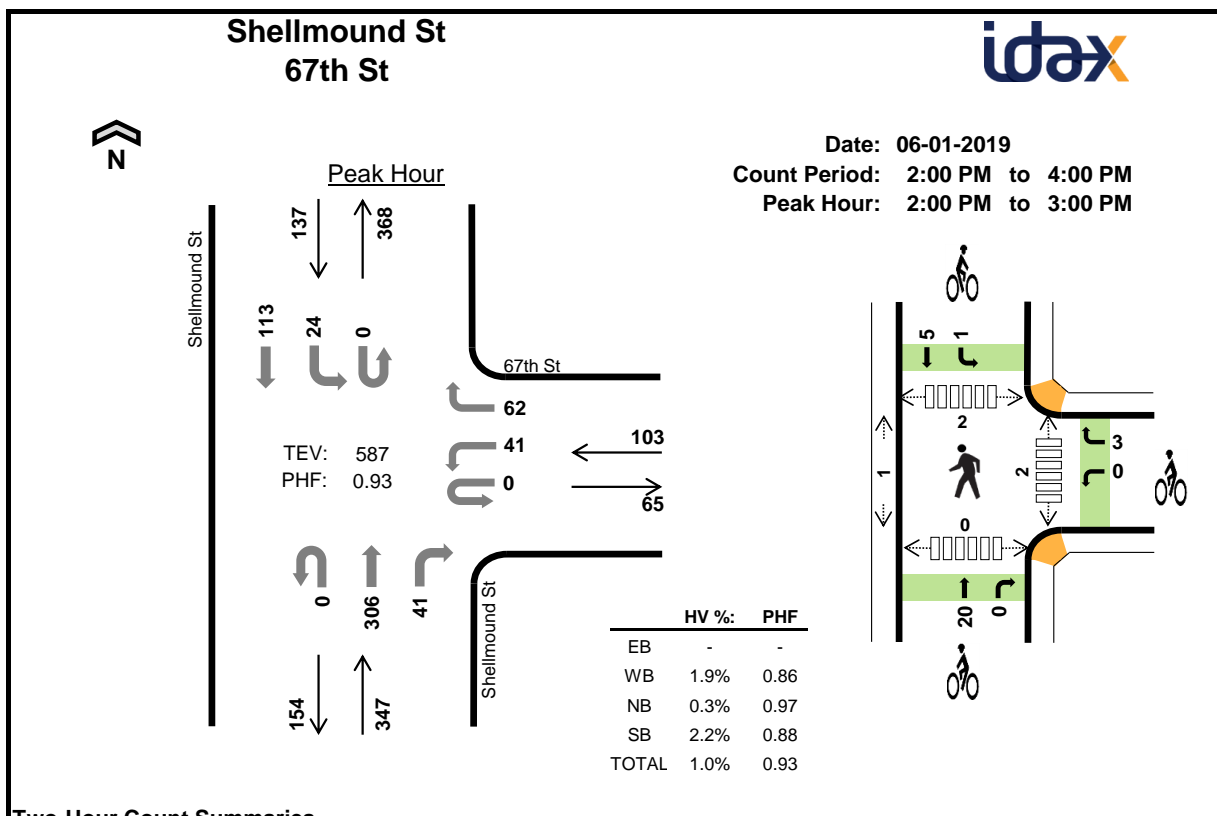
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	0	3	0	3	0	0	3	3	6	0	1	0	0	1
4:15 PM	0	0	0	1	1	0	0	5	1	6	0	1	0	0	1
4:30 PM	0	0	1	0	1	0	0	1	2	3	1	1	1	0	3
4:45 PM	0	0	0	0	0	0	0	4	1	5	0	0	0	0	0
5:00 PM	0	0	1	0	1	0	1	3	2	6	0	0	0	0	0
5:15 PM	0	0	1	0	1	0	0	2	3	5	1	1	0	0	2
5:30 PM	0	0	0	0	0	0	2	3	1	6	1	0	0	0	1
5:45 PM	0	0	0	0	0	0	0	1	5	6	1	2	1	0	4
Count Total	0	0	6	1	7	0	3	22	18	43	4	6	2	0	12
Peak Hr	0	0	4	1	5	0	0	13	7	20	1	3	1	0	5

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	n/a				67th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	0	0	0	1	2	0	0	0	0	3	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
5:00 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	0	0	0	0	0	0	4	2	0	0	1	0	7	0
Peak Hour	0	0	0	0	0	0	0	0	0	0	2	2	0	0	1	0	5	0

Two-Hour Count Summaries - Bikes																		
Interval Start	n/a			67th St			Shellmound St			Shellmound St			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	0	0	0	0	0	0	2	1	0	3	0	6	0				
4:15 PM	0	0	0	0	0	0	0	5	0	0	1	0	6	0				
4:30 PM	0	0	0	0	0	0	0	1	0	1	1	0	3	0				
4:45 PM	0	0	0	0	0	0	0	4	0	0	1	0	5	20				
5:00 PM	0	0	0	0	0	1	0	3	0	0	2	0	6	20				
5:15 PM	0	0	0	0	0	0	0	2	0	0	3	0	5	19				
5:30 PM	0	0	0	2	0	0	0	3	0	0	1	0	6	22				
5:45 PM	0	0	0	0	0	0	0	1	0	2	3	0	6	23				
Count Total	0	0	0	2	0	1	0	21	1	3	15	0	43	0				
Peak Hour	0	0	0	0	0	0	0	12	1	1	6	0	20	0				

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

**Two-Hour Count Summaries**

Interval Start		n/a				67th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM		0	0	0	0	0	12	0	14	0	0	78	10	0	5	33	0	152	0
2:15 PM		0	0	0	0	0	9	0	13	0	0	78	11	0	9	16	0	136	0
2:30 PM		0	0	0	0	0	9	0	16	0	0	79	2	0	4	31	0	141	0
2:45 PM		0	0	0	0	0	11	0	19	0	0	71	18	0	6	33	0	158	587
3:00 PM		0	0	0	0	0	8	0	17	1	0	74	2	0	7	30	0	139	574
3:15 PM		0	0	0	0	0	5	0	16	0	0	68	10	0	5	29	0	133	571
3:30 PM		0	0	0	0	0	11	0	14	0	0	91	8	0	1	29	0	154	584
3:45 PM		0	0	0	0	0	21	0	6	0	0	87	6	0	11	25	0	156	582
Count Total		0	0	0	0	0	86	0	115	1	0	626	67	0	48	226	0	1,169	0
Peak Hour	All	0	0	0	0	0	41	0	62	0	0	306	41	0	24	113	0	587	0
	HV	0	0	0	0	0	0	0	2	0	0	1	0	0	1	2	0	6	0
	HV%	-	-	-	-	-	0%	-	3%	-	-	0%	0%	-	4%	2%	-	1%	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	0	0	0	0	0	0	7	2	9	1	1	0	0	2
2:15 PM	0	0	1	1	2	0	1	7	2	10	1	0	0	0	1
2:30 PM	0	1	0	0	1	0	1	2	0	3	0	0	0	0	0
2:45 PM	0	1	0	2	3	0	1	4	2	7	0	0	2	0	2
3:00 PM	0	0	0	0	0	0	0	2	1	3	0	1	0	1	2
3:15 PM	0	0	0	0	0	0	0	4	3	7	0	2	0	0	2
3:30 PM	0	0	1	0	1	0	1	5	1	7	1	1	0	0	2
3:45 PM	0	0	0	0	0	0	3	1	4	8	2	0	0	0	2
Count Total	0	2	2	3	7	0	7	32	15	54	5	5	2	1	13
Peak Hr	0	2	1	3	6	0	3	20	6	29	2	1	2	0	5

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	n/a				67th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	0
2:30 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	0
2:45 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1	0	3	6
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
3:30 PM	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	4
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Count Total	0	0	0	0	0	0	0	2	0	0	1	1	0	1	2	0	7	0
Peak Hour	0	0	0	0	0	0	0	2	0	0	1	0	0	1	2	0	6	0

Two-Hour Count Summaries - Bikes																		
Interval Start	n/a			67th St			Shellmound St			Shellmound St			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
2:00 PM	0	0	0	0	0	0	0	7	0	0	2	0	9	0				
2:15 PM	0	0	0	0	0	1	0	7	0	0	2	0	10	0				
2:30 PM	0	0	0	0	0	1	0	2	0	0	0	0	3	0				
2:45 PM	0	0	0	0	0	1	0	4	0	1	1	0	7	29				
3:00 PM	0	0	0	0	0	0	0	2	0	0	1	0	3	23				
3:15 PM	0	0	0	0	0	0	0	4	0	1	2	0	7	20				
3:30 PM	0	0	0	1	0	0	0	5	0	0	1	0	7	24				
3:45 PM	0	0	0	0	0	3	0	1	0	0	4	0	8	25				
Count Total	0	0	0	1	0	6	0	32	0	2	13	0	54	0				
Peak Hour	0	0	0	0	0	3	0	20	0	1	5	0	29	0				

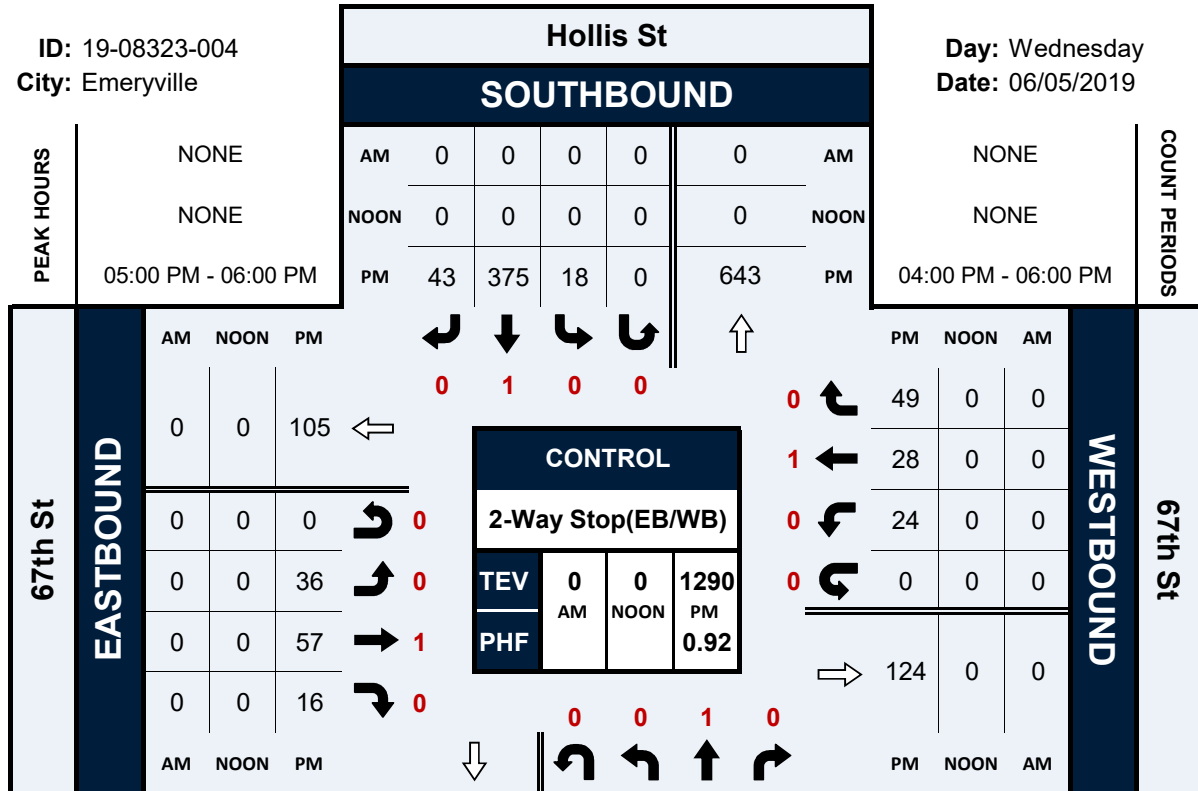
Note: U-Turn volumes for bikes are included in Left-Turn, if any.

Hollis St & 67th St

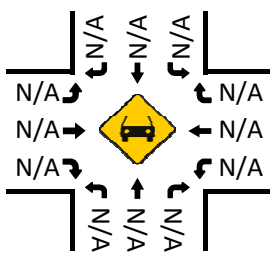
Peak Hour Turning Movement Count

ID: 19-08323-004
City: Emeryville

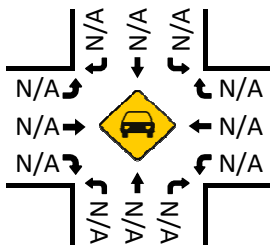
Day: Wednesday
Date: 06/05/2019



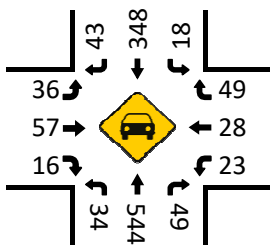
Cars (AM)



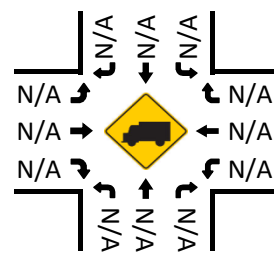
Cars (NOON)



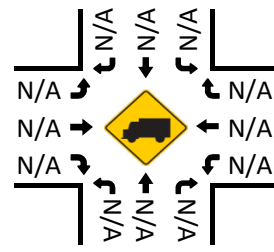
Cars (PM)



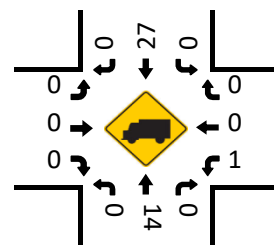
HT (AM)



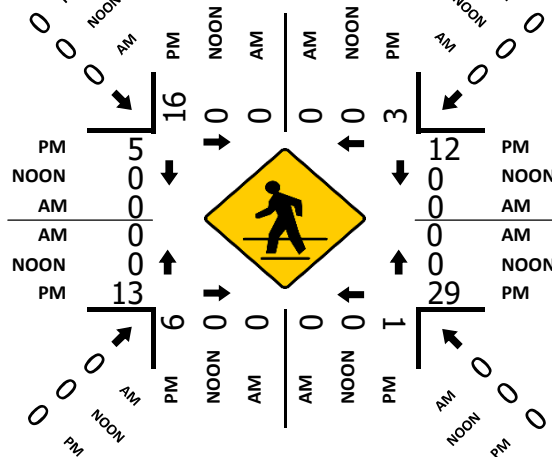
HT (NOON)

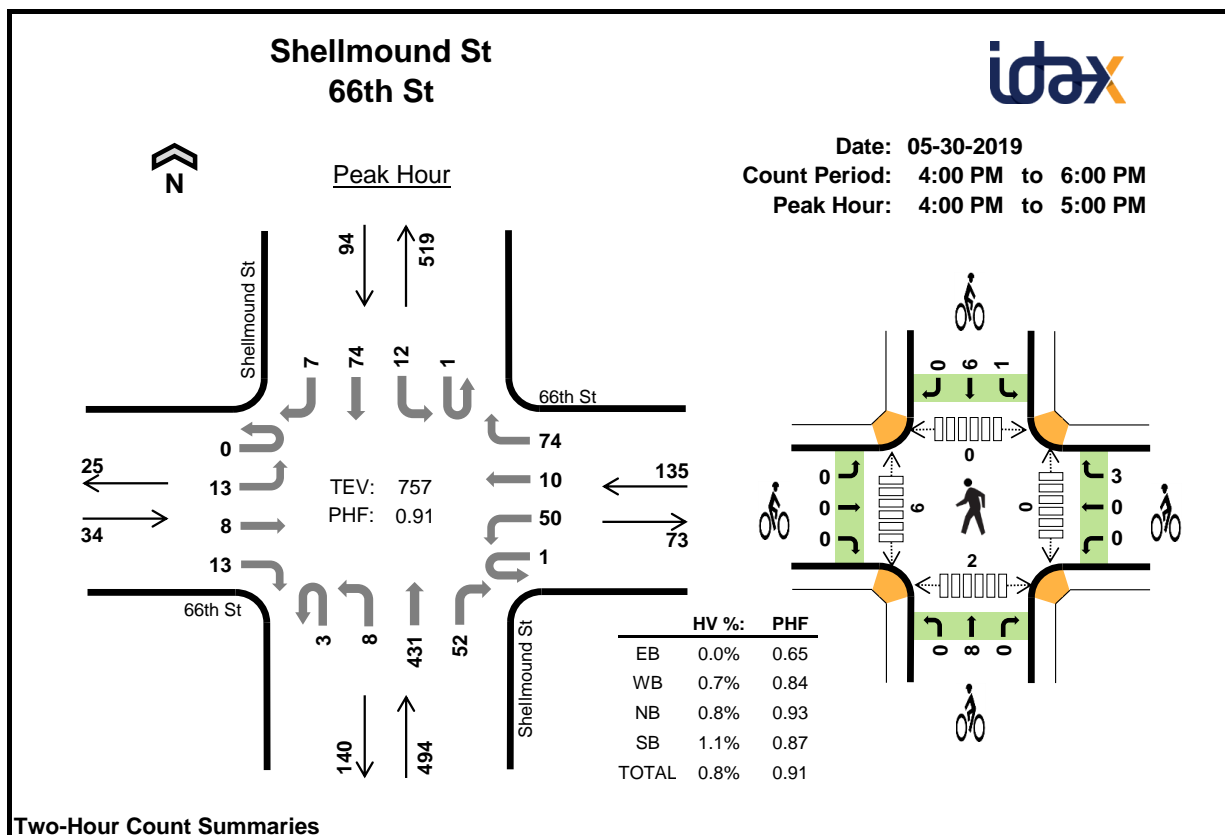


HT (PM)



Pedestrians (Crosswalks)



**Two-Hour Count Summaries**

Interval Start		66th St				66th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	4	2	2	0	14	1	25	0	2	126	5	1	6	20	0	208	0
4:15 PM		0	2	2	6	1	16	2	15	2	3	105	13	0	0	24	3	194	0
4:30 PM		0	7	3	3	0	10	5	18	0	1	107	9	0	2	15	2	182	0
4:45 PM		0	0	1	2	0	10	2	16	1	2	93	25	0	4	15	2	173	757
5:00 PM		0	2	0	3	0	13	4	18	0	4	104	14	0	1	27	1	191	740
5:15 PM		0	1	2	1	0	12	1	14	1	3	101	14	0	3	28	3	184	730
5:30 PM		0	3	3	2	0	10	1	21	0	1	95	14	0	2	27	0	179	727
5:45 PM		0	1	0	1	0	15	0	20	0	0	96	14	0	3	20	0	170	724
Count Total		0	20	13	20	1	100	16	147	4	16	827	108	1	21	176	11	1,481	0
Peak Hour	All	0	13	8	13	1	50	10	74	3	8	431	52	1	12	74	7	757	0
	HV	0	0	0	0	0	0	0	1	0	0	3	1	0	0	1	0	6	0
	HV%	-	0%	0%	0%	0%	0%	0%	1%	0%	0%	1%	2%	0%	0%	1%	0%	1%	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	0	1	3	0	4	0	0	2	4	6	0	2	0	1	3
4:15 PM	0	0	0	1	1	0	1	4	1	6	0	2	0	0	2
4:30 PM	0	0	1	0	1	0	0	2	1	3	0	1	0	1	2
4:45 PM	0	0	0	0	0	0	2	0	1	3	0	1	0	0	1
5:00 PM	0	1	0	0	1	0	0	3	4	7	3	0	0	1	4
5:15 PM	0	0	1	0	1	0	0	2	1	3	2	2	0	1	5
5:30 PM	0	0	0	0	0	0	0	3	4	7	4	2	0	1	7
5:45 PM	0	0	0	0	0	0	1	4	4	9	0	1	0	1	2
Count Total	0	2	5	1	8	0	4	20	20	44	9	11	0	6	26
Peak Hour	0	1	4	1	6	0	3	8	7	18	0	6	0	2	8

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	66th St				66th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	0	0	0	0	0	1	0	0	2	1	0	0	0	0	4	0
4:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	0
4:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0
4:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
5:00 PM	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	3
5:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	3
5:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Count Total	0	0	0	0	0	0	0	2	0	0	4	1	0	0	1	0	8	0
Peak Hour	0	0	0	0	0	0	0	1	0	0	3	1	0	0	1	0	6	0

Two-Hour Count Summaries - Bikes																		
Interval Start	66th St			66th St			Shellmound St			Shellmound St						15-min Total	Rolling One Hour	
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT			
4:00 PM	0	0	0	0	0	0	0	2	0	1	3	0	6	0				
4:15 PM	0	0	0	0	0	1	0	4	0	0	1	0	6	0				
4:30 PM	0	0	0	0	0	0	0	2	0	0	1	0	3	0				
4:45 PM	0	0	0	0	0	2	0	0	0	0	1	0	3	18				
5:00 PM	0	0	0	0	0	0	0	3	0	1	3	0	7	19				
5:15 PM	0	0	0	0	0	0	0	2	0	0	1	0	3	16				
5:30 PM	0	0	0	0	0	0	0	3	0	0	4	0	7	20				
5:45 PM	0	0	0	0	0	1	0	2	2	0	4	0	9	26				
Count Total	0	0	0	0	0	4	0	18	2	2	18	0	44	0				
Peak Hour	0	0	0	0	0	3	0	8	0	1	6	0	18	0				

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

Shellmound St 66th St

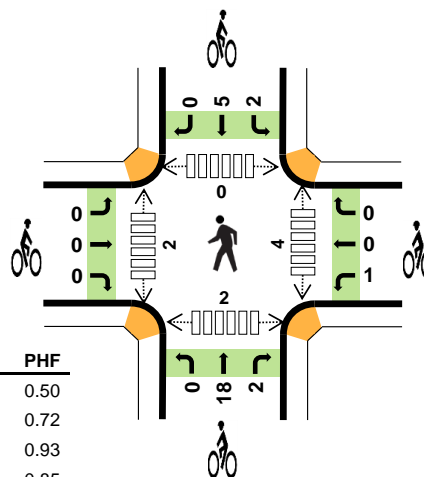
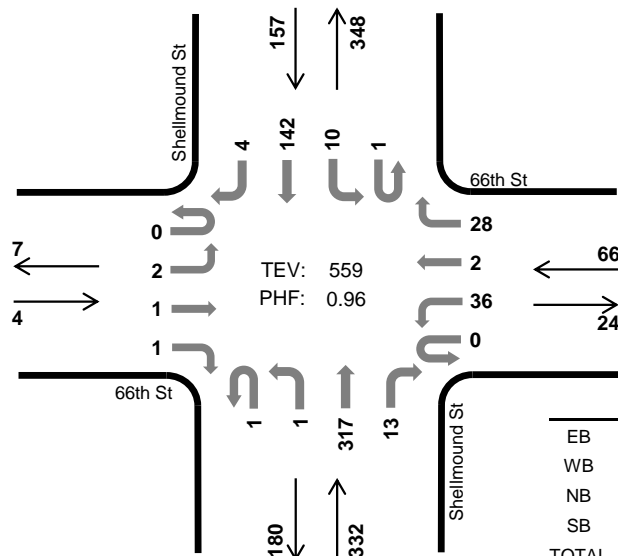


Peak Hour

Date: 06-01-2019

Count Period: 2:00 PM to 4:00 PM

Peak Hour: 2:00 PM to 3:00 PM



	HV %:	PHF
EB	0.0%	0.50
WB	0.0%	0.72
NB	0.3%	0.93
SB	1.3%	0.85
TOTAL	0.5%	0.96

Two-Hour Count Summaries

Interval Start		66th St				66th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM		0	1	0	0	0	13	1	9	1	1	71	3	0	8	37	1	146	0
2:15 PM		0	1	0	0	0	6	1	7	0	0	86	3	0	1	23	1	129	0
2:30 PM		0	0	1	1	0	10	0	8	0	0	82	2	0	1	38	1	144	0
2:45 PM		0	0	0	0	0	7	0	4	0	0	78	5	1	0	44	1	140	559
3:00 PM		0	1	0	0	0	6	2	5	1	1	80	3	0	2	36	0	137	550
3:15 PM		0	2	0	0	0	7	1	6	0	0	68	1	0	4	31	3	123	544
3:30 PM		0	0	0	0	0	4	0	10	0	1	91	2	0	2	38	0	148	548
3:45 PM		0	0	0	1	0	5	1	5	0	1	82	1	0	3	25	13	137	545
Count Total		0	5	1	2	0	58	6	54	2	4	638	20	1	21	272	20	1,104	0
Peak Hour	All	0	2	1	1	0	36	2	28	1	1	317	13	1	10	142	4	559	0
	HV	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	0
	HV%	-	0%	0%	0%	-	0%	0%	0%	0%	0%	0%	0%	0%	0%	1%	0%	1%	0

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

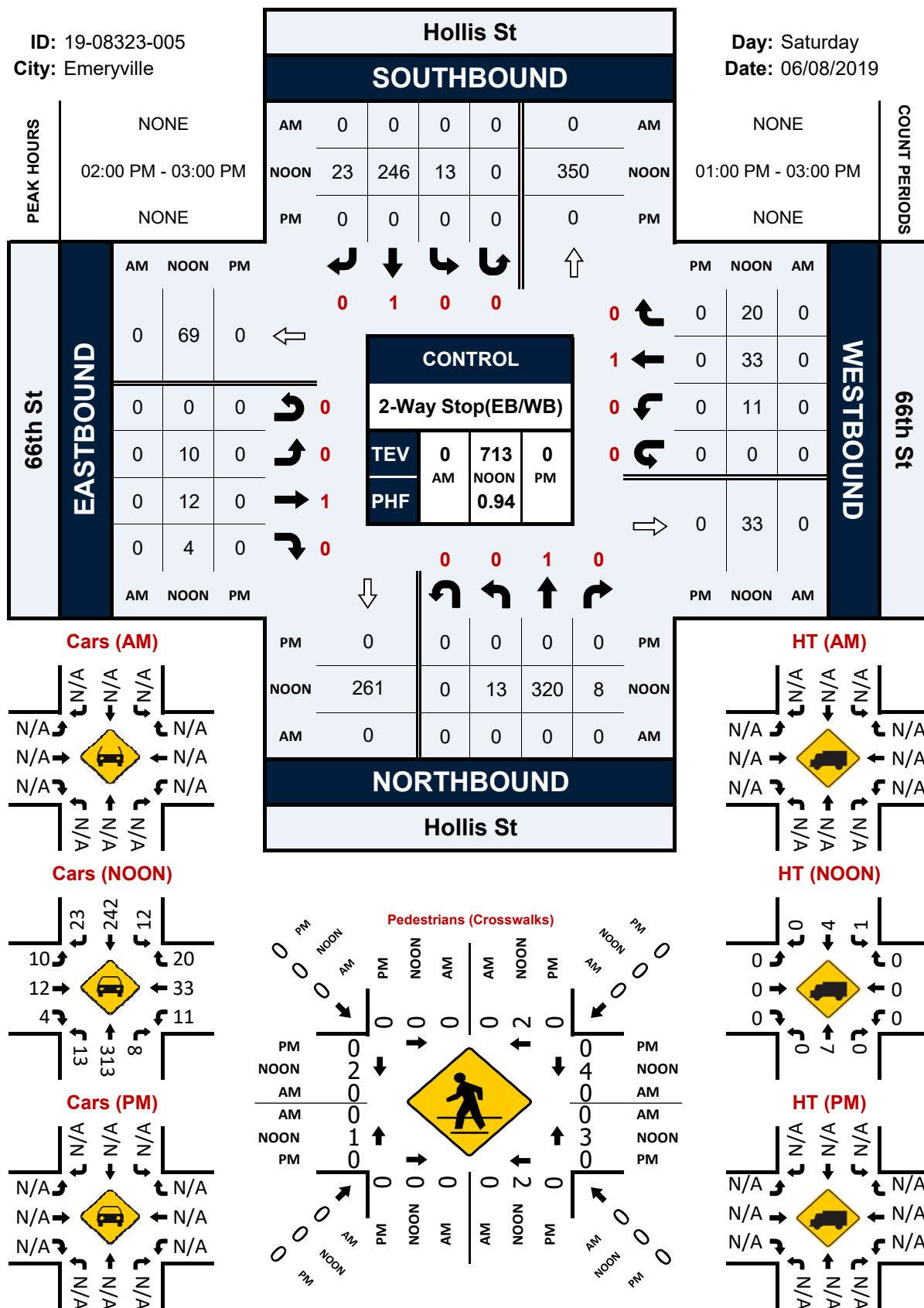
Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	0	0	0	0	0	0	0	4	3	7	1	1	0	0	2
2:15 PM	0	0	1	1	2	0	0	7	2	9	1	0	0	1	2
2:30 PM	0	0	0	0	0	0	0	3	0	3	1	1	0	0	2
2:45 PM	0	0	0	1	1	0	1	6	2	9	1	0	0	1	2
3:00 PM	0	0	0	0	0	0	1	2	2	5	0	0	0	0	0
3:15 PM	0	0	0	0	0	1	1	5	1	8	1	2	0	0	3
3:30 PM	0	0	1	0	1	0	0	5	2	7	0	0	0	0	0
3:45 PM	0	0	0	0	0	0	0	3	3	6	0	0	0	0	0
Count Total	0	0	2	2	4	1	3	35	15	54	5	4	0	2	11
Peak Hour	0	0	1	2	3	0	1	20	7	28	4	2	0	2	8

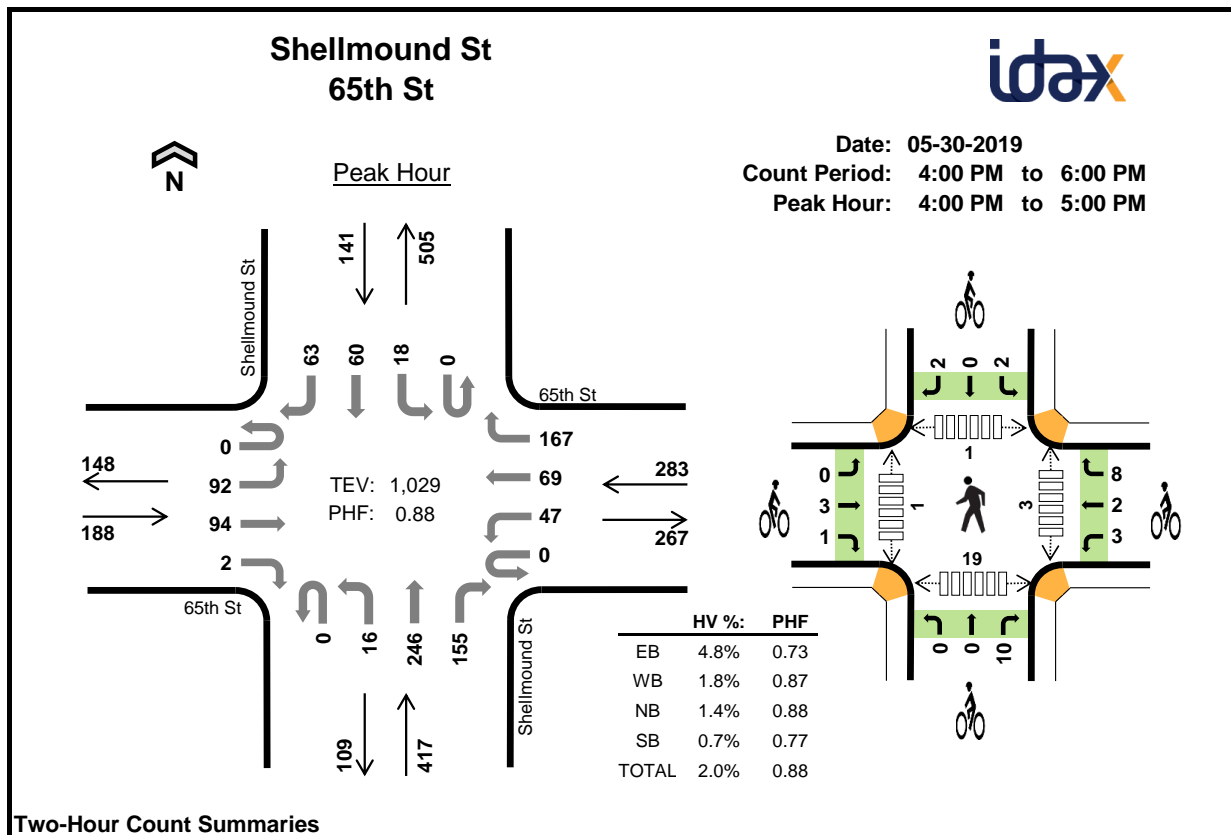
Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	66th St				66th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	
2:30 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
2:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3:30 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	
3:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Count Total	0	0	0	0	0	0	0	0	0	0	2	0	0	0	2	0	4	
Peak Hour	0	0	0	0	0	0	0	0	0	0	1	0	0	0	2	0	3	

Two-Hour Count Summaries - Bikes																	
Interval Start	66th St			66th St			Shellmound St			Shellmound St			15-min Total	Rolling One Hour			
	Eastbound			Westbound			Northbound			Southbound							
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT					
2:00 PM	0	0	0	0	0	0	0	4	0	1	2	0	7	0			
2:15 PM	0	0	0	0	0	0	0	7	0	0	2	0	9	0			
2:30 PM	0	0	0	0	0	0	0	3	0	0	0	0	3	0			
2:45 PM	0	0	0	1	0	0	0	4	2	1	1	0	9	28			
3:00 PM	0	0	0	0	0	1	0	1	1	0	1	1	5	26			
3:15 PM	0	0	1	0	0	1	0	3	2	0	1	0	8	25			
3:30 PM	0	0	0	0	0	0	0	5	0	0	2	0	7	29			
3:45 PM	0	0	0	0	0	0	0	3	0	0	3	0	6	26			
Count Total	0	0	1	1	0	2	0	30	5	2	12	1	54	0			
Peak Hour	0	0	0	1	0	0	0	18	2	2	5	0	28	0			

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

Day: Saturday
Date: 06/08/2019



**Two-Hour Count Summaries**

Interval Start		65th St				65th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM		0	30	34	0	0	18	20	43	0	2	63	46	0	5	18	14	293	0
4:15 PM		0	15	20	0	0	9	21	46	0	6	69	44	0	9	17	20	276	0
4:30 PM		0	27	26	1	0	12	12	39	0	5	50	33	0	4	6	18	233	0
4:45 PM		0	20	14	1	0	8	16	39	0	3	64	32	0	0	19	11	227	1,029
5:00 PM		0	25	16	1	0	11	11	11	0	6	85	41	0	2	15	18	242	978
5:15 PM		0	15	22	1	0	17	11	39	0	3	65	50	0	7	29	14	273	975
5:30 PM		0	27	21	2	0	17	13	33	0	5	49	46	0	2	16	18	249	991
5:45 PM		0	18	19	4	0	12	9	22	0	4	65	39	0	0	22	20	234	998
Count Total		0	177	172	10	0	104	113	272	0	34	510	331	0	29	142	133	2,027	0
Peak Hour	All	0	92	94	2	0	47	69	167	0	16	246	155	0	18	60	63	1,029	0
	HV	0	2	7	0	0	4	0	1	0	4	1	1	0	0	1	0	21	0
	HV%	-	2%	7%	0%	-	9%	0%	1%	-	25%	0%	1%	-	0%	2%	0%	2%	0

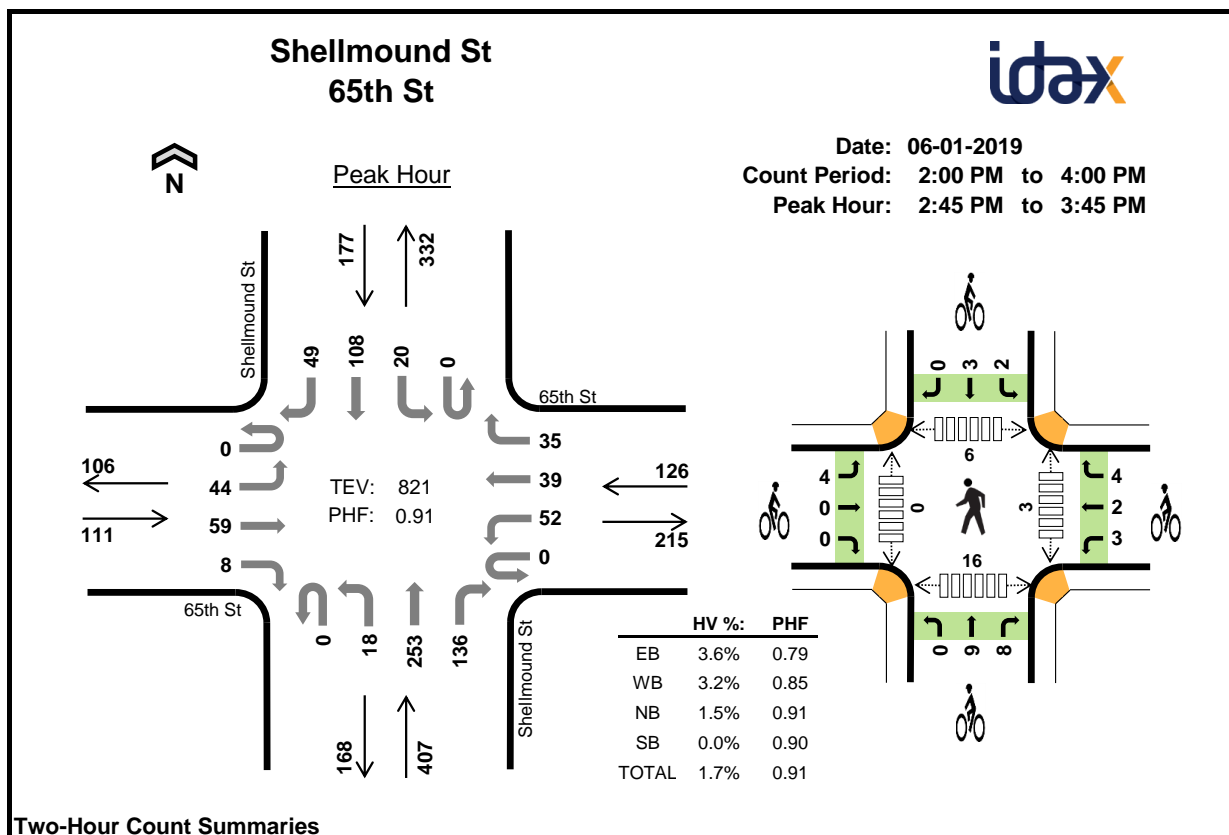
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	4	1	2	0	7	1	3	1	2	7	0	0	0	6	6
4:15 PM	2	1	1	1	5	1	4	3	1	9	0	0	1	4	5
4:30 PM	1	2	1	0	4	2	4	3	0	9	2	1	0	4	7
4:45 PM	2	1	2	0	5	0	2	3	1	6	1	0	0	5	6
5:00 PM	1	3	1	0	5	2	3	8	2	15	1	1	3	9	14
5:15 PM	3	1	1	0	5	0	1	6	1	8	2	1	0	2	5
5:30 PM	0	1	2	0	3	1	2	7	4	14	2	0	3	10	15
5:45 PM	2	2	1	0	5	1	1	4	3	9	2	3	4	3	12
Count Total	15	12	11	1	39	8	20	35	14	77	10	6	11	43	70
Peak Hour	9	5	6	1	21	4	13	10	4	31	3	1	1	19	24

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	65th St				65th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	2	2	0	0	1	0	0	0	1	1	0	0	0	0	0	7	0
4:15 PM	0	0	2	0	0	1	0	0	0	1	0	0	0	0	1	0	5	0
4:30 PM	0	0	1	0	0	1	0	1	0	1	0	0	0	0	0	0	4	0
4:45 PM	0	0	2	0	0	1	0	0	0	1	0	1	0	0	0	0	5	21
5:00 PM	0	0	1	0	0	1	2	0	0	1	0	0	0	0	0	0	5	19
5:15 PM	0	0	3	0	0	0	0	1	0	1	0	0	0	0	0	0	5	19
5:30 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	3	18
5:45 PM	0	0	2	0	0	2	0	0	0	1	0	0	0	0	0	0	5	18
Count Total	0	2	13	0	0	8	2	2	0	8	1	2	0	0	1	0	39	0
Peak Hour	0	2	7	0	0	4	0	1	0	4	1	1	0	0	1	0	21	0

Two-Hour Count Summaries - Bikes																		
Interval Start	65th St			65th St			Shellmound St			Shellmound St			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
4:00 PM	0	1	0	0	1	2	0	0	1	2	0	0	7	0				
4:15 PM	0	1	0	0	0	4	0	0	3	0	0	1	9	0				
4:30 PM	0	1	1	2	1	1	0	0	3	0	0	0	9	0				
4:45 PM	0	0	0	1	0	1	0	0	3	0	0	1	6	31				
5:00 PM	1	1	0	1	1	1	1	1	6	0	1	1	15	39				
5:15 PM	0	0	0	0	0	1	0	1	5	1	0	0	8	38				
5:30 PM	0	1	0	0	0	2	0	1	6	2	1	1	14	43				
5:45 PM	0	1	0	0	0	1	0	1	3	1	2	0	9	46				
Count Total	1	6	1	4	3	13	1	4	30	6	4	4	77	0				
Peak Hour	0	3	1	3	2	8	0	0	10	2	0	2	31	0				

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

**Two-Hour Count Summaries**

Interval Start		65th St				65th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM		0	8	14	7	0	8	6	12	0	4	56	46	0	6	28	19	214	0
2:15 PM		0	16	9	4	0	13	12	6	0	2	65	36	0	3	17	10	193	0
2:30 PM		0	9	12	2	0	5	9	4	0	2	70	25	0	3	33	16	190	0
2:45 PM		0	13	13	4	0	15	6	6	0	8	68	23	0	4	25	18	203	800
3:00 PM		0	4	12	2	0	13	13	9	0	3	72	37	0	5	30	14	214	800
3:15 PM		0	12	14	2	0	11	9	7	0	3	50	32	0	6	24	8	178	785
3:30 PM		0	15	20	0	0	13	11	13	0	4	63	44	0	5	29	9	226	821
3:45 PM		0	6	8	0	0	12	7	7	0	3	77	40	0	1	20	9	190	808
Count Total		0	83	102	21	0	90	73	64	0	29	521	283	0	33	206	103	1,608	0
Peak Hour	All	0	44	59	8	0	52	39	35	0	18	253	136	0	20	108	49	821	0
	HV	0	0	3	1	0	4	0	0	0	4	1	1	0	0	0	0	14	0
	HV%	-	0%	5%	13%	-	8%	0%	0%	-	22%	0%	1%	-	0%	0%	0%	2%	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	3	1	1	0	5	0	5	5	2	12	1	0	2	9	12
2:15 PM	1	1	1	0	3	0	10	8	1	19	1	0	2	5	8
2:30 PM	1	0	2	0	3	0	3	4	0	7	1	0	0	1	2
2:45 PM	1	2	1	0	4	3	3	3	0	9	3	0	3	7	13
3:00 PM	2	0	1	0	3	1	2	3	0	6	0	0	0	6	6
3:15 PM	0	1	2	0	3	0	0	4	3	7	0	0	2	1	3
3:30 PM	1	1	2	0	4	0	4	7	2	13	0	0	1	2	3
3:45 PM	1	0	1	0	2	0	6	9	4	19	0	0	0	3	3
Count Total	10	6	11	0	27	4	33	43	12	92	6	0	10	34	50
Peak Hour	4	4	6	0	14	4	9	17	5	35	3	0	6	16	25

Two-Hour Count Summaries - Heavy Vehicles																			
Interval Start	65th St				65th St				Shellmound St				Shellmound St				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
2:00 PM	0	0	2	1	0	1	0	0	0	1	0	0	0	0	0	0	0	5	0
2:15 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	3	0
2:30 PM	0	0	1	0	0	0	0	0	0	1	0	1	0	0	0	0	0	3	0
2:45 PM	0	0	1	0	0	2	0	0	0	1	0	0	0	0	0	0	0	4	15
3:00 PM	0	0	1	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3	13
3:15 PM	0	0	0	0	0	1	0	0	0	1	0	1	0	0	0	0	0	3	13
3:30 PM	0	0	1	0	0	1	0	0	0	1	1	0	0	0	0	0	0	4	14
3:45 PM	0	0	1	0	0	0	0	0	0	1	0	0	0	0	0	0	0	2	12
Count Total	0	1	7	2	0	6	0	0	0	8	1	2	0	0	0	0	0	27	0
Peak Hour	0	0	3	1	0	4	0	0	0	4	1	1	0	0	0	0	0	14	0

Two-Hour Count Summaries - Bikes																		
Interval Start	65th St			65th St			Shellmound St			Shellmound St			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
2:00 PM	0	0	0	3	0	2	0	4	1	2	0	0	12	0				
2:15 PM	0	0	0	7	0	3	0	4	4	0	1	0	19	0				
2:30 PM	0	0	0	2	0	1	0	1	3	0	0	0	7	0				
2:45 PM	3	0	0	0	2	1	0	1	2	0	0	0	9	47				
3:00 PM	1	0	0	2	0	0	0	1	2	0	0	0	6	41				
3:15 PM	0	0	0	0	0	0	0	4	0	2	1	0	7	29				
3:30 PM	0	0	0	1	0	3	0	3	4	0	2	0	13	35				
3:45 PM	0	0	0	5	1	0	0	3	6	0	4	0	19	45				
Count Total	4	0	0	20	3	10	0	21	22	4	8	0	92	0				
Peak Hour	4	0	0	3	2	4	0	9	8	2	3	0	35	0				

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

Overland Ave 65th St

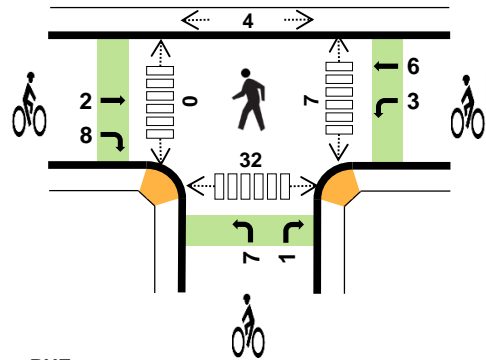
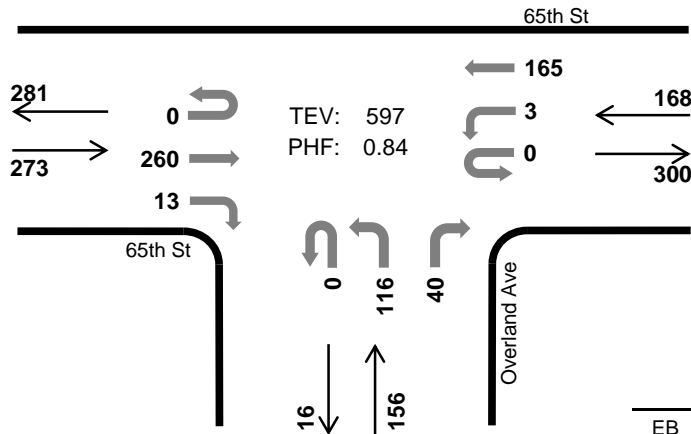


Peak Hour

Date: 05-30-2019

Count Period: 4:00 PM to 6:00 PM

Peak Hour: 4:00 PM to 5:00 PM



	HV %:	PHF
EB	2.9%	0.77
WB	3.0%	0.89
NB	0.0%	0.95
SB	-	-
TOTAL	2.2%	0.84

Two-Hour Count Summaries

Interval Start	65th St Eastbound				65th St Westbound				Overland Ave Northbound				Overland Ave Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	82	7	0	1	46	0	0	36	0	5	0	0	0	0	177	0
4:15 PM	0	0	69	4	0	0	46	0	0	27	0	11	0	0	0	0	157	0
4:30 PM	0	0	62	1	0	1	37	0	0	26	0	10	0	0	0	0	137	0
4:45 PM	0	0	47	1	0	1	36	0	0	27	0	14	0	0	0	0	126	597
5:00 PM	0	0	50	6	0	1	25	0	0	14	0	10	0	0	0	0	106	526
5:15 PM	0	0	71	6	0	1	38	0	0	24	0	7	0	0	0	0	147	516
5:30 PM	0	0	64	6	0	0	36	0	0	26	0	15	0	0	0	0	147	526
5:45 PM	0	0	57	5	0	2	28	0	0	15	0	14	0	0	0	0	121	521
Count Total	0	0	502	36	0	7	292	0	0	195	0	86	0	0	0	0	1,118	0
Peak Hour	All	0	0	260	13	0	3	165	0	0	116	0	40	0	0	0	597	0
	HV	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	13	0
	HV%	-	-	3%	0%	-	0%	3%	-	-	0%	-	0%	-	-	-	2%	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	1	0	0	3	4	0	3	0	7	3	0	1	9	13
4:15 PM	2	1	0	0	3	0	1	3	0	4	1	0	0	4	5
4:30 PM	1	2	0	0	3	3	4	2	0	9	3	0	1	6	10
4:45 PM	3	1	0	0	4	3	4	0	0	7	0	0	2	13	15
5:00 PM	1	3	0	0	4	8	2	2	0	12	5	0	6	13	24
5:15 PM	3	0	1	0	4	6	1	1	0	8	1	0	0	6	7
5:30 PM	1	1	0	0	2	10	1	2	0	13	2	0	3	16	21
5:45 PM	2	2	0	0	4	3	0	4	0	7	0	0	4	12	16
Count Total	15	11	1	0	27	37	13	17	0	67	15	0	17	79	111
Peak Hr	8	5	0	0	13	10	9	8	0	27	7	0	4	32	43

Two-Hour Count Summaries - Heavy Vehicles

Interval Start	65th St				65th St				Overland Ave				n/a				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0
4:15 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	3	0
4:30 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	3	0
4:45 PM	0	0	3	0	0	0	1	0	0	0	0	0	0	0	0	0	4	13
5:00 PM	0	0	1	0	0	0	3	0	0	0	0	0	0	0	0	0	4	14
5:15 PM	0	0	3	0	0	0	0	0	0	1	0	0	0	0	0	0	4	15
5:30 PM	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	2	14
5:45 PM	0	0	2	0	0	0	2	0	0	0	0	0	0	0	0	0	4	14
Count Total	0	0	14	1	0	0	11	0	0	1	0	0	0	0	0	0	27	0
Peak Hour	0	0	8	0	0	0	5	0	0	0	0	0	0	0	0	0	13	0

Two-Hour Count Summaries - Bikes

Interval Start	65th St			65th St			Overland Ave			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
4:00 PM	0	0	4	0	0	0	2	0	1	0	0	0	7	0
4:15 PM	0	0	0	0	1	0	3	0	0	0	0	0	4	0
4:30 PM	0	1	2	1	3	0	2	0	0	0	0	0	9	0
4:45 PM	0	1	2	2	2	0	0	0	0	0	0	0	7	27
5:00 PM	0	7	1	1	1	0	1	0	1	0	0	0	12	32
5:15 PM	0	5	1	0	1	0	0	0	1	0	0	0	8	36
5:30 PM	0	8	2	1	0	0	2	0	0	0	0	0	13	40
5:45 PM	0	1	2	0	0	0	0	0	4	0	0	0	7	40
Count Total	0	23	14	5	8	0	10	0	7	0	0	0	67	0
Peak Hour	0	2	8	3	6	0	7	0	1	0	0	0	27	0

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

Overland Ave 65th St

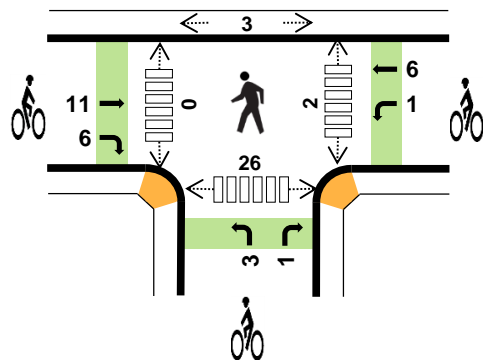
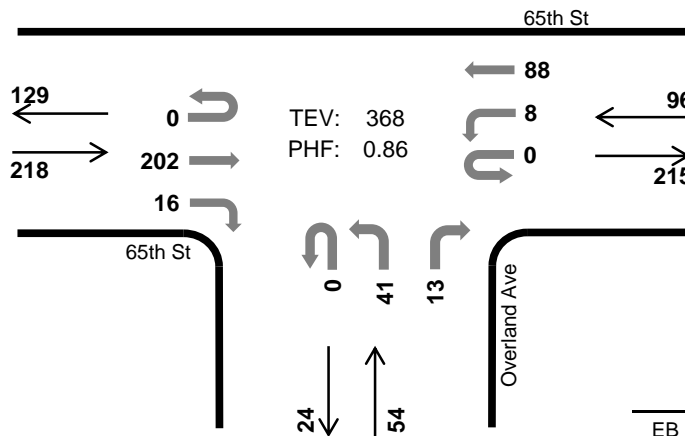


Peak Hour

Date: 06-01-2019

Count Period: 2:00 PM to 4:00 PM

Peak Hour: 2:45 PM to 3:45 PM



	HV %:	PHF
EB	1.8%	0.83
WB	4.2%	0.83
NB	0.0%	0.75
SB	-	-
TOTAL	2.2%	0.86

Two-Hour Count Summaries

Interval Start	65th St Eastbound				65th St Westbound				Overland Ave Northbound				n/a Southbound				15-min Total	Rolling One Hour
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM	0	0	64	3	0	0	19	0	0	7	0	2	0	0	0	0	95	0
2:15 PM	0	0	47	3	0	2	25	0	0	7	0	3	0	0	0	0	87	0
2:30 PM	0	0	37	1	0	0	14	0	0	4	0	2	0	0	0	0	58	0
2:45 PM	0	0	37	5	0	4	20	0	0	8	0	4	0	0	0	0	78	318
3:00 PM	0	0	48	4	0	2	20	0	0	15	0	3	0	0	0	0	92	315
3:15 PM	0	0	55	3	0	1	20	0	0	9	0	3	0	0	0	0	91	319
3:30 PM	0	0	62	4	0	1	28	0	0	9	0	3	0	0	0	0	107	368
3:45 PM	0	0	46	1	0	0	22	0	0	6	0	2	0	0	0	0	77	367
Count Total	0	0	396	24	0	10	168	0	0	65	0	22	0	0	0	0	685	0
Peak Hour	All	0	0	202	16	0	8	88	0	0	41	0	13	0	0	0	368	0
	HV	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	8	0
	HV%	-	-	2%	0%	-	0%	5%	-	-	0%	-	0%	-	-	-	2%	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	2	1	0	0	3	3	5	0	0	8	0	0	2	5	7
2:15 PM	0	1	0	0	1	5	4	2	0	11	1	2	2	10	15
2:30 PM	2	0	0	0	2	3	3	3	0	9	0	0	0	0	0
2:45 PM	1	2	0	0	3	2	3	2	0	7	1	0	0	9	10
3:00 PM	1	0	0	0	1	5	2	0	0	7	0	0	0	6	6
3:15 PM	1	1	0	0	2	4	0	1	0	5	1	0	3	4	8
3:30 PM	1	1	0	0	2	6	2	1	0	9	0	0	0	7	7
3:45 PM	1	0	0	0	1	6	6	0	0	12	0	0	0	7	7
Count Total	9	6	0	0	15	34	25	9	0	68	3	2	7	48	60
Peak Hr	4	4	0	0	8	17	7	4	0	28	2	0	3	26	31

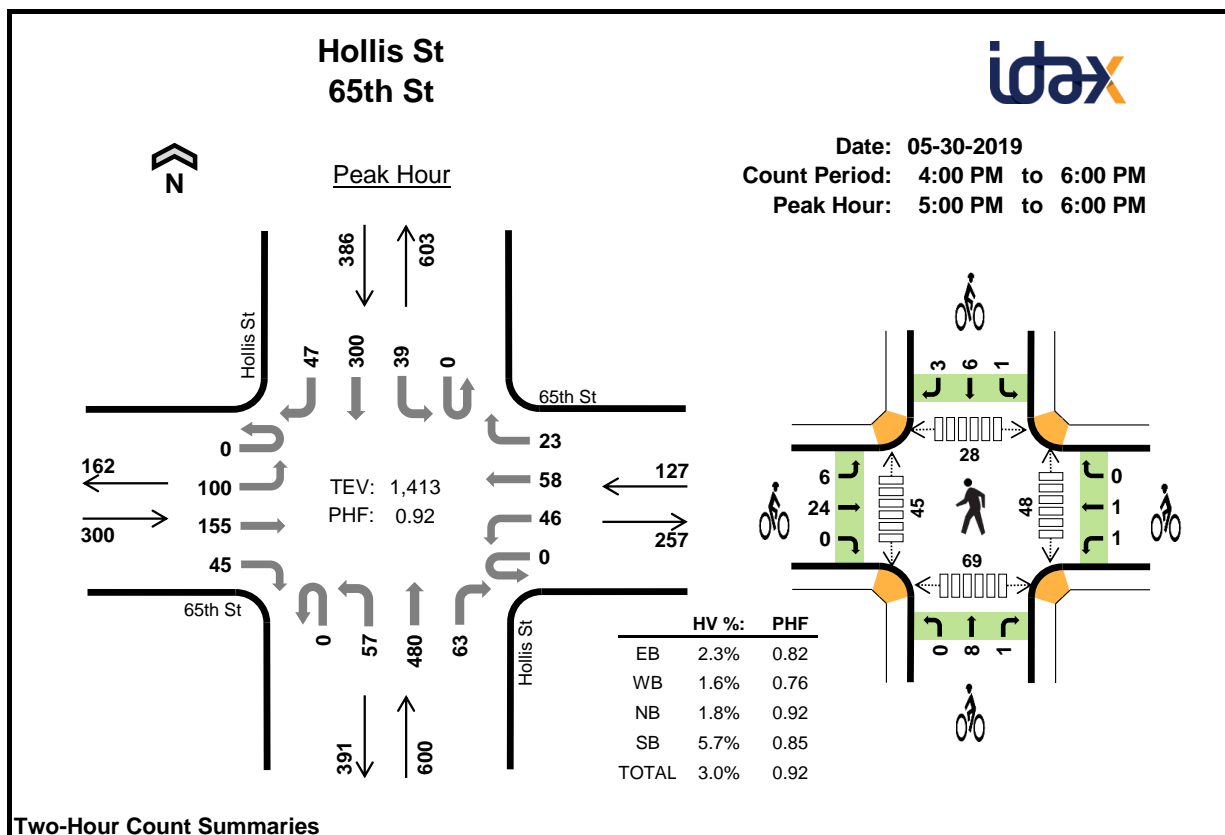
Two-Hour Count Summaries - Heavy Vehicles

Interval Start	65th St				65th St				Overland Ave				n/a				15-min Total	Rolling One Hour	
	Eastbound				Westbound				Northbound				Southbound						
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT			
2:00 PM	0	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	3	0
2:15 PM	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0
2:30 PM	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0
2:45 PM	0	0	1	0	0	0	2	0	0	0	0	0	0	0	0	0	0	3	9
3:00 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	7
3:15 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	8
3:30 PM	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	2	8
3:45 PM	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	6
Count Total	0	0	9	0	0	0	6	0	0	0	0	0	0	0	0	0	0	15	0
Peak Hour	0	0	4	0	0	0	4	0	0	0	0	0	0	0	0	0	0	8	0

Two-Hour Count Summaries - Bikes

Interval Start	65th St			65th St			Overland Ave			n/a			15-min Total	Rolling One Hour
	Eastbound			Westbound			Northbound			Southbound				
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT		
2:00 PM	0	1	2	0	5	0	0	0	0	0	0	0	8	0
2:15 PM	1	2	2	0	4	0	2	0	0	0	0	0	11	0
2:30 PM	0	2	1	0	3	0	2	0	1	0	0	0	9	0
2:45 PM	0	2	0	1	2	0	1	0	1	0	0	0	7	35
3:00 PM	0	1	4	0	2	0	0	0	0	0	0	0	7	34
3:15 PM	0	2	2	0	0	0	1	0	0	0	0	0	5	28
3:30 PM	0	6	0	0	2	0	1	0	0	0	0	0	9	28
3:45 PM	0	6	0	0	6	0	0	0	0	0	0	0	12	33
Count Total	1	22	11	1	24	0	7	0	2	0	0	0	68	0
Peak Hour	0	11	6	1	6	0	3	0	1	0	0	0	28	0

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



Two-Hour Count Summaries

Interval Start		65th St				65th St				Hollis St				Hollis St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
	4:00 PM	0	20	49	16	0	11	20	4	0	21	67	20	0	3	24	2	257	0
	4:15 PM	0	18	50	6	0	12	17	4	0	22	68	21	0	9	28	4	259	0
	4:30 PM	0	18	39	17	0	11	19	4	0	20	78	22	0	10	49	6	293	0
	4:45 PM	0	24	40	5	0	11	17	12	0	15	117	24	0	8	44	4	321	1,130
	5:00 PM	0	17	27	6	0	9	10	6	0	13	134	16	0	11	90	13	352	1,225
	5:15 PM	0	30	43	15	0	12	15	5	0	13	132	16	0	15	77	12	385	1,351
	5:30 PM	0	31	48	13	0	9	16	3	0	14	102	14	0	6	72	14	342	1,400
	5:45 PM	0	22	37	11	0	16	17	9	0	17	112	17	0	7	61	8	334	1,413
Count Total		0	180	333	89	0	91	131	47	0	135	810	150	0	69	445	63	2,543	0
Peak Hour	All	0	100	155	45	0	46	58	23	0	57	480	63	0	39	300	47	1,413	0
	HV	0	4	0	3	0	2	0	0	0	3	8	0	0	2	17	3	42	0
	HV%	-	4%	0%	7%	-	4%	0%	0%	-	5%	2%	0%	-	5%	6%	6%	3%	0

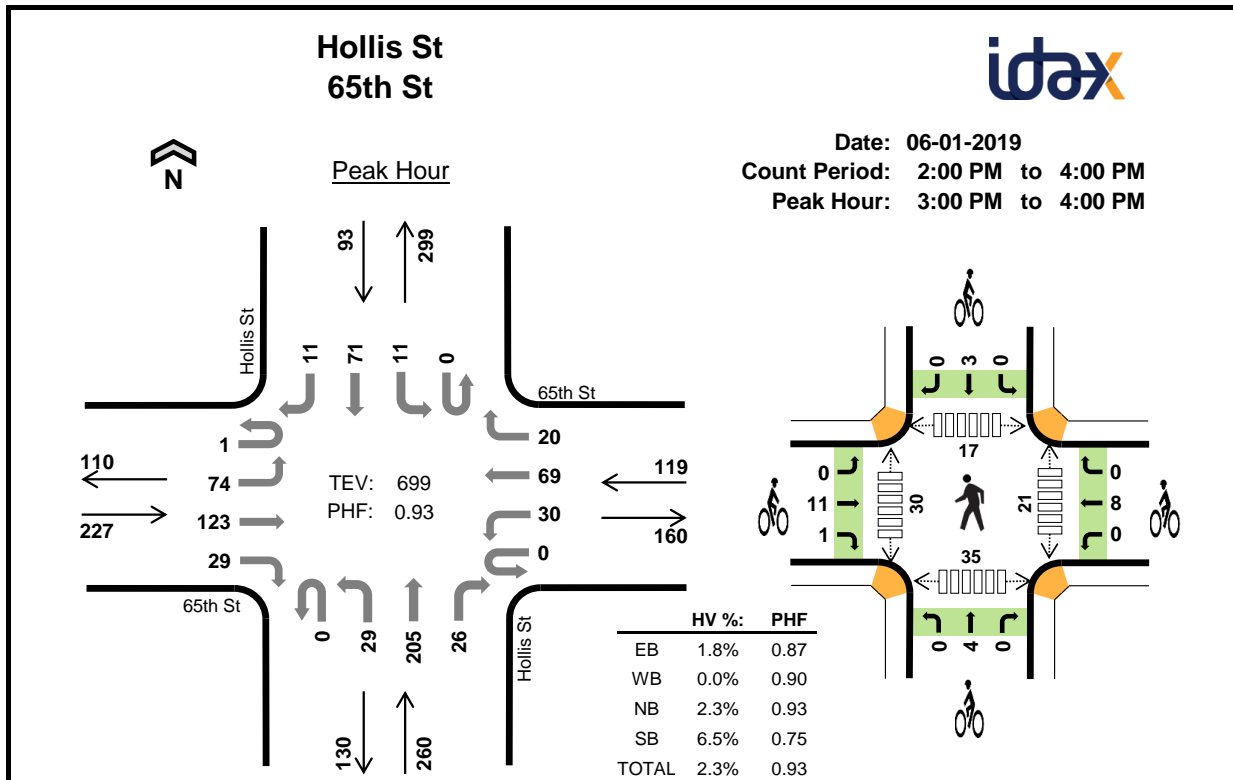
Note: Two-hour count summary volumes include heavy vehicles but exclude bicycles in overall count.

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
4:00 PM	2	1	3	3	9	1	1	0	0	2	8	15	6	16	45
4:15 PM	1	2	5	4	12	2	0	1	0	3	10	10	5	20	45
4:30 PM	2	1	3	6	12	1	3	0	0	4	0	8	10	19	37
4:45 PM	2	2	4	3	11	1	2	3	0	6	9	9	5	11	34
5:00 PM	2	0	4	8	14	6	0	5	4	15	11	16	8	20	55
5:15 PM	2	0	4	6	12	7	1	1	3	12	10	14	9	18	51
5:30 PM	1	1	1	4	7	10	0	1	1	12	10	5	5	15	35
5:45 PM	2	1	2	4	9	7	1	2	2	12	17	10	6	16	49
Count Total	14	8	26	38	86	35	8	13	10	66	75	87	54	135	351
Peak Hour	7	2	11	22	42	30	2	9	10	51	48	45	28	69	190

Two-Hour Count Summaries - Heavy Vehicles																		
Interval Start	65th St				65th St				Hollis St				Hollis St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
4:00 PM	0	1	0	1	0	1	0	0	0	1	2	0	0	0	3	0	9	0
4:15 PM	0	0	0	1	0	2	0	0	0	1	3	1	0	0	3	1	12	0
4:30 PM	0	1	0	1	0	1	0	0	0	1	2	0	0	1	5	0	12	0
4:45 PM	0	1	1	0	0	2	0	0	0	1	3	0	0	0	3	0	11	44
5:00 PM	0	1	0	1	0	0	0	0	0	2	2	0	0	0	7	1	14	49
5:15 PM	0	1	0	1	0	0	0	0	0	0	4	0	0	1	5	0	12	49
5:30 PM	0	1	0	0	0	1	0	0	0	1	0	0	0	1	3	0	7	44
5:45 PM	0	1	0	1	0	1	0	0	0	0	2	0	0	0	2	2	9	42
Count Total	0	7	1	6	0	8	0	0	0	7	18	1	0	3	31	4	86	0
Peak Hour	0	4	0	3	0	2	0	0	0	3	8	0	0	2	17	3	42	0

Two-Hour Count Summaries - Bikes																		
Interval Start	65th St				65th St				Hollis St				Hollis St				15-min Total	Rolling One Hour
	Eastbound				Westbound				Northbound				Southbound					
	LT	TH	RT		LT	TH	RT		LT	TH	RT		LT	TH	RT			
4:00 PM	1	0	0		0	0	1		0	0	0		0	0	0		2	0
4:15 PM	0	2	0		0	0	0		0	1	0		0	0	0		3	0
4:30 PM	0	1	0		0	3	0		0	0	0		0	0	0		4	0
4:45 PM	0	1	0		0	2	0		1	0	2		0	0	0		6	15
5:00 PM	1	5	0		0	0	0		0	4	1		0	2	2		15	28
5:15 PM	1	6	0		0	1	0		0	1	0		1	2	0		12	37
5:30 PM	1	9	0		0	0	0		0	1	0		0	0	1		12	45
5:45 PM	3	4	0		1	0	0		0	2	0		0	2	0		12	51
Count Total	7	28	0		1	6	1		1	9	3		1	6	3		66	0
Peak Hour	6	24	0		1	1	0		0	8	1		1	6	3		51	0

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

**Two-Hour Count Summaries**

Interval Start		65th St				65th St				Hollis St				Hollis St				15-min Total	Rolling One Hour
		Eastbound				Westbound				Northbound				Southbound					
		UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT		
2:00 PM		0	25	36	12	0	15	13	6	0	8	46	10	0	1	17	3	192	0
2:15 PM		0	18	28	3	0	8	22	2	0	8	49	7	0	2	17	4	168	0
2:30 PM		0	11	25	14	0	9	18	5	0	6	62	8	0	2	16	5	181	0
2:45 PM		0	15	19	10	0	6	22	6	0	4	45	7	0	2	12	3	151	692
3:00 PM		0	14	32	6	0	4	20	3	0	5	48	7	0	2	26	3	170	670
3:15 PM		0	21	26	9	0	7	16	4	0	6	51	5	0	0	13	3	161	663
3:30 PM		1	20	37	7	0	10	16	7	0	9	54	5	0	3	15	4	188	670
3:45 PM		0	19	28	7	0	9	17	6	0	9	52	9	0	6	17	1	180	699
Count Total		1	143	231	68	0	68	144	39	0	55	407	58	0	18	133	26	1,391	0
Peak Hour	All	1	74	123	29	0	30	69	20	0	29	205	26	0	11	71	11	699	0
	HV	0	2	0	2	0	0	0	0	0	2	4	0	0	0	4	2	16	0
	HV%	0%	3%	0%	7%	-	0%	0%	0%	-	7%	2%	0%	-	0%	6%	18%	2%	0

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

Interval Start	Heavy Vehicle Totals					Bicycles					Pedestrians (Crossing Leg)				
	EB	WB	NB	SB	Total	EB	WB	NB	SB	Total	East	West	North	South	Total
2:00 PM	2	0	0	1	3	0	5	2	1	8	14	6	7	14	41
2:15 PM	0	0	1	1	2	3	6	1	0	10	14	1	6	12	33
2:30 PM	2	1	1	1	5	3	5	1	0	9	4	3	0	2	9
2:45 PM	1	0	3	2	6	3	1	0	0	4	7	4	1	6	18
3:00 PM	1	0	2	3	6	2	2	1	1	6	9	4	1	7	21
3:15 PM	1	0	2	0	3	2	0	0	2	4	3	13	8	6	30
3:30 PM	1	0	1	2	4	3	1	1	0	5	5	12	4	8	29
3:45 PM	1	0	1	1	3	5	5	2	0	12	4	1	4	14	23
Count Total	9	1	11	11	32	21	25	8	4	58	60	44	31	69	204
Peak Hour	4	0	6	6	16	12	8	4	3	27	21	30	17	35	103

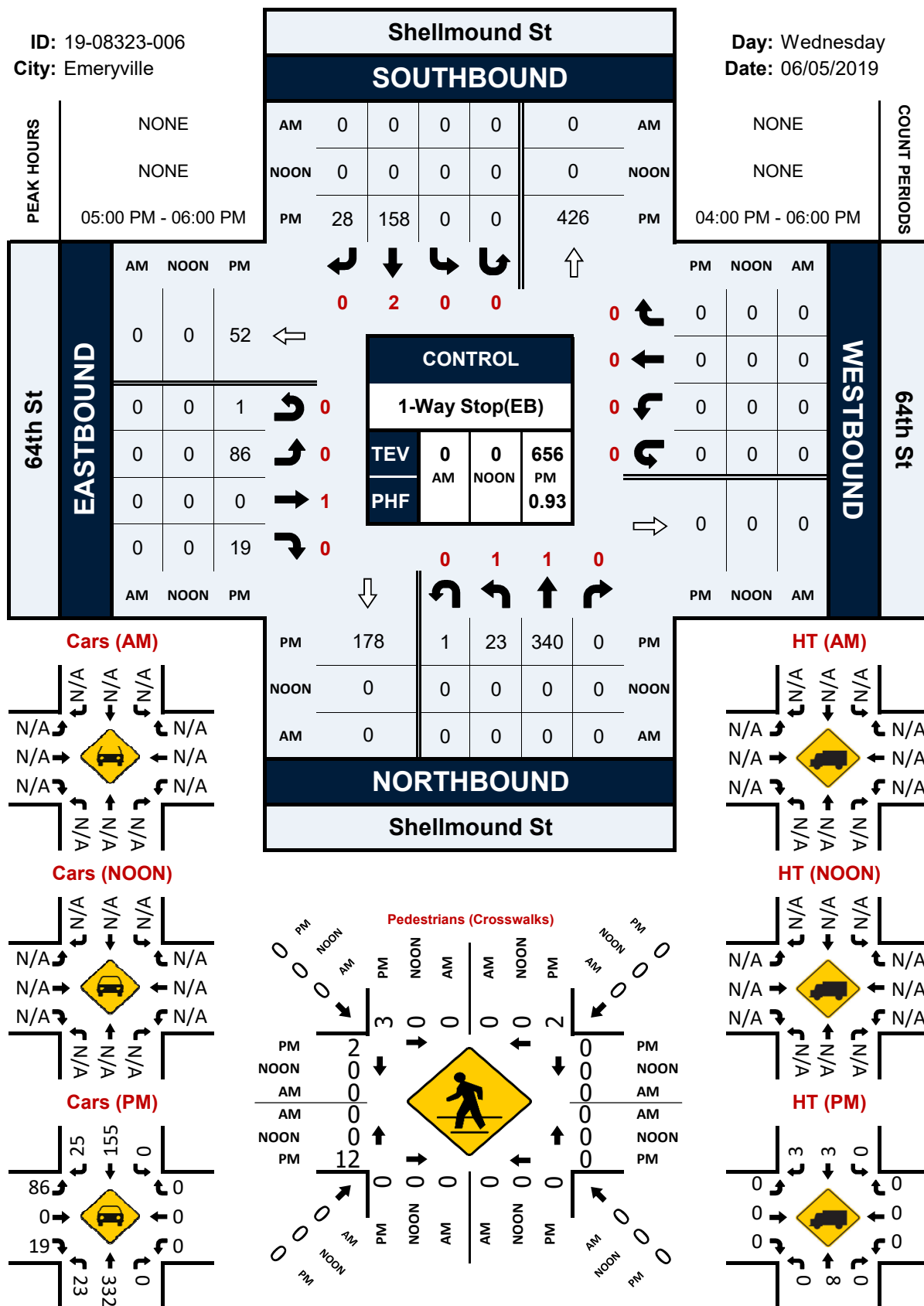
Two-Hour Count Summaries - Heavy Vehicles																				
Interval Start	65th St				65th St				Hollis St				Hollis St				15-min Total	Rolling One Hour		
	Eastbound				Westbound				Northbound				Southbound							
	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT	UT	LT	TH	RT				
2:00 PM	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	
2:15 PM	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	2	0
2:30 PM	0	0	0	2	0	0	1	0	0	0	0	1	0	0	0	0	0	1	5	0
2:45 PM	0	1	0	0	0	0	0	0	0	0	1	2	0	0	0	1	1	0	6	16
3:00 PM	0	0	0	1	0	0	0	0	0	0	0	2	0	0	0	2	1	6	19	
3:15 PM	0	1	0	0	0	0	0	0	0	0	1	1	0	0	0	0	0	3	20	
3:30 PM	0	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	1	4	19	
3:45 PM	0	1	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	0	3	16
Count Total	0	4	0	5	0	0	1	0	0	0	4	7	0	0	1	6	4	32	0	
Peak Hour	0	2	0	2	0	0	0	0	0	0	2	4	0	0	0	4	2	16	0	

Two-Hour Count Summaries - Bikes																		
Interval Start	65th St			65th St			Hollis St			Hollis St			15-min Total	Rolling One Hour				
	Eastbound			Westbound			Northbound			Southbound								
	LT	TH	RT	LT	TH	RT	LT	TH	RT	LT	TH	RT						
2:00 PM	0	0	0	0	5	0	0	2	0	0	1	0	8	0				
2:15 PM	0	3	0	0	6	0	0	1	0	0	0	0	10	0				
2:30 PM	0	3	0	0	5	0	0	1	0	0	0	0	9	0				
2:45 PM	1	2	0	0	1	0	0	0	0	0	0	0	4	31				
3:00 PM	0	2	0	0	2	0	0	1	0	0	1	0	6	29				
3:15 PM	0	1	1	0	0	0	0	0	0	0	2	0	4	23				
3:30 PM	0	3	0	0	1	0	0	1	0	0	0	0	5	19				
3:45 PM	0	5	0	0	5	0	0	2	0	0	0	0	12	27				
Count Total	1	19	1	0	25	0	0	8	0	0	4	0	58	0				
Peak Hour	0	11	1	0	8	0	0	4	0	0	3	0	27	0				

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

ID: 19-08323-006
City: Emeryville

Day: Wednesday
Date: 06/05/2019

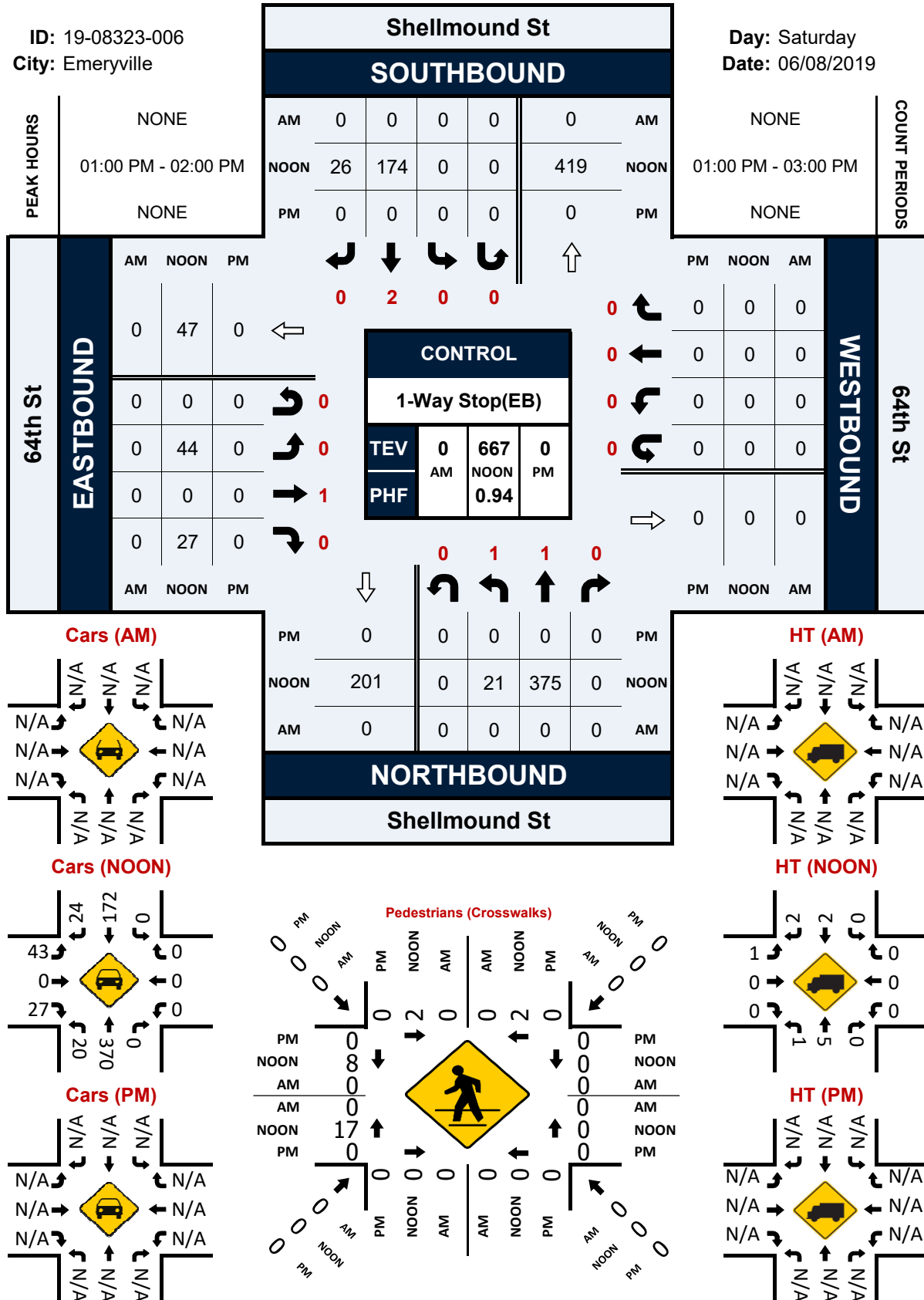


Shellmound St & 64th St

Peak Hour Turning Movement Count

ID: 19-08323-006
City: Emeryville

Day: Saturday
Date: 06/08/2019



ALL TRAFFIC DATA

City of Emeryville

All Vehicles on Unshifted

Peds & Bikes on Bank 1

Nothing on Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 15-7050-008 Hollis Street-Powell Street.ppd

Date : 1/29/2015

Unshifted Count = All Vehicles

START TIME	Hollis Street Southbound					Powell Street Westbound					Hollis Street Northbound					Powell Street Eastbound					Total	Utum Total
	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
16:00	23	57	38	0	118	12	100	8	0	120	68	74	9	0	151	34	131	42	0	207	596	0
16:15	18	60	47	0	125	11	110	6	0	127	98	76	7	0	181	31	96	33	0	160	593	0
16:30	26	58	53	0	137	14	110	11	0	135	73	82	13	0	168	34	122	26	0	182	622	0
16:45	20	62	40	0	122	11	101	9	0	121	78	89	9	0	176	29	122	30	0	181	600	0
Total	87	237	178	0	502	48	421	34	0	503	317	321	38	0	676	128	471	131	0	730	2411	0
17:00	31	61	50	0	142	18	92	8	0	118	93	95	23	0	211	29	133	47	0	209	680	0
17:15	34	69	53	0	156	17	109	10	0	136	100	99	13	0	212	34	145	44	0	223	727	0
17:30	29	71	36	0	136	20	106	17	0	143	69	108	11	0	188	33	134	39	0	206	673	0
17:45	28	48	44	0	120	18	98	15	0	131	79	90	11	0	180	34	120	45	0	199	630	0
Total	122	249	183	0	554	73	405	50	0	528	341	392	58	0	791	130	532	175	0	837	2710	0
Grand Total	209	486	361	0	1056	121	826	84	0	1031	658	713	96	0	1467	258	1003	306	0	1567	5121	0
Apprch %	19.8%	46.0%	34.2%	0.0%		11.7%	80.1%	8.1%	0.0%		44.9%	48.6%	6.5%	0.0%		16.5%	64.0%	19.5%	0.0%			
Total %	4.1%	9.5%	7.0%	0.0%	20.6%	2.4%	16.1%	1.6%	0.0%	20.1%	12.8%	13.9%	1.9%	0.0%	28.6%	5.0%	19.6%	6.0%	0.0%	30.6%	100.0%	

PM PEAK HOUR	Hollis Street Southbound					Powell Street Westbound					Hollis Street Northbound					Powell Street Eastbound					Total	
	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
Peak Hour Analysis From 17:00 to 18:00																						
Peak Hour For Entire Intersection Begins at 17:00																						
17:00	31	61	50	0	142	18	92	8	0	118	93	95	23	0	211	29	133	47	0	209	680	
17:15	34	69	53	0	156	17	109	10	0	136	100	99	13	0	212	34	145	44	0	223	727	
17:30	29	71	36	0	136	20	106	17	0	143	69	108	11	0	188	33	134	39	0	206	673	
17:45	28	48	44	0	120	18	98	15	0	131	79	90	11	0	180	34	120	45	0	199	630	
Total Volume	122	249	183	0	554	73	405	50	0	528	341	392	58	0	791	130	532	175	0	837	2710	
% App Total	22.0%	44.9%	33.0%	0.0%		13.8%	76.7%	9.5%	0.0%		43.1%	49.6%	7.3%	0.0%		15.5%	63.6%	20.9%	0.0%			
PHF	.897	.877	.863	.000	.888	.913	.929	.735	.000	.923	.853	.907	.630	.000	.933	.956	.917	.931	.000	.938	.932	

ALL TRAFFIC DATA

City of Emeryville

All Vehicles on Unshifted

Peds & Bikes on Bank 1

Nothing on Bank 2

(916) 771-8700

orders@atdtraffic.com

File Name : 15-7050-008 Hollis Street-Powell Street.ppd

Date : 1/31/2015

Unshifted Count = All Vehicles

START TIME	Hollis Street Southbound					Powell Street Westbound					Hollis Street Northbound					Powell Street Eastbound					Total	Uturn Total
	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL		
15:00	12	49	31	0	92	16	141	10	0	167	48	40	8	0	96	22	93	46	0	161	516	0
15:15	7	39	31	0	77	24	145	2	0	171	44	39	10	0	93	21	107	32	0	160	501	0
15:30	7	45	30	0	82	8	126	7	0	141	40	36	11	0	87	14	109	34	0	157	467	0
15:45	2	41	26	0	69	9	132	8	0	149	42	31	11	0	84	23	120	27	0	170	472	0
Total	28	174	118	0	320	57	544	27	0	628	174	146	40	0	360	80	429	139	0	648	1956	0
16:00	6	42	32	0	80	15	132	3	0	150	36	38	9	0	83	28	133	32	0	193	506	0
16:15	4	36	25	0	65	12	101	7	0	120	30	33	11	0	74	21	124	26	0	171	430	0
16:30	8	31	19	0	58	14	131	12	0	157	41	39	8	0	88	23	123	38	0	184	487	0
16:45	6	38	22	0	66	21	119	8	0	148	38	30	12	0	80	24	120	28	0	172	466	0
Total	24	147	98	0	269	62	483	30	0	575	145	140	40	0	325	96	500	124	0	720	1889	0
Grand Total	52	321	216	0	589	119	1027	57	0	1203	319	286	80	0	685	176	929	263	0	1368	3845	0
Apprch %	8.8%	54.5%	36.7%	0.0%		9.9%	85.4%	4.7%	0.0%		46.6%	41.8%	11.7%	0.0%		12.9%	67.9%	19.2%	0.0%			
Total %	1.4%	8.3%	5.6%	0.0%	15.3%	3.1%	26.7%	1.5%	0.0%	31.3%	8.3%	7.4%	2.1%	0.0%	17.8%	4.6%	24.2%	6.8%	0.0%	35.6%	100.0%	

PM PEAK HOUR	Hollis Street Southbound					Powell Street Westbound					Hollis Street Northbound					Powell Street Eastbound					
START TIME	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	LEFT	THRU	RIGHT	UTURNS	APP.TOTAL	Total
Peak Hour Analysis From 15:00 to 16:00																					
Peak Hour For Entire Intersection Begins at 15:00																					
15:00	12	49	31	0	92	16	141	10	0	167	48	40	8	0	96	22	93	46	0	161	516
15:15	7	39	31	0	77	24	145	2	0	171	44	39	10	0	93	21	107	32	0	160	501
15:30	7	45	30	0	82	8	126	7	0	141	40	36	11	0	87	14	109	34	0	157	467
15:45	2	41	26	0	69	9	132	8	0	149	42	31	11	0	84	23	120	27	0	170	472
Total Volume	28	174	118	0	320	57	544	27	0	628	174	146	40	0	360	80	429	139	0	648	1956
% App Total	8.8%	54.4%	36.9%	0.0%		9.1%	86.6%	4.3%	0.0%		48.3%	40.6%	11.1%	0.0%		12.3%	66.2%	21.5%	0.0%		
PHF	.583	.888	.952	.000	.870	.594	.938	.675	.000	.918	.906	.913	.909	.000	.938	.870	.894	.755	.000	.953	.948

Prepared by National Data & Surveying Services

TRAIN OBSERVATION STUDY

Location: Shellmound St & 67th St
City: Emeryville, CA

Date: 6/11/2019
Day: Tuesday

#	Time Arms Begin to Descend (hh:mm:ss)	Time Arms Are Fully Down (hh:mm:ss)	Train? (Yes or No)	Type of Train (Passenger or Freight)	Train Length (# of locomotives & railcars)	Time Arms Begin to Ascend (hh:mm:ss)	Time Arms Are Fully Up (hh:mm:ss)	Notes
1	7:11:20 AM	7:11:30 AM	Yes	Passenger	1&5	7:12:07 AM	7:12:16 AM	
2	7:29:06 AM	7:29:16 AM	Yes	Freight	1&35	7:30:36 AM	7:30:44 AM	
3	7:51:10 AM	7:51:19 AM	Yes	Passenger	3&6	7:52:03 AM	7:52:12 AM	
4	8:12:49 AM	8:12:59 AM	Yes	Passenger	2&6	8:13:39 AM	8:13:47 AM	
5	8:16:07 AM	8:16:16 AM	Yes	Passenger	1&5	8:17:15 AM	8:17:22 AM	
6	8:35:05 AM	8:35:14 AM	Yes	Passenger	2&10	8:36:46 AM	8:36:54 AM	
7	8:49:43 AM	8:49:52 AM	Yes	Passenger	1&5	8:50:29 AM	8:50:38 AM	
8	9:12:58 AM	9:13:08 AM	Yes	Passenger	2&10	9:14:08 AM	9:14:17 AM	
9	9:23:33 AM	9:23:42 AM	Yes	Passenger	1&5	9:24:17 AM	9:24:25 AM	
10	9:50:00 AM	9:50:09 AM	Yes	Passenger	1&5	9:50:46 AM	9:50:54 AM	
11	10:13:52 AM	10:14:01 AM	Yes	Freight	1&5	10:15:09 AM	10:15:18 AM	
12	10:31:40 AM	10:31:49 AM	Yes	Passenger	1&5	10:32:26 AM	10:32:34 AM	
13	10:44:25 AM	10:44:34 AM	Yes	Passenger	1&4	10:45:29 AM	10:45:37 AM	
14	10:56:00 AM	10:56:10 AM	Yes	Freight	3&21	10:57:26 AM	10:57:35 AM	
15	11:50:53 AM	11:51:03 AM	Yes	Passenger	1&4	11:51:34 AM	11:51:42 AM	
16	11:53:27 AM	11:53:37 AM	Yes	Passenger	1&5	11:55:10 AM	11:55:19 AM	
17	12:21:40 PM	12:21:50 PM	Yes	Engine	1&0	12:22:54 PM	12:23:03 PM	
18	12:24:13 PM	12:24:22 PM	Yes	Engine	1&0	12:24:46 PM	12:24:55 PM	
19	12:26:04 PM	12:26:12 PM	No			12:26:37 PM		Arms wre not fully Up
20		12:26:48 PM	Yes	Passenger	1&5	12:27:28 PM	12:27:36 PM	Arms were in Air and do not start Descend completely
21	12:31:45 PM	12:31:54 PM	Yes	Freight	1&2	12:33:23 PM	12:33:32 PM	
22	12:35:21 PM	12:35:30 PM	Yes	Freight	1&2	12:35:56 PM	12:36:06 PM	
23	12:43:28 PM	12:43:37 PM	Yes	Freight	1&4	12:44:39 PM	12:44:48 PM	
24	12:46:05 PM	12:46:15 PM	Yes	Freight	1&4	12:46:53 PM	12:47:02 PM	
25	12:52:49 PM	12:52:59 PM	Yes	Freight	1&2	12:55:08 PM	12:55:17 PM	
26	12:58:07 PM	12:58:16 PM	Yes	Freight	1&2	12:58:41 PM	12:58:50 PM	
27	1:10:48 PM	1:10:57 PM	Yes	Freight	1&17	1:12:26 PM	1:12:34 PM	
28	1:30:36 PM	1:30:46 PM	Yes	Freight	2&96	1:33:08 PM	1:33:16 PM	
29	1:36:04 PM	1:36:13 PM	Yes	Passenger	1&5	1:36:57 PM	1:37:05 PM	
30	1:50:50 PM	1:50:59 PM	Yes	Passenger	1&4	1:51:41 PM	1:51:49 PM	
31	1:53:36 PM	1:53:46 PM	Yes	Passenger	1&5	1:54:24 PM	1:54:33 PM	
32	3:02:14 PM	3:02:24 PM	Yes	Passenger	1&5	3:03:08 PM	3:03:17 PM	
33	3:36:07 PM	3:36:17 PM	Yes	Passenger	2&6	3:37:36 PM	3:37:45 PM	
34	3:46:04 PM	3:46:13 PM	No			3:47:37 PM	3:47:45 PM	
35	3:49:55 PM	3:50:04 PM	Yes	Passenger	1&5	3:50:50 PM	3:50:59 PM	
36	3:53:49 PM	3:53:59 PM	Yes	Passenger	1&4	3:54:32 PM	3:54:41 PM	
37	4:33:30 PM	4:33:39 PM	Yes	Passenger	2&6	4:34:32 PM	4:34:40 PM	
38	5:02:47 PM	5:02:56 PM	Yes	Passenger	1&4	5:03:39 PM	5:03:47 PM	
39	5:09:15 PM	5:09:24 PM	No	service vehicle	3	5:13:14 PM	5:13:23 PM	A Vehicle crossed the Rail Track at 17:11:25 But Arms were fully Down
40	5:26:15 PM	5:26:25 PM	Yes	Passenger	1&5	5:27:17 PM	5:27:25 PM	
41	5:39:21 PM	5:39:30 PM	Yes	Passenger	1&5	5:40:01 PM	5:40:10 PM	
42	6:04:45 PM	6:04:54 PM	Yes	Passenger	2&6	6:05:33 PM	6:05:42 PM	
43	6:23:59 PM	6:24:09 PM	Yes	Passenger	1&3	6:24:51 PM	6:24:59 PM	
44	6:26:47 PM	6:26:56 PM	Yes	Passenger	1&4	6:27:53 PM	6:28:02 PM	
45	6:38:44 PM	6:38:53 PM	Yes	Passenger	1&5	6:40:08 PM	6:40:16 PM	
46	6:51:44 PM	6:51:54 PM	Yes	Passenger	2&10	6:53:44 PM	6:53:53 PM	

Prepared by National Data & Surveying Services

TRAIN OBSERVATION STUDY

Location: Shellmound St & 67th St
City: Emeryville, CA

Date: 6/8/2019
Day: Saturday

#	Time Arms Begin to Descend (hh:mm:ss)	Time Arms Are Fully Down (hh:mm:ss)	Train? (Yes or No)	Type of Train (Passenger or Freight)	Train Length (# of locomotives & railcars)	Time Arms Begin to Ascend (hh:mm:ss)	Time Arms Are Fully Up (hh:mm:ss)	Notes
1	7:52:13 AM	7:52:24 AM	Yes	Passenger	1&5	7:53:19 AM	7:53:28 AM	
2	7:55:41 AM	7:55:51 AM	Yes	Passenger	3&6	7:56:28 AM	7:56:37 AM	
3	8:25:27 AM	8:25:37 AM	Yes	Passenger	2&10	8:27:10 AM	8:27:19 AM	
4	8:32:13 AM	8:32:23 AM	Yes	Passenger	1&6	8:32:51 AM	8:33:00 AM	
5	9:08:26 AM	9:08:35 AM	Yes	Freight	3&15	9:09:35 AM	9:09:43 AM	
6	9:18:06 AM	9:18:16 AM	Yes	Passenger	2&10	9:19:37 AM	9:19:46 AM	
7	9:20:08 AM	9:20:18 AM	No			9:25:21 AM	9:25:29 AM	
8	9:37:06 AM	9:37:16 AM	Yes	Freight	2&21	9:39:05 AM	9:39:13 AM	
9	9:37:06 AM	9:37:16 AM	Yes	Passenger	1&4	9:39:05 AM	9:39:13 AM	
10	9:54:01 AM	9:54:11 AM	Yes	Passenger	1&4	9:54:47 AM	9:54:56 AM	
11	10:03:29 AM	10:03:39 AM	Yes	Passenger	1&5	10:04:19 AM	10:04:28 AM	
12	10:18:14 AM	10:18:23 AM	Yes	Freight	4&145	10:22:47 AM	10:22:55 AM	
13	10:30:51 AM	10:31:01 AM	Yes	Passenger	1&5	10:31:37 AM	10:31:46 AM	
14	10:33:33 AM	10:33:42 AM	Yes	4 Engine	4&0	10:35:04 AM	10:35:12 AM	
15	11:29:09 AM	11:29:18 AM	Yes	Passenger	1&5	11:29:52 AM	11:30:01 AM	
16	11:41:18 AM	11:41:28 AM	Yes	Passenger	1&5	11:41:56 AM	11:42:05 AM	
17	11:49:58 AM	11:50:07 AM	No			11:51:17 AM	11:51:26 AM	
18	11:52:00 AM	11:52:10 AM	Yes	Passenger	1&4	11:53:32 AM	11:53:41 AM	
19	12:01:01 PM	12:01:10 PM	Yes	Freight	2&66	12:07:42 PM	12:07:50 PM	
20	12:12:47 PM	12:12:57 PM	Yes	Passenger	1&5	12:13:33 PM	12:13:41 PM	
21	12:45:01 PM	12:45:10 PM	Yes	Freight	2&120	12:53:33 PM	12:53:41 PM	
22	1:51:39 PM	1:51:48 PM	Yes	Passenger	1&5	1:53:17 PM	1:53:25 PM	
23	1:51:39 PM	1:51:48 PM	Yes	Passenger	1&4	1:53:17 PM	1:53:25 PM	
24	2:28:53 PM	2:29:03 PM	Yes	Passenger	1&5	2:29:46 PM	2:29:54 PM	
25	2:37:32 PM	2:37:41 PM	Yes	Passenger	2&6	2:38:21 PM	2:38:30 PM	
26	3:15:15 PM	3:15:24 PM	Yes	Passenger	1&5	3:16:09 PM	3:16:18 PM	
27	3:49:41 PM	3:49:50 PM	Yes	3 Engine	3&0	3:50:25 PM	3:50:33 PM	
28	3:51:08 PM	3:51:18 PM	Yes	Passenger	1&5	3:51:54 PM	3:52:03 PM	
29	4:24:09 PM	4:24:18 PM	Yes	Passenger	1&5	4:25:00 PM	4:25:09 PM	
30	4:27:41 PM	4:27:50 PM	Yes	Freight	4&75	4:31:24 PM	4:31:32 PM	
31	5:29:56 PM	5:30:05 PM	Yes	Passenger	1&4	5:30:49 PM	5:30:57 PM	
32	5:49:10 PM	5:49:19 PM	Yes	Passenger	1&6	5:50:26 PM	5:50:34 PM	
33	5:58:00 PM	5:58:09 PM	Yes	Passenger	2&6	5:58:42 PM	5:58:51 PM	
34	6:36:43 PM	6:36:52 PM	Yes	Passenger	1&5	6:37:55 PM	6:38:03 PM	
35	6:58:57 PM	6:59:06 PM	Yes	Passenger	1&5	6:59:31 PM	6:59:39 PM	

Appendix B:

Level of Service Worksheets

Vissim Post-Processor
Average Results from 10 Runs
Overall Intersection Volume and Delay

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

		Demand Volume (vph)	Served Volume (vph)						Total Delay (sec/veh)					
Intersection	Control		Average	Percent Served	Standard Deviation	Minimum	Maximum	GEH Statistic	Average	Std. Dev.	Minimum	Maximum	LOS	
1	7th Street/Ashby Avenue	Signal	3,208	3,195	99.6%	45	3,142	3,260	0.2	51.7	4.7	45.5	58.9	D
2	Bay Street/Potter Street	Side-street Stop	473	447	94.5%	6	439	457	1.2	85.3	48.8	6.8	120.6	F
3	Shellmound Street/I-80 Off Ramp	Side-street Stop	533	522	98.0%	16	497	543	0.5	19.6	13.4	0.9	32.5	C
4	Shellmound Street/67th Street	Side-street Stop	703	693	98.5%	15	668	712	0.4	21.8	18.1	1.8	47.7	C
5	Hollis Street/67th Street	Side-street Stop	1,308	1,283	98.1%	41	1,225	1,344	0.7	19.2	11.2	7.9	39.5	C
6	Shellmound Street/66th Street	Side-street Stop	749	741	99.0%	18	717	766	0.3	5.4	1.9	3.2	9.9	A
7	Hollis Street/66th Street	Side-street Stop	1,253	1,230	98.1%	27	1,194	1,265	0.7	14.7	7.6	7.1	27.1	B
8	Shellmound Street/65th Street	Signal	1,084	1,071	98.8%	36	1,015	1,120	0.4	50.2	22.8	32.5	100.0	D
9	Overland Street/65th Street	Signal	571	555	97.1%	28	503	581	0.7	37.9	7.2	28.5	47.6	D
10	Hollis Street/65th Street	Signal	1,485	1,462	98.5%	21	1,425	1,493	0.6	35.1	16.1	22.9	64.2	D
11	Shellmound Avenue/64th Street	Side-street Stop	715	714	99.8%	27	675	755	0.0	3.9	5.4	1.2	19.1	A
12	Hollis Street/Powell Street	Signal	2,710	2,699	99.6%	39	2,648	2,748	0.2	42.9	3.5	39.7	52.1	D

Network Summary	
Total Demand Volume (veh/hr)	14,792
Total Volume Served (veh/hr)	14,611
Percent Served	98.8%
GEH Statistic	1.5

Note: For Side-street Stop and Uncontrolled intersections, the highest delay by movement is reported. The movement with the highest delay is reported as the worst movement.

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 1 **7th Street/Ashby Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	146	151	103.7%	102.7	24.7	F
	Through	458	442	96.6%	115.6	25.1	F
	Right Turn	55	53	96.5%	119.7	33.5	F
	Subtotal	659	647	98.2%	113.0	25.3	F
SB	Left Turn	183	177	96.7%	48.1	12.0	D
	Through	204	196	95.9%	52.5	11.0	D
	Right Turn	321	312	97.1%	14.7	9.6	B
	Subtotal	708	684	96.7%	34.3	10.0	C
EB	Left Turn	214	216	101.0%	51.3	3.5	D
	Through	720	730	101.4%	32.6	6.1	C
	Right Turn	154	154	100.0%	31.8	8.7	C
	Subtotal	1,088	1,100	101.1%	36.1	4.9	D
WB	Left Turn	82	83	101.2%	54.9	7.5	D
	Through	604	611	101.1%	37.2	3.8	D
	Right Turn	67	70	103.7%	30.4	7.4	C
	Subtotal	753	763	101.4%	38.4	4.0	D
Total		3,208	3,195	99.6%	51.7	4.7	D

Intersection 2 **Bay Street/Potter Street** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	428	407	95.2%	91.3	52.7	F
	Through	12	9	77.5%	88.7	57.8	F
	Right Turn						
	Subtotal	440	417	94.7%	91.3	52.7	F
SB	Left Turn						
	Through	30	27	91.0%	12.2	3.1	B
	Right Turn	1	1	140.0%	4.9	9.3	A
	Subtotal	31	29	92.6%	12.3	3.3	B
EB	Left Turn						
	Through						
	Right Turn	2	2	85.0%	0.2	0.2	A
	Subtotal	2	2	85.0%	0.2	0.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		473	447	94.5%	85.3	48.8	F

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 3

Shellmound Street/I-80 Off Ramp

Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn						
	Through	437	424	97.1%	22.8	16.0	C
	Right Turn						
	Subtotal	437	424	97.1%	22.8	16.0	C
SB	Left Turn						
	Through	32	29	90.6%	1.1	0.9	A
	Right Turn						
	Subtotal	32	29	90.6%	1.1	0.9	A
EB	Left Turn	3	3	96.7%	12.0	26.2	B
	Through						
	Right Turn	61	66	108.4%	7.3	5.5	A
	Subtotal	64	69	107.8%	7.8	6.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		533	522	98.0%	19.6	13.4	C

Intersection 4

Shellmound Street/67th Street

Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn						
	Through	385	378	98.1%	34.2	29.7	D
	Right Turn	108	104	96.5%	17.1	15.2	C
	Subtotal	493	482	97.7%	30.7	26.9	D
SB	Left Turn	22	21	93.2%	3.8	3.0	A
	Through	71	75	105.6%	0.4	0.4	A
	Right Turn						
	Subtotal	93	96	102.7%	1.0	0.5	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	65	65	99.7%	3.4	1.1	A
	Through						
	Right Turn	52	51	97.1%	5.4	3.6	A
	Subtotal	117	115	98.5%	4.4	2.2	A
Total		703	693	98.5%	21.8	18.1	C

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 5 **Hollis Street/67th Street** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	37	36	97.6%	20.3	16.0	C
	Through	562	550	97.8%	22.5	16.3	C
	Right Turn	36	35	97.8%	21.8	15.2	C
	Subtotal	635	621	97.8%	22.3	16.1	C
SB	Left Turn	18	16	86.1%	10.0	5.6	A
	Through	372	371	99.6%	7.2	1.7	A
	Right Turn	50	50	100.8%	6.8	2.9	A
	Subtotal	440	436	99.2%	7.3	1.7	A
EB	Left Turn	48	46	94.8%	42.3	36.7	E
	Through	57	56	97.4%	48.5	39.3	E
	Right Turn	25	24	96.0%	36.4	30.6	E
	Subtotal	130	125	96.2%	43.7	36.0	E
WB	Left Turn	24	22	90.8%	33.5	16.0	D
	Through	30	28	94.3%	25.2	8.1	D
	Right Turn	49	51	103.3%	20.3	13.2	C
	Subtotal	103	101	97.8%	23.5	9.0	C
Total		1,308	1,283	98.1%	19.2	11.2	C

Intersection 6 **Shellmound Street/66th Street** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn						
	Through	423	419	98.9%	0.9	0.3	A
	Right Turn	72	70	96.5%	12.1	8.1	B
	Subtotal	495	488	98.6%	2.4	1.3	A
SB	Left Turn	17	17	97.1%	7.3	7.4	A
	Through	119	122	102.8%	0.6	0.6	A
	Right Turn						
	Subtotal	136	139	102.1%	1.4	1.2	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	48	46	95.6%	28.5	11.0	D
	Through						
	Right Turn	70	69	98.0%	21.8	10.3	C
	Subtotal	118	115	97.0%	23.9	9.2	C
Total		749	741	99.0%	5.4	1.9	A

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 7

Hollis Street/66th Street

Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	39	36	91.3%	14.8	10.0	B
	Through	574	561	97.8%	18.0	13.7	C
	Right Turn	36	34	94.4%	13.7	11.4	B
	Subtotal	649	631	97.2%	17.6	13.2	C
SB	Left Turn	18	17	95.0%	11.0	4.9	B
	Through	367	364	99.2%	3.6	0.7	A
	Right Turn	36	36	100.6%	3.0	1.2	A
	Subtotal	421	417	99.1%	3.9	0.7	A
EB	Left Turn	22	25	111.4%	37.8	19.9	E
	Through	33	30	90.3%	32.0	10.3	D
	Right Turn	34	32	92.9%	24.7	12.9	C
	Subtotal	89	86	96.5%	30.9	11.1	D
WB	Left Turn	12	14	117.5%	23.3	14.4	C
	Through	43	43	99.8%	27.8	8.6	D
	Right Turn	39	39	98.7%	22.9	10.0	C
	Subtotal	94	96	101.6%	25.1	8.4	D
Total		1,253	1,230	98.1%	14.7	7.6	B

Intersection 8

Shellmound Street/65th Street

Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	18	19	103.3%	87.4	49.9	F
	Through	289	291	100.8%	74.7	42.4	E
	Right Turn	184	181	98.1%	70.2	48.7	E
	Subtotal	491	491	99.9%	73.4	44.8	E
SB	Left Turn	15	12	82.7%	64.8	40.4	E
	Through	83	82	98.2%	45.5	27.7	D
	Right Turn	69	72	104.5%	35.7	27.1	D
	Subtotal	167	166	99.4%	45.5	24.0	D
EB	Left Turn	92	89	96.3%	48.9	10.7	D
	Through	78	77	99.0%	57.0	7.9	E
	Right Turn	18	18	102.2%	32.0	24.5	C
	Subtotal	188	184	98.0%	50.1	6.9	D
WB	Left Turn	80	77	96.4%	0.7	0.1	A
	Through	44	42	96.1%	1.1	0.7	A
	Right Turn	114	111	97.4%	1.5	0.8	A
	Subtotal	238	230	96.8%	1.1	0.4	A
Total		1,084	1,071	98.8%	50.3	22.8	D

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 9 Overland Street/65th Street Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	79	75	95.4%	97.9	29.8	F
	Through						
	Right Turn	46	43	93.0%	67.2	24.8	E
	Subtotal	125	118	94.6%	86.2	24.4	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	254	248	97.7%	7.7	4.0	A
	Right Turn	23	22	95.2%	1.1	0.5	A
	Subtotal	277	270	97.5%	7.2	3.6	A
WB	Left Turn	10	11	110.0%	36.8	25.0	D
	Through	159	155	97.7%	56.0	11.3	E
	Right Turn						
	Subtotal	169	166	98.4%	55.1	11.1	E
Total		571	555	97.1%	38.0	7.1	D

Intersection 10 Hollis Street/65th Street Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	58	56	96.9%	51.4	37.4	D
	Through	518	512	98.8%	42.2	40.0	D
	Right Turn	63	63	100.3%	39.3	35.9	D
	Subtotal	639	631	98.8%	42.6	39.3	D
SB	Left Turn	41	43	105.1%	32.3	8.2	C
	Through	317	316	99.6%	14.7	2.0	B
	Right Turn	55	53	96.5%	17.6	5.6	B
	Subtotal	413	412	99.7%	16.9	2.2	B
EB	Left Turn	100	93	93.4%	46.9	10.9	D
	Through	155	152	98.0%	48.6	8.7	D
	Right Turn	45	45	100.0%	42.6	11.6	D
	Subtotal	300	290	96.8%	47.3	9.6	D
WB	Left Turn	46	44	96.3%	34.4	17.0	C
	Through	56	58	103.2%	28.4	9.0	C
	Right Turn	31	27	85.5%	26.3	19.5	C
	Subtotal	133	129	96.7%	30.3	12.6	C
Total		1,485	1,462	98.5%	35.1	16.1	D

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 11

Shellmound Avenue/64th Street

Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	24	27	110.8%	2.7	2.6	A
	Through	395	397	100.4%	2.6	6.8	A
	Right Turn						
	Subtotal	419	423	101.0%	2.7	6.7	A
SB	Left Turn						
	Through	155	152	97.9%	0.8	0.3	A
	Right Turn	26	25	96.9%	1.0	0.6	A
	Subtotal	181	177	97.8%	0.8	0.3	A
EB	Left Turn	96	98	101.8%	14.6	13.0	B
	Through						
	Right Turn	19	16	83.2%	9.6	5.6	A
	Subtotal	115	114	98.7%	13.9	11.6	B
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		715	714	99.8%	3.9	5.4	A

Intersection 12

Hollis Street/Powell Street

Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	341	345	101.3%	50.1	5.7	D
	Through	392	382	97.3%	33.9	3.9	C
	Right Turn	58	57	97.6%	30.9	8.8	C
	Subtotal	791	784	99.1%	40.6	3.5	D
SB	Left Turn	122	120	98.4%	36.3	5.1	D
	Through	249	252	101.1%	43.3	8.5	D
	Right Turn	183	179	97.8%	11.4	4.1	B
	Subtotal	554	551	99.4%	31.5	5.5	C
EB	Left Turn	130	127	97.9%	96.0	18.4	F
	Through	532	524	98.5%	50.0	9.0	D
	Right Turn	175	177	100.9%	27.6	7.7	C
	Subtotal	837	828	98.9%	52.2	9.1	D
WB	Left Turn	73	75	102.7%	54.7	8.4	D
	Through	405	410	101.2%	41.6	3.3	D
	Right Turn	50	52	103.4%	42.0	8.7	D
	Subtotal	528	536	101.6%	43.5	3.4	D
Total		2,710	2,699	99.6%	42.9	3.5	D

Vissim Post-Processor
Average Results from 10 Runs
Overall Intersection Volume and Delay

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

			Demand Volume	Served Volume (vph)					Total Delay (sec/veh)					
			Volume (vph)	Percent Served	Standard Deviation	Minimum	Maximum	GEH Statistic						
Intersection		Control		Average					Average	Std. Dev.	Minimum	Maximum	LOS	
1	7th Street/Ashby Avenue	Signal	3,208	3,187	99.4%	48	3,124	3,257	0.4	53.3	7.3	40.1	61.6	D
2	Bay Street/Potter Street	Side-street Stop	473	458	96.8%	14	435	477	0.7	40.0	54.9	1.7	121.9	E
3	Shellmound Street/I-80 Off Ramp	Side-street Stop	533	532	99.8%	21	490	568	0.1	8.5	12.1	0.8	29.0	A
4	Shellmound Street/67th Street	Signal	722	728	100.8%	21	694	758	0.2	20.6	5.1	13.9	29.2	C
5	Hollis Street/67th Street	Signal	1,389	1,376	99.1%	35	1,341	1,440	0.3	30.2	9.0	18.4	47.7	C
6	Shellmound Street/66th Street	Side-street Stop	567	575	101.4%	21	543	612	0.3	0.9	0.8	0.4	2.4	A
7	Hollis Street/66th Street	Side-street Stop	1,328	1,316	99.1%	24	1,285	1,365	0.3	16.1	6.9	5.4	30.6	C
8	Shellmound Street/65th Street	Signal	1,090	1,085	99.6%	36	1,028	1,138	0.1	39.9	6.0	27.4	47.7	D
9	Overland Street/65th Street	Signal	678	665	98.1%	32	615	694	0.5	42.9	10.3	30.2	60.8	D
10	Hollis Street/65th Street	Signal	1,581	1,554	98.3%	27	1,500	1,594	0.7	50.1	30.1	27.1	121.9	D
11	Shellmound Avenue/64th Street	Side-street Stop	715	713	99.8%	22	689	751	0.1	2.1	0.4	1.1	2.7	A
12	Hollis Street/Powell Street	Signal	2,710	2,702	99.7%	39	2,648	2,748	0.1	42.9	3.9	38.7	52.1	D

Network Summary	
Total Demand Volume (veh/hr)	14,994
Total Volume Served (veh/hr)	14,892
Percent Served	99.3%
GEH Statistic	0.8

Note: For Side-street Stop and Uncontrolled intersections, the highest delay by movement is reported. The movement with the highest delay is reported as the worst movement.

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 1 **7th Street/Ashby Avenue** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	146	147	100.6%	116.0	30.9	F
	Through	458	445	97.2%	131.0	34.2	F
	Right Turn	55	54	98.4%	131.3	35.2	F
	Subtotal	659	646	98.1%	127.6	33.3	F
SB	Left Turn	183	175	95.8%	49.2	8.7	D
	Through	204	198	96.8%	48.1	10.7	D
	Right Turn	321	318	99.0%	13.2	3.1	B
	Subtotal	708	691	97.6%	31.4	6.6	C
EB	Left Turn	214	214	99.8%	50.3	5.9	D
	Through	720	725	100.7%	31.3	5.1	C
	Right Turn	154	154	99.8%	29.2	6.5	C
	Subtotal	1,088	1,092	100.4%	35.1	4.2	D
WB	Left Turn	82	81	99.3%	55.2	9.6	E
	Through	604	608	100.6%	38.9	4.1	D
	Right Turn	67	69	102.4%	33.5	5.3	C
	Subtotal	753	758	100.6%	40.2	2.9	D
Total		3,208	3,187	99.4%	53.3	7.3	D

Intersection 2 **Bay Street/Potter Street** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	428	419	97.9%	42.3	58.9	E
	Through	12	9	77.5%	37.1	53.6	E
	Right Turn						
	Subtotal	440	428	97.4%	42.2	58.8	E
SB	Left Turn						
	Through	30	27	89.3%	10.1	1.9	B
	Right Turn	1	1	110.0%	2.9	3.9	A
	Subtotal	31	28	90.0%	9.9	1.8	A
EB	Left Turn						
	Through						
	Right Turn	2	2	80.0%	0.2	0.2	A
	Subtotal	2	2	80.0%	0.2	0.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		473	458	96.8%	40.0	54.9	E

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 3 **Shellmound Street/I-80 Off Ramp** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn						
	Through	437	432	98.9%	9.1	14.5	A
	Right Turn						
	Subtotal	437	432	98.9%	9.1	14.5	A
SB	Left Turn						
	Through	32	28	88.4%	2.1	1.8	A
	Right Turn						
	Subtotal	32	28	88.4%	2.1	1.8	A
EB	Left Turn	3	3	113.3%	6.4	10.9	A
	Through						
	Right Turn	61	68	111.3%	5.9	0.8	A
	Subtotal	64	71	111.4%	6.2	1.1	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		533	532	99.8%	8.5	12.1	A

Intersection 4 **Shellmound Street/67th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn						
	Through	315	314	99.7%	9.7	2.3	A
	Right Turn	127	132	103.9%	22.0	9.1	C
	Subtotal	442	446	100.9%	13.1	3.5	B
SB	Left Turn	33	35	106.1%	36.2	14.6	D
	Through	60	61	102.0%	5.1	2.2	A
	Right Turn						
	Subtotal	93	96	103.4%	16.4	4.8	B
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn	65	66	101.4%	40.6	13.6	D
	Through						
	Right Turn	122	119	97.8%	38.4	14.3	D
	Subtotal	187	185	99.0%	39.3	13.3	D
Total		722	728	100.8%	20.6	5.1	C

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 5 Hollis Street/67th Street Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	107	109	101.8%	46.4	11.0	D
	Through	543	528	97.2%	32.3	17.3	C
	Right Turn	36	35	98.1%	28.1	13.7	C
	Subtotal	686	672	98.0%	34.5	15.8	C
SB	Left Turn	18	17	96.1%	54.5	25.6	D
	Through	372	373	100.2%	20.7	3.4	C
	Right Turn	50	47	94.0%	15.6	3.4	B
	Subtotal	440	437	99.3%	21.4	3.4	C
EB	Left Turn	67	70	104.2%	44.1	15.2	D
	Through	57	57	99.3%	40.8	14.6	D
	Right Turn	36	39	109.2%	25.9	14.3	C
	Subtotal	160	166	103.6%	38.9	14.9	D
WB	Left Turn	24	23	94.2%	33.3	9.8	C
	Through	30	30	100.0%	27.9	10.1	C
	Right Turn	49	49	100.0%	21.9	8.7	C
	Subtotal	103	102	98.6%	25.8	8.0	C
Total		1,389	1,376	99.1%	30.2	9.0	C

Intersection 6 Shellmound Street/66th Street Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn						
	Through	442	448	101.3%	1.1	1.0	A
	Right Turn						
	Subtotal	442	448	101.3%	1.1	1.0	A
SB	Left Turn						
	Through	125	127	101.9%	0.3	0.1	A
	Right Turn						
	Subtotal	125	127	101.9%	0.3	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		567	575	101.4%	0.9	0.8	A

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 7

Hollis Street/66th Street

Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	55	50	90.5%	19.3	9.4	C
	Through	590	571	96.8%	20.2	10.9	C
	Right Turn	53	52	97.5%	21.4	20.4	C
	Subtotal	698	673	96.3%	20.3	11.5	C
SB	Left Turn	20	20	101.0%	14.7	10.1	B
	Through	385	389	100.9%	5.0	2.3	A
	Right Turn	27	26	97.8%	4.6	2.7	A
	Subtotal	432	435	100.7%	5.4	2.3	A
EB	Left Turn	45	49	108.4%	32.9	14.2	D
	Through	15	15	99.3%	34.1	25.9	D
	Right Turn	44	47	106.6%	18.0	7.6	C
	Subtotal	104	111	106.3%	25.5	8.1	D
WB	Left Turn	21	21	100.0%	25.1	14.6	D
	Through	22	22	101.4%	30.8	10.8	D
	Right Turn	51	54	105.9%	18.3	9.9	C
	Subtotal	94	97	103.5%	22.2	10.7	C
Total		1,328	1,316	99.1%	16.1	6.9	C

Intersection 8

Shellmound Street/65th Street

Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	18	18	98.9%	48.3	23.3	D
	Through	236	243	102.8%	36.9	7.3	D
	Right Turn	237	233	98.4%	69.2	12.5	E
	Subtotal	491	494	100.5%	52.7	7.9	D
SB	Left Turn	21	22	106.2%	100.5	25.8	F
	Through	46	45	98.7%	29.9	7.1	C
	Right Turn	58	58	100.3%	15.1	7.6	B
	Subtotal	125	126	100.7%	38.6	5.3	D
EB	Left Turn	92	90	97.7%	72.9	19.6	E
	Through	78	76	97.1%	63.4	20.2	E
	Right Turn	18	18	98.3%	24.7	17.2	C
	Subtotal	188	183	97.5%	65.3	12.0	E
WB	Left Turn	117	114	97.0%	0.8	0.1	A
	Through	55	54	98.5%	2.6	4.7	A
	Right Turn	114	115	100.7%	1.6	0.8	A
	Subtotal	286	283	98.8%	1.3	0.5	A
Total		1,090	1,085	99.6%	40.0	5.8	D

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 9 Overland Street/65th Street Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	79	75	94.9%	92.8	18.8	F
	Through						
	Right Turn	46	42	90.9%	65.2	33.1	E
	Subtotal	125	117	93.4%	83.8	21.4	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	313	308	98.2%	5.6	2.3	A
	Right Turn	23	23	100.4%	6.5	11.4	A
	Subtotal	336	331	98.4%	5.6	2.3	A
WB	Left Turn	10	10	104.0%	69.5	43.7	E
	Through	207	207	100.1%	79.5	29.6	E
	Right Turn						
	Subtotal	217	218	100.3%	79.4	29.2	E
Total		678	665	98.1%	43.0	10.2	D

Intersection 10 Hollis Street/65th Street Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	58	56	96.4%	68.0	34.9	E
	Through	518	504	97.4%	51.1	41.8	D
	Right Turn	63	61	96.2%	50.1	36.8	D
	Subtotal	639	621	97.2%	52.4	40.1	D
SB	Left Turn	41	44	106.1%	41.0	8.1	D
	Through	306	307	100.4%	16.9	4.8	B
	Right Turn	103	106	102.6%	20.1	7.2	C
	Subtotal	450	456	101.4%	19.8	5.1	B
EB	Left Turn	149	142	95.3%	90.5	71.1	F
	Through	156	153	98.1%	88.9	65.4	F
	Right Turn	54	55	102.2%	84.1	70.8	F
	Subtotal	359	350	97.5%	89.1	68.7	F
WB	Left Turn	46	45	97.0%	42.6	16.8	D
	Through	56	55	98.4%	33.8	14.3	C
	Right Turn	31	27	87.7%	23.8	12.3	C
	Subtotal	133	127	95.4%	34.4	12.8	C
Total		1,581	1,554	98.3%	50.1	30.1	D

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 11 **Shellmound Avenue/64th Street** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	24	25	102.9%	1.7	1.3	A
	Through	395	396	100.2%	0.3	0.1	A
	Right Turn						
	Subtotal	419	420	100.3%	0.4	0.1	A
SB	Left Turn						
	Through	155	152	97.8%	0.9	0.4	A
	Right Turn	26	25	97.7%	1.3	0.5	A
	Subtotal	181	177	97.8%	1.0	0.4	A
EB	Left Turn	96	100	104.3%	10.1	1.7	B
	Through						
	Right Turn	19	16	83.7%	7.4	2.2	A
	Subtotal	115	116	100.9%	9.7	1.5	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		715	713	99.8%	2.1	0.4	A

Intersection 12 **Hollis Street/Powell Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	341	350	102.5%	50.0	4.7	D
	Through	392	380	96.9%	33.1	4.2	C
	Right Turn	58	57	98.8%	29.0	7.7	C
	Subtotal	791	787	99.5%	40.2	3.1	D
SB	Left Turn	122	121	98.8%	37.3	6.4	D
	Through	249	252	101.1%	41.4	5.9	D
	Right Turn	183	178	97.0%	10.5	2.3	B
	Subtotal	554	550	99.3%	31.0	4.4	C
EB	Left Turn	130	126	96.9%	97.6	19.0	F
	Through	532	522	98.2%	50.2	8.9	D
	Right Turn	175	175	100.2%	27.5	6.9	C
	Subtotal	837	824	98.4%	53.0	9.0	D
WB	Left Turn	73	75	102.1%	53.3	10.0	D
	Through	405	415	102.6%	41.7	4.3	D
	Right Turn	50	52	104.0%	43.0	9.6	D
	Subtotal	528	542	102.6%	43.3	4.8	D
Total		2,710	2,702	99.7%	42.9	3.9	D

Vissim Post-Processor
Average Results from 10 Runs
Overall Intersection Volume and Delay

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

			Demand Volume	Served Volume (vph)					Total Delay (sec/veh)					
Intersection		Control	(vph)	Average	Percent Served	Standard Deviation	Minimum	Maximum	GEH Statistic	Average	Std. Dev.	Minimum	Maximum	LOS
1	7th Street/Ashby Avenue	Signal	3,234	3,113	96.3%	78	2,986	3,260	2.1	70.1	28.0	40.1	119.5	E
2	Bay Street/Potter Street	Side-street Stop	448	424	94.6%	28	361	451	1.2	15.7	37.3	2.2	121.2	C
3	Shellmound Street/I-80 Off Ramp	Side-street Stop	508	496	97.6%	25	430	515	0.5	1.3	0.3	1.0	1.7	A
4	Shellmound Street/67th Street	Signal	505	493	97.6%	26	424	514	0.5	6.4	17.5	0.3	56.1	A
5	Hollis Street/67th Street	Side-street Stop	1,339	10,393	776.2%	245	9,982	10,851	118.2	73.4	26.4	43.1	119.0	F
6	Shellmound Street/66th Street	Side-street Stop	505	494	97.7%	27	423	514	0.5	6.8	20.1	0.3	64.0	A
7	Hollis Street/66th Street	Side-street Stop	1,458	1,333	91.4%	33	1,288	1,403	3.4	58.2	14.6	36.9	83.6	F
8	Shellmound Street/65th Street	Signal	1,197	1,135	94.8%	40	1,044	1,181	1.8	110.4	14.5	75.8	126.5	F
9	Overland Street/65th Street	Signal	977	907	92.8%	32	846	953	2.3	80.2	20.4	36.4	103.2	F
10	Hollis Street/65th Street	Signal	1,818	1,651	90.8%	40	1,588	1,712	4.0	104.2	22.7	64.4	137.9	F
11	Shellmound Avenue/64th Street	Side-street Stop	720	694	96.3%	29	638	733	1.0	71.5	48.2	3.0	135.5	F
12	Hollis Street/Powell Street	Signal	2,710	2,690	99.2%	34	2,652	2,747	0.4	42.7	3.3	37.9	48.3	D

Network Summary	
Total Demand Volume (veh/hr)	15,419
Total Volume Served (veh/hr)	23,821
Percent Served	154.5%
GEH Statistic	60.0

Note: For Side-street Stop and Uncontrolled intersections, the highest delay by movement is reported. The movement with the highest delay is reported as the worst movement.

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 1 7th Street/Ashby Avenue Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	172	160	93.1%	89.7	19.0	F
	Through	458	422	92.1%	102.2	19.7	F
	Right Turn	55	49	89.5%	108.1	28.2	F
	Subtotal	685	631	92.1%	99.6	19.8	F
SB	Left Turn	183	173	94.6%	71.3	32.9	E
	Through	204	186	91.2%	142.4	103.5	F
	Right Turn	321	299	93.2%	31.1	25.0	C
	Subtotal	708	659	93.0%	74.4	50.0	E
EB	Left Turn	214	210	98.2%	64.5	30.9	E
	Through	720	705	97.9%	72.6	56.2	E
	Right Turn	154	144	93.2%	123.8	119.3	F
	Subtotal	1,088	1,058	97.3%	77.2	57.2	E
WB	Left Turn	82	84	101.8%	77.4	33.3	E
	Through	604	611	101.1%	34.7	5.0	C
	Right Turn	67	71	106.1%	26.8	6.5	C
	Subtotal	753	765	101.6%	38.6	5.2	D
Total		3,234	3,113	96.3%	70.1	28.0	E

Intersection 2 Bay Street/Potter Street Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	403	381	94.5%	16.4	40.9	C
	Through	12	12	101.7%	16.3	39.1	C
	Right Turn						
	Subtotal	415	393	94.7%	16.4	40.9	C
SB	Left Turn						
	Through	30	27	91.3%	10.9	2.3	B
	Right Turn	1	2	150.0%	3.0	4.1	A
	Subtotal	31	29	93.2%	10.7	2.3	B
EB	Left Turn						
	Through						
	Right Turn	2	2	95.0%	0.2	0.2	A
	Subtotal	2	2	95.0%	0.2	0.2	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		448	424	94.6%	15.7	37.3	C

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 3 **Shellmound Street/I-80 Off Ramp** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	412	393	95.4%	0.3	0.1	A
	Through						
	Right Turn						
	Subtotal	412	393	95.4%	0.3	0.1	A
SB	Left Turn	32	29	91.3%	1.1	1.3	A
	Through						
	Right Turn						
	Subtotal	32	29	91.3%	1.1	1.3	A
EB	Left Turn	3	3	103.3%	6.8	6.6	A
	Through						
	Right Turn						
	Subtotal	64	74	115.0%	6.1	0.8	A
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		508	496	97.6%	1.3	0.3	A

Intersection 4 **Shellmound Street/67th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	412	394	95.5%	8.5	23.4	A
	Through						
	Right Turn						
	Subtotal	412	394	95.5%	8.5	23.4	A
SB	Left Turn	93	99	106.7%	0.2	0.1	A
	Through						
	Right Turn						
	Subtotal	93	99	106.7%	0.2	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		505	493	97.6%	6.4	17.5	A

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 5 Hollis Street/67th Street Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	44	39	88.4%	19.5	11.6	C
	Through	592	541	91.4%	17.8	7.7	C
	Right Turn	93	3,113	3347.5%	70.1	28.0	F
	Subtotal	729	3,693	506.6%	61.4	23.0	F
SB	Left Turn	18	3,113	17295.6%	70.1	28.0	F
	Through	409	367	89.6%	250.7	93.7	F
	Right Turn	13	12	88.5%	254.2	91.5	F
	Subtotal	440	3,491	793.5%	89.3	30.4	F
EB	Left Turn	30	25	83.3%	43.9	24.5	E
	Through	10	9	86.0%	33.8	27.5	D
	Right Turn	26	24	91.2%	43.9	23.2	E
	Subtotal	66	57	86.8%	42.9	21.0	E
WB	Left Turn	33	30	91.2%	95.2	60.5	F
	Through	8	8	102.5%	89.7	84.2	F
	Right Turn	63	3,113	4941.6%	70.1	28.0	F
	Subtotal	104	3,152	3030.3%	70.5	27.4	F
Total		1,339	10,393	776.2%	73.4	26.4	F

Intersection 6 Shellmound Street/66th Street Side-street Stop

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn						
	Through	412	394	95.7%	9.1	27.2	A
	Right Turn						
	Subtotal	412	394	95.7%	9.1	27.2	A
SB	Left Turn						
	Through	93	99	106.7%	0.1	0.1	A
	Right Turn						
	Subtotal	93	99	106.7%	0.1	0.1	A
EB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		505	494	97.7%	6.8	20.1	A

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 7 **Hollis Street/66th Street** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	65	58	89.5%	40.0	22.4	E
	Through	664	593	89.3%	25.7	10.8	D
	Right Turn	63	58	91.4%	25.6	12.8	D
	Subtotal	792	709	89.5%	26.7	11.3	D
SB	Left Turn	20	20	99.0%	79.3	23.8	F
	Through	431	378	87.7%	94.4	26.4	F
	Right Turn	17	17	97.1%	82.8	30.4	F
	Subtotal	468	414	88.5%	93.2	26.3	F
EB	Left Turn	22	27	122.3%	127.4	76.9	F
	Through	15	15	100.7%	134.2	93.8	F
	Right Turn	67	73	108.4%	130.7	74.6	F
	Subtotal	104	115	110.2%	130.7	75.9	F
WB	Left Turn	29	28	96.9%	77.4	30.1	F
	Through	22	23	105.5%	77.8	37.2	F
	Right Turn	43	44	101.6%	51.2	26.1	F
	Subtotal	94	95	101.1%	64.9	23.8	F
Total		1,458	1,333	91.4%	58.2	14.6	F

Intersection 8 **Shellmound Street/65th Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	18	14	78.9%	159.9	52.8	F
	Through	148	147	99.1%	176.4	53.3	F
	Right Turn	325	302	92.8%	261.3	78.3	F
	Subtotal	491	463	94.2%	229.5	63.4	F
SB	Left Turn	50	52	103.6%	81.3	15.3	F
	Through	13	15	111.5%	36.0	14.6	D
	Right Turn	30	33	110.3%	7.3	4.9	A
	Subtotal	93	99	106.9%	50.3	7.4	D
EB	Left Turn	53	52	97.5%	61.3	19.7	E
	Through	117	110	93.6%	74.1	19.0	E
	Right Turn	18	18	100.0%	67.6	21.6	E
	Subtotal	188	179	95.3%	70.2	16.6	E
WB	Left Turn	155	144	92.6%	0.9	0.1	A
	Through	59	54	90.7%	5.0	4.4	A
	Right Turn	211	197	93.3%	2.8	1.1	A
	Subtotal	425	394	92.7%	2.4	0.9	A
Total		1,197	1,135	94.8%	110.4	14.5	F

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 9 Overland Street/65th Street Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	79	79	100.5%	133.9	43.3	F
	Through						
	Right Turn	46	41	88.3%	104.1	44.4	F
	Subtotal	125	120	96.0%	123.0	39.1	F
SB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
EB	Left Turn						
	Through	473	444	93.9%	11.1	5.1	B
	Right Turn	19	18	92.6%	9.5	12.7	A
	Subtotal	492	462	93.8%	11.0	4.8	B
WB	Left Turn	14	11	77.9%	170.6	54.3	F
	Through	346	314	90.8%	169.4	49.0	F
	Right Turn						
	Subtotal	360	325	90.3%	169.3	48.8	F
Total		977	907	92.8%	80.2	20.4	F

Intersection 10 Hollis Street/65th Street Signal

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	122	112	91.5%	154.8	39.0	F
	Through	454	403	88.8%	126.4	36.8	F
	Right Turn	63	56	89.4%	133.2	44.6	F
	Subtotal	639	571	89.3%	132.8	37.2	F
SB	Left Turn	41	42	102.4%	91.3	17.0	F
	Through	306	276	90.2%	68.0	12.6	E
	Right Turn	180	160	88.9%	76.7	12.8	E
	Subtotal	527	478	90.7%	73.1	11.1	E
EB	Left Turn	309	282	91.1%	124.4	48.9	F
	Through	156	140	89.9%	121.2	50.4	F
	Right Turn	54	50	93.1%	116.3	45.3	F
	Subtotal	519	472	91.0%	122.7	48.4	F
WB	Left Turn	46	43	92.8%	55.2	26.8	E
	Through	58	59	101.0%	44.8	18.0	D
	Right Turn	29	29	99.0%	34.2	18.3	C
	Subtotal	133	130	97.7%	45.4	14.7	D
Total		1,818	1,651	90.8%	104.2	22.7	F

Vissim Post-Processor
Average Results from 10 Runs
Volume and Delay by Movement

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 11 **Shellmound Avenue/64th Street** **Side-street Stop**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	24	25	104.6%	20.2	13.1	C
	Through	395	384	97.1%	50.3	37.6	F
	Right Turn						
	Subtotal	419	409	97.5%	48.5	36.4	E
SB	Left Turn						
	Through	160	153	95.3%	8.8	6.9	A
	Right Turn	26	24	93.5%	6.0	9.2	A
	Subtotal	186	177	95.1%	8.5	6.9	A
EB	Left Turn	96	92	95.6%	310.7	262.0	F
	Through						
	Right Turn	19	17	86.8%	274.7	242.4	F
	Subtotal	115	108	94.2%	305.9	259.6	F
WB	Left Turn						
	Through						
	Right Turn						
	Subtotal						
Total		720	694	96.3%	71.5	48.2	F

Intersection 12 **Hollis Street/Powell Street** **Signal**

Direction	Movement	Demand Volume (vph)	Served Volume (vph)		Total Delay (sec/veh)		
			Average	Percent	Average	Std. Dev.	LOS
NB	Left Turn	341	346	101.4%	52.2	5.4	D
	Through	392	386	98.4%	30.2	3.8	C
	Right Turn	58	57	97.4%	30.3	7.9	C
	Subtotal	791	788	99.6%	39.3	3.3	D
SB	Left Turn	122	121	99.4%	39.4	9.4	D
	Through	249	249	99.9%	41.7	12.6	D
	Right Turn	183	179	97.7%	12.6	9.4	B
	Subtotal	554	549	99.0%	32.2	10.8	C
EB	Left Turn	130	126	97.2%	95.6	16.2	F
	Through	532	527	99.0%	48.1	6.9	D
	Right Turn	175	176	100.5%	27.5	7.3	C
	Subtotal	837	829	99.1%	51.5	7.3	D
WB	Left Turn	73	74	101.6%	51.8	10.4	D
	Through	405	401	98.9%	42.0	4.0	D
	Right Turn	50	49	97.6%	41.4	11.0	D
	Subtotal	528	524	99.1%	43.3	4.7	D
Total		2,710	2,690	99.2%	42.7	3.3	D

Appendix C:

Vehicle Queue Output

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 1 7th Street/Ashby Avenue

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	525	40	21	23	97	239	184	108	709	NO
	Through	950	472	180	195	686	943	120	749	1,079	NO
	Right Turn	150	472	180	195	686	943	120	749	1,079	AVG
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	125	59	25	43	128	230	38	180	298	MAX
	Through	125	64	15	45	100	237	37	180	310	MAX
EB	Right Turn	125	17	10	7	42	165	62	96	292	MAX
	Second Right										
	U Turn										
	Second Left										
	Left Turn	250	61	5	53	71	238	29	193	289	NO
WB	Through	1,000	91	8	79	106	356	29	308	400	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	150	25	3	20	29	112	16	89	135	NO
	Through	1,000	83	6	70	91	292	32	242	339	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 2		Bay Street/Potter Street					Side-street Stop				
Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	550	232	164	11	408	375	171	100	598	NO
	Through	550	232	164	11	408	375	171	100	598	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through	325	2	0	1	2	41	3	35	47	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	450	0	0	0	0	0	0	0	0	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn										
	Through										
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 3

Shellmound Street/I-80 Off Ramp

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	125	29	24	0	62	102	61	0	154	NO
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	550	0	0	0	0	0	0	0	0	NO
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	850	2	1	1	5	59	20	38	109	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through										
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 4

Shellmound Street/67th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	325	68	73	1	204	242	115	79	367	NO
	Right Turn	100	9	16	1	53	68	100	0	343	NO
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through	125	1	1	0	3	23	21	0	60	NO
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	700	1	1	1	3	66	20	42	105	NO
	Through										
	Right Turn	700	1	1	1	3	67	20	43	105	NO
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 5

Hollis Street/67th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	325	84	62	13	187	323	54	241	387	NO
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	300	5	2	2	8	148	27	97	187	NO
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	700	29	18	12	66	131	38	78	175	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	925	13	4	6	19	88	16	64	116	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 6

Shellmound Street/66th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	300	13	22	0	63	86	74	0	205	NO
	Right Turn	100	2	1	0	3	19	16	0	48	NO
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through	325	0	0	0	1	5	8	0	22	NO
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	700	2	3	0	9	65	28	40	141	NO
	Through										
	Right Turn	700	2	3	0	9	65	28	40	141	NO
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 7

Hollis Street/66th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	325	51	48	11	129	291	71	209	408	NO
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	325	4	3	1	10	121	42	63	209	NO
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	700	12	5	6	22	88	20	50	118	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	875	12	3	8	18	88	9	67	101	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 8		Shellmound Street/65th Street								Signal	
Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	750	167	107	83	413	497	143	324	792	NO
	Right Turn	150	95	80	34	316	411	171	129	798	MAX
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	75	7	2	4	9	60	32	23	120	NO
	Through	300	35	11	21	56	166	42	101	216	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn	100	28	6	21	44	137	26	111	202	MAX
WB	Through	475	27	3	23	32	144	27	110	191	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	50	0	0	0	0	0	0	0	0	NO
	Through	50	1	2	0	6	34	19	6	65	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 9 Overland Street/65th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	750	47	7	35	61	186	20	155	229	NO
	Through										
	Right Turn	750	47	7	36	61	187	20	156	230	NO
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through	40	9	2	6	14	56	19	35	93	MAX
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	75	3	1	0	4	22	12	0	43	NO
	Through	675	48	7	37	55	204	21	170	226	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 10

Hollis Street/65th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	125	9	2	7	12	70	11	57	97	NO
	Through	675	139	121	53	369	466	119	278	657	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	75	8	1	6	9	59	6	51	66	NO
	Through	325	34	8	26	54	238	45	158	313	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	675	73	22	53	123	301	56	253	445	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn										
	Through	875	20	5	13	26	120	30	70	153	NO
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 11

Shellmound Avenue/64th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	50	0	0	0	0	13	8	0	26	NO
	Through	250	4	10	0	32	47	70	0	226	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through	750	0	0	0	0	5	5	0	13	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn	225	5	2	4	12	68	18	45	87	NO
WB	Through										
	Right Turn	225	5	2	4	12	68	18	45	87	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Conditions
PM Peak Hour

Intersection 12

Hollis Street/Powell Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	350	100	6	92	116	317	24	269	354	NO
	Through	350	83	13	65	107	337	23	290	366	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	100	27	5	20	34	210	48	155	330	MAX
	Through	575	81	14	58	109	402	71	240	506	NO
EB	Right Turn	125	5	2	3	10	81	39	52	190	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn	100	84	9	71	96	339	41	285	405	MAX
WB	Through	1,550	106	11	89	124	373	48	313	449	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	75	22	4	16	30	130	28	74	169	MAX
	Through	450	62	5	52	70	233	31	191	286	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 1 7th Street/Ashby Avenue

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	525	36	11	23	64	233	199	111	766	NO
	Through	950	503	138	301	684	980	89	799	1,070	MAX
	Right Turn	150	503	138	301	684	980	89	799	1,070	AVG
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	125	56	24	43	124	226	37	167	300	MAX
	Through	125	64	14	45	92	241	30	201	302	MAX
EB	Right Turn	125	17	9	10	40	161	64	112	305	MAX
	Second Right										
	U Turn										
	Second Left										
	Left Turn	250	61	6	50	71	236	30	203	289	NO
WB	Through	1,000	90	8	79	102	357	30	311	400	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	150	24	2	21	27	112	22	81	144	NO
	Through	1,000	83	7	70	93	287	39	242	368	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 2		Bay Street/Potter Street					Side-street Stop				
Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	550	80	123	0	312	172	190	0	444	NO
	Through	550	80	123	0	312	172	190	0	444	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through	325	2	0	1	2	39	3	35	44	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	450	0	0	0	0	0	0	0	0	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 3

Shellmound Street/I-80 Off Ramp

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	125	8	15	0	41	37	60	0	140	NO
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	550	0	0	0	0	76	16	53	97	NO
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	850	2	0	2	3	55	11	39	71	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through										
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 4

Shellmound Street/67th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	325	30	18	15	70	323	84	213	453	NO
	Right Turn	100	10	4	6	19	135	64	53	225	MAX
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	75	3	1	2	6	43	11	30	62	NO
	Through	125	2	0	1	2	44	16	22	77	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through										
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	700	0	0	0	0	1	4	0	12	NO
	Through										
	Right Turn	700	2	4	0	14	37	37	5	122	NO
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 5

Hollis Street/67th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	75	32	10	17	49	236	77	103	376	MAX
	Through	325	106	38	57	162	367	19	334	393	MAX
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	75	4	1	3	5	37	13	22	60	NO
	Through	300	44	6	38	56	307	52	223	372	MAX
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	700	30	7	18	41	170	31	106	219	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn										
	Through	925	13	3	10	20	96	17	66	122	NO
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 6

Shellmound Street/66th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	300	0	0	0	0	3	10	0	31	NO
	Right Turn	100	0	0	0	0	0	0	0	0	NO
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through	320	0	0	0	0	0	0	0	0	NO
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	710	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	Through										
	Right Turn	710	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 7

Hollis Street/66th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	325	66	37	18	121	342	51	239	391	MAX
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	325	8	2	4	12	168	43	101	239	NO
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	700	13	4	8	21	93	19	64	135	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	875	11	4	7	16	85	13	62	102	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 8

Shellmound Street/65th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	750	62	10	49	88	258	58	181	398	NO
	Right Turn	300	79	23	43	117	335	108	179	562	MAX
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn	125	11	3	7	15	57	9	43	74	NO
	Through	300	12	2	9	16	97	16	80	134	NO
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn	100	30	6	21	43	150	41	111	260	MAX
	Through	475	28	5	19	34	159	20	126	182	NO
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	50	0	0	0	0	0	0	0	0	NO
	Through	50	0	0	0	1	41	26	9	87	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 9 Overland Street/65th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	750	47	10	34	64	179	28	120	214	NO
	Through										
	Right Turn	750	48	10	35	64	180	28	121	215	NO
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through	40	10	6	5	27	62	24	35	109	MAX
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	75	2	1	1	5	21	8	8	37	NO
	Through	650	78	17	60	109	273	65	193	408	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 10		Hollis Street/65th Street								Signal	
Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	125	14	8	9	36	77	28	50	151	NO
	Through	675	194	135	82	445	555	113	404	697	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	75	9	2	6	12	57	12	43	78	NO
	Through	325	48	8	36	61	275	37	215	324	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	675	174	43	126	271	471	82	367	645	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn										
	Through	875	29	5	23	38	134	16	102	159	NO
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 11

Shellmound Avenue/64th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	50	0	0	0	0	14	6	0	20	NO
	Through	250	0	0	0	0	15	12	0	40	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through	750	0	0	0	0	5	6	0	19	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn	225	5	1	4	6	66	15	45	84	NO
WB	Through										
	Right Turn	225	5	1	4	6	66	15	45	84	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th St Closure
PM Peak Hour

Intersection 12

Hollis Street/Powell Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	350	99	4	92	106	312	20	269	333	NO
	Through	350	83	14	65	107	329	23	290	366	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	100	28	5	20	34	230	61	172	330	MAX
	Through	575	73	7	58	81	387	65	240	460	NO
EB	Right Turn	125	5	2	3	10	83	39	52	190	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn	100	83	9	71	96	331	39	281	405	MAX
WB	Through	1,550	105	10	89	124	359	46	313	449	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	75	21	4	16	30	119	30	74	169	MAX
	Through	450	63	7	52	74	231	28	191	266	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 1 7th Street/Ashby Avenue

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	525	43	15	23	78	280	135	135	464	NO
	Through	950	378	138	202	584	920	103	723	1,054	NO
	Right Turn	150	378	138	202	584	920	103	723	1,054	AVG
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	125	67	17	45	99	240	35	176	302	MAX
	Through	125	105	46	62	203	261	39	210	314	MAX
EB	Right Turn	125	30	22	11	74	189	47	121	282	MAX
	Second Right										
	U Turn										
	Second Left										
	Left Turn	250	59	2	56	63	233	29	178	283	NO
WB	Through	1,000	175	133	83	506	498	207	327	974	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	150	26	3	21	31	117	27	87	161	NO
	Through	1,000	80	7	66	91	289	30	227	336	NO
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 2

Bay Street/Potter Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	550	23	68	0	217	53	137	0	433	NO
	Through	550	23	68	0	217	53	137	0	433	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through	325	2	0	1	2	40	4	35	47	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	450	0	0	0	0	0	0	0	0	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn										
	Through										
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 3

Shellmound Street/I-80 Off Ramp

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	125	3	11	0	35	11	36	0	113	NO
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	550	0	0	0	0	0	0	0	0	NO
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	850	2	0	2	3	58	12	40	76	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through										
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 4

Shellmound Street/67th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	325	14	44	0	139	95	95	19	339	NO
	Right Turn	100	112	40	77	207	961	138	723	1,235	AVG
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through	125	0	1	0	2	18	15	0	39	NO
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	700	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	Through										
	Right Turn	700	112	40	77	207	961	138	723	1,235	MAX
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 5

Hollis Street/67th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	325	73	24	32	113	356	38	296	404	MAX
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	300	497	176	271	741	840	142	621	1,020	AVG
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	700	10	3	5	16	71	20	49	116	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	925	26	18	12	76	121	36	84	215	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 6

Shellmound Street/66th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	300	4	14	0	45	16	50	0	160	NO
	Right Turn	100	0	0	0	0	0	0	0	0	NO
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through	320	0	0	0	0	0	0	0	0	NO
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	710	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	Through										
	Right Turn	710	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!	#VALUE!
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 7

Hollis Street/66th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn	325	105	31	51	135	377	18	337	400	MAX
	Second Left										
	Left Turn										
	Through										
	Right Turn										
SB	Second Right	325	219	47	133	274	379	33	305	402	MAX
	U Turn										
	Second Left										
	Left Turn										
	Through										
EB	Right Turn	700	57	23	25	92	183	33	145	244	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	875	33	13	20	56	140	25	104	189	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 8

Shellmound Street/65th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn										
	Through	750	64	34	28	143	307	154	155	602	NO
	Right Turn	300	533	108	267	634	802	42	709	843	AVG
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn	125	26	3	21	31	93	14	79	120	NO
	Through	300	3	1	2	5	47	11	29	64	NO
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn	100	19	5	13	27	87	22	53	136	NO
	Through	475	51	8	36	59	206	39	139	253	NO
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	50	0	0	0	1	0	0	0	0	NO
	Through	50	2	2	1	9	89	37	42	156	MAX
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 9 Overland Street/65th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	750	73	15	50	96	218	46	137	315	NO
	Through										
	Right Turn	750	73	15	51	96	219	46	138	315	NO
	Second Right										
SB	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
EB	U Turn										
	Second Left										
	Left Turn										
	Through	40	24	4	19	32	102	21	68	128	MAX
	Right Turn										
	Second Right										
WB	U Turn										
	Second Left										
	Left Turn	75	3	1	1	4	19	8	5	30	NO
	Through	650	349	65	261	470	631	79	476	745	NO
	Right Turn										
	Second Right										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 10

Hollis Street/65th Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	125	188	87	73	297	584	113	295	690	AVG
	Through	675	371	109	178	474	653	46	568	694	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	75	27	14	16	59	236	81	157	402	MAX
	Through	325	258	24	207	287	412	16	370	428	MAX
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
WB	Through	675	312	50	217	363	663	40	577	736	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn										
	Through	875	33	10	21	54	145	44	83	247	NO
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 11

Shellmound Avenue/64th Street

Side-street Stop

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	50	0	0	0	1	19	8	13	38	NO
	Through	250	86	41	0	144	184	65	17	247	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through	750	3	3	0	10	52	41	0	129	NO
EB	Right Turn										
	Second Right										
	U Turn										
	Second Left										
	Left Turn	225	114	85	6	229	237	118	74	375	MAX
WB	Through										
	Right Turn	225	114	85	6	229	237	118	74	375	MAX
	Second Right										
	U Turn										
	Second Left										
	Left Turn										
	Through										
	Right Turn										
	Second Right										
	U Turn										

Vissim Post-Processor
Average Results from 10 Runs
Queue Length

Emeryville Quiet Zone
Existing Plus Project, 66th & 67th St Closure
PM Peak Hour

Intersection 12

Hollis Street/Powell Street

Signal

Direction	Movement	Storage (ft)	Average Queue (ft)				Maximum Queue (ft)				Exceeds Storage?
			Average	Std. Dev.	Minimum	Maximum	Average	Std. Dev.	Minimum	Maximum	
NB	U Turn										
	Second Left										
	Left Turn	350	100	7	91	113	315	20	269	333	NO
	Through	350	83	10	70	100	330	23	290	361	NO
	Right Turn										
SB	Second Right										
	U Turn										
	Second Left										
	Left Turn	100	29	8	21	48	227	88	149	427	MAX
	Through	575	74	14	55	104	384	79	240	460	NO
EB	Right Turn	125	6	3	3	13	108	62	64	252	NO
	Second Right										
	U Turn										
	Second Left										
	Left Turn	100	83	9	70	100	329	30	281	375	MAX
WB	Through	1,550	107	5	99	116	381	41	319	447	NO
	Right Turn										
	Second Right										
	U Turn										
	Second Left										
WB	Left Turn	75	21	4	15	30	108	26	74	145	MAX
	Through	450	60	4	52	67	237	25	203	286	NO
	Right Turn										
	Second Right										