

Concord Complete Streets Study

City of Concord, California



CAL POLY

SAN LUIS OBISPO

City & Regional Planning

Primary Authors

William Riggs, PhD
Assistant Professor of City and Regional Planning

Charlie Coles
Student Project Manager

Megyn Rugh
Research Assistant

Camille Jackson
Research Assistant

Project Team Members

Forrest Chamberlain

Nora Chin

Evan Evangelopoulos

Fabian Gallardo

Sam Gross

Lance Knox

Brian Rodriguez

Tessa Salzman

Andrew Scales

Kelsey Steffen

Richard Williams

Thanks

City of Concord: Carol Johnson; Andy Mogensen

Contra Costa Health Services: Will Dominie; Coire Reilly

Place It: James Rojas

Executive Summary

A team of City and Regional Planning and Transportation Engineering masters' students from California Polytechnic, San Luis Obispo developed a complete streets study for the City of Concord. Complete streets are roadways, which are designed to accommodate the needs of all users and all ages and abilities. With the guidance of Dr. William Riggs, the project commenced in April, 2014, was sent to the City of Concord for reviews in September, then finalized and submitted by October, 2014. The purpose of this report is to summarize the data collected as a part of this study and to provide the City with preliminary support in the progress to construct a safer, more bike and pedestrian friendly Concord.

The study involved a review of existing data accompanied by a field analysis involving pedestrian and bicycle counts which were manually gathered at twelve selected intersections over a two day period. As part of the study, each intersection was assessed individually and compiled into a complete streetscape assessment, provided in this document as Volume 1. Based on the available data, observations of the environment and findings from the study, a series of suggested treatments are provided for each intersection as Volume 2. These conceptual ideas are intended to facilitate discussion in the development of design guidelines that can help to inform an eventual plan.

Additionally, as part of the planning process, a public outreach event was held to further understand how the suggested roadway treatments meet the desires of the community. The developments and visions found in this study provide a platform for continued discussion on creating a more pedestrian and bicycle friendly environment that encourages other forms of transportation and provides alternatives to a dependency on private automobiles.

Table of Contents

Executive Summary	3
Table of Contents	4
List of Figures	6

VOLUME 1

1 Introduction	9
1.1 Methodology	10
2 Existing Conditions	11
2.1 Downtown Specific Plan Summary - January 10, 2014	11
2.2 Fehr and Peers Preliminary Traffic Assessment Summary.....	18
2.3 Concord Reuse Project Area Plan Summary: Concord Naval Weapons Station.....	19
2.4 Concord Technical Assistance Panel (TAP) Presentation Summary.....	25
2.5 Trails Master Plan Summary	29
2.6 Transportation Injury Mapping System (TIMS) Analysis	30
3 Field Analysis and Traffic Counts	35
3.1 Salvio Street / Galindo Street	38
3.2 Babel Lane / Cowell Road.....	40
3.3 Meadow Lane / Monument Boulevard.....	42
3.4 Clayton Road / The Alameda	46
3.5 Willow Pass Road / Diamond Boulevard.....	50
3.6 Clayton Road / Fry Way	52
3.7 Willow Pass Road / Galindo Street	54
3.8 Galindo Street / Laguna Street.....	57
3.9 Mt Diablo Street / Oakland Ave	61
3.10 Mt Diablo Street / Mesa Street	63
3.11 Clayton Road / Grant Street.....	65
3.12 Panoramic Drive / Port Chicago Highway	68
3.13 Automated Counts.....	70

VOLUME 2

4 Proposed Treatments	74
4.1 Salvio Street / Galindo Street.....	75
4.2 Babel Lane / Cowell Road.....	76
4.3 Meadow Lane / Monument Boulevard.....	78
4.4 Clayton Road / The Alameda	80
4.5 Willow Pass Road / Diamond Boulevard.....	82
4.6 Clayton Road / Fry Way	84
4.7 Willow Pass Road / Galindo Street	86

4.8	Galindo Street / Laguna Street.....	88
4.9	Mt Diablo Street / Oakland Ave and Mt Diablo Street / Mesa Street.....	90
4.10	Clayton Road / Grant Street.....	92
4.11	Panoramic Drive/Port Chicago Highway	94
5	Educational Workshop Public Outreach – July 31st	96
6	Conclusions & Next Steps	99
7	Appendix.....	100
7.1	Public Outreach Boards	100
7.2	Eco-Counter Summary Report	104
7.3	Concord Complete Streets Data Consolidation.....	106

List of Figures

Figure 1-1: Complete Streets Studio Work	9
Figure 2-1: Project Area Map (Source: DSP).....	11
Figure 2-2: Downtown Zoning Framework (Source: DSP).....	12
Figure 2-3: Walking Radius from BART Station (Source: DSP)	13
Figure 2-4: BART Station Opportunity Area.....	14
Figure 2-5: Bicycle Circulation (Source: DSP)	16
Figure 2-6: Pedestrian Circulation (Source: DSP)	16
Figure 2-7: Transit (Source: DSP)	17
Figure 2-8: Development Districts and Conservation, Open Space, and Recreation Lands (Source: Reuse Plan)	20
Figure 2-9: Transit Oriented Districts (Source: Reuse Plan).....	21
Figure 2-10: Complete Street Network (Source: Reuse Plan).....	22
Figure 2-11: Transit Network (Source: Reuse Plan).....	23
Figure 2-12: Bicycle Network (Source: Reuse Plan).....	24
Figure 2-13: TIMS Analysis Collision Severity City of Concord 2008-2012	30
Figure 2-18: TIMS Analysis Collision Cluster Map City of Concord 2008-2012	33
Figure 3-1: Concord Complete Streets Study Intersection Locations.....	36
Figure 3-4: Salvio and Galindo Volumes	39
Figure 3-5: Babel and Cowell.....	40
Figure 3-6: Four Corners Intersection at Meadow Lane / Monument Boulevard.....	42
Figure 3-7: Facing the northeast corner of Meadow Lane / Monument Boulevard, Four Corners Union 76 gas station at corner.....	44
Figure 3-8: Facing the northwest corner of Meadow Lane / Monument Boulevard, Best Burger at far end corner	44
Figure 3-10: Comparing Travel Times of Different Modes of Transportation	45
Figure 3-11: Clayton Road / The Alameda Intersection.....	46
Figure 3-12: The Alameda Trail Looking Southeast	47

Figure 3-13: Alameda Trail Volumes	48
Figure 3-14: The Alameda Trail Crossing	49
Figure 3-15: Willow Pass Road / Diamond Boulevard Facing Northwest	50
Figure 3-16: Willow Pass Road / Diamond Boulevard Facing the Southeast	50
Figure 3-17: Clayton and Fry Volumes	53
Figure 3-18: Willow Pass Road and Galindo Street Sidewalk	54
Figure 3-19: Willow Pass Road and Galindo Street Protected Right Turn Lane	55
Figure 3-20: Willow Pass and Galindo Volumes.....	56
Figure 3-21: Vacant Lot Galindo and Laguna Street	57
Figure 3-22: Laguna and Galindo Volumes	58
Figure 3-23: Pedestrians Crossing Leg C Galindo and Laguna Street during Peak PM	59
Figure 3-24: Bicyclist Crossing Leg C Galindo and Laguna Street.....	60
Figure 3-25: Mount Diablo and Oakland Volumes	61
Figure 3-26: Mount Diablo and Mesa Volumes	63
Figure 3-27: Clayton Road and Grant Street Intersection	65
Figure 3-28: Clayton and Grant Volumes	66
Figure 3-29: Panoramic Drive and Port Chicago Highway Intersection.....	68
Figure 3-30: Panoramic and PCH Volumes.....	69
Figure 3-31: Eco-counter Location (Northbound designated as 'Out' direction)	70
Figure 3-32: Average Daily Volumes	71
Figure 3-33: Average Hourly Volumes.....	72
Figure 3-34: Traffic by Day (July 2014).....	73
Figure 4-1: Galindo Street and Salvio Street Intersection	75
Figure 4-2: Babel Lane and Cowell Road Intersection	77
Figure 4-3: Monument Boulevard, Meadow Lane and Oak Grove Road Intersection	79
Figure 4-4: Clayton Road & Alameda Intersection	81

Figure 4-5: Willow Pass Road and Diamond Boulevard Intersection 83

Figure 4-6: Clayton Road and Fry Way Intersection..... 85

Figure 4-7: Willow Pass Road and Galindo Street Intersection 87

Figure 4-8: Galindo Street and Laguna Street Intersection Options 1 and 2..... 89

Figure 4-10: Mt. Diablo Street and Oakland Ave Intersection 91

Figure 4-11: Clayton Road and Grant Street Intersection 93

Figure 4-12: Panoramic Drive and Port Chicago Highway Intersection..... 95

Figure 5-1: “What Do You Like Most” City of Concord, California August 7, 2014 Results 98

VOLUME 1

1 Introduction

The City of Concord, located in Contra Costa County, faces a number of challenges in providing safe and accessible biking and walking facilities. Positioned as a major regional suburban East Bay center within the San Francisco Bay Area, Concord has access to three BART stations: North Concord/Martinez, Downtown Concord and Pleasant Hill/Contra Costa Centre. Much of Concord's growth in the 20th century was auto-centric and has met the needs of a populace that has concentrated on issues related to affordability, disability, or age-related mobility limitations, underscoring the need for safe and context sensitive bicycle and pedestrian designs.

In 2013, the City applied for a Safe Routes to Transit (SR2T) grant entitled, "The Concord Bike and Pedestrian Access to Transit Project." The project aimed to improve non-motorized access to the three BART stations in order to begin addressing many of the non-automotive accessibility issues in Concord. The project is located within the city limits of Concord, California; more specifically, this study focused on the portions of the City located within a two-mile bike shed from each of the three BART stations.

The purpose of this study is to provide preliminary support in starting the process of creating a safer, bike friendly, walkable and livable Concord. The study involved five key tasks including: 1) data analysis; 2) field analysis and counts; 3) a streetscape assessment; 4) proposed intersection treatments; and 5) an educational workshop. These tasks were completed as a part of the California Polytechnic, San Luis Obispo, Bicycle and Pedestrian Planning Studio (CRP 470) during the spring and summer quarters of 2014. The three first tasks are presented in this report as Volume 1, which is comprised of Chapters 1-3 along with detailed data provided Appendices. These are intended to offer raw data that can inform future planning in the City.

Volume 2, comprised of chapters 4 through 6, is designed to discuss other tasks completed as a part of this effort including design proposals and visioning sessions, which aimed to identify policies and design elements the residents of Concord would value most within their city. It is envisioned that the conceptual street treatments provided can guide Concord's short-term future investments in bicycle and pedestrian infrastructure improvements and programs – noting that



Figure 1-1: Complete Streets Studio Work

they are illustrative in nature and designed to promote thought and discussion in future planning efforts.

1.1 Methodology

The project began with an analysis of all existing data and documents available from the City of Concord and other accessible resources, which were used to guide this study and ensure precision in the process and results. More specifically, this study evaluated Concord's:

- Downtown Specific Plan
- Existing Zoning Maps
- Bike Lanes and Path Maps
- Trails Master Plan
- Traffic Volumes, Peak Hours Level of Service, and Preliminary Traffic Assessment
- Local Transportation Injury Mapping System (TIMS) Data
- Naval Weapons Reuse Project Area Plan
- The Urban Land Institute's Technical Assistance Panel Presentation

A summary of the findings and key sources of information that would define the study's primary focus areas are found in this report. The available resources listed above were blended with a combination of quantitative and qualitative methods to identify possible data collection points for the streetscape assessment. After looking at the local planning documents and volume data, we overlaid the bicycle and pedestrian collision information from TIMS. We then asked for City staff for additional advice in narrowing the target intersections based on local knowledge and with an eye for geographic equity. This analysis identified 12 intersections, these included:

- Salvio Street / Galindo Street
- Babel Lane / Cowell Road
- Meadow Lane / Monument Boulevard
- Clayton Road / The Alameda
- Willow Pass Road / Diamond Boulevard
- Clayton Road / Fry Way
- Willow Pass Road / Galindo Street
- Galindo Street / Laguna Street
- Mt Diablo Street / Oakland Ave
- Mt Diablo Street / Mesa Street
- Clayton Road / Grant Street
- Panoramic Drive / Port Chicago Highway

Each of the 12 intersections were examined through a walking audit and field review of the intersection and adjacent areas accompanied with two days of pedestrian and bicycle counts completed manually for both AM and PM peak periods. Additionally, in order to complement the manual data collection method, an "Eco-counter," or automated infrared bicycle and pedestrian counter, was installed on the light post located at the Concord and Canal Train multiuse path. Using the data collected, we then developed an existing conditions summary and streetscape study. This included potential opportunity sites and suggested treatments based on the data collected.

2 Existing Conditions

2.1 Downtown Specific Plan Summary - January 10, 2014

Based on the Downtown Specific Plan (DSP) Downtown Concord is envisioned as a modern and vibrant place that is infused with its heritage, and allows people to live and work within the downtown through transit-centered development and accessible modes of transportation. The plan has been created to communicate the City's need to revitalize the Downtown, accommodate growth in a future population and employment base combined with a real transportation and urban design vision for the future. The plan includes both short and long term strategies for accomplishing these goals.

- Builds upon the Concord 2030 General Plan, adopted by Council on October 2, 2007 and sets forth policies to be carried out in the next 20-30 years.
- Enhance the character of the Downtown.
- Preserve environmental resources, promote transit, and minimize hazards.
- Covers approximately 617 acres.



Figure 2-1: Project Area Map (Source: DSP)

2.1.1 Important Features of Downtown

- Historic Downtown Core/Todos Santos Plaza which is a major focal point and provides an important sense of place for the entire city.
- A major Bay Area Rapid Transit (BART) station directly adjacent to the downtown with transit connections.
- Large Class A office buildings (providing approximately 1.5 million square feet of office space) and higher density zoning near the BART station with ease of access to major highways.
- A diversity of adjoining neighborhoods such as historic North Todos Santos defined by its small scale historic houses.
- Ellis Lake Park, the historic nearby Galindo House, and offers many historic sites/buildings that are dispersed throughout the project area.
- Entertainment such as movie theaters and restaurants that are very accessible and offer more opportunities for activity both during the day and evening.
- Great diversity in housing, from single family to multi-family/high-density, including developments for senior housing and the developmentally disabled.
- Higher density office/commercial zoning near the BART station and along major arterials that connect directly to the highway.
- Walkable and identifiable street grid that defines distinct neighborhoods and districts within the City.



Figure 2-2: Downtown Zoning Framework (Source: DSP)

Downtown Concord was designated as a 'Priority Development Area' (PDA) in early 2012, by the Metropolitan Transportation Commission, to promote transit-oriented development. The vision for the Downtown Concord BART Station Priority Development Area (PDA) is to promote

Downtown Concord as the historic, economic, and cultural heart of the City in such a way that enhances its strong business climate and bolsters the City's high quality of life.

2.1.2 Downtown Goals and Objectives

1. Increasing job creation.
2. Enhancing the business climate and expanding the economic base.
3. Intensification of uses and densities from current built levels.
4. Increasing BART ridership and efficiency of multi-modal connections.
5. Constructing housing projects for a mix of housing types and income levels.
6. Promoting mid and high-density housing.



Figure 2-3: Walking Radius from BART Station (Source: DSP)

2.1.3 Major Issues

- Grant Street allows both one way and two way traffic as it passes from the BART station to Todos Santos Plaza.
- Clayton Road, Willow Pass Road, Concord Avenue, and Galindo Street are designed for high volume traffic and truck routes making pedestrian crossing challenging.
- Galindo Street, a wide thoroughfare carrying high levels of traffic, impedes pedestrian access between the Todos Santos Plaza area and the west portion of the project area.
- The higher density commercial/office buildings near the BART station limit pedestrian access to the downtown.

- The street grid provides identifiable neighborhoods in most areas, but this identity is lost where the regular street grid shifts and Port Chicago Highway bisects Willow Pass Road and Concord Boulevard at an angle.
- The overall quality of the street scape is inconsistent and varies from excellent where new development has occurred, to virtually no pedestrian sidewalks/curbs in some key locations.
- Limited designated bike paths exist in the project area.
- The BART station and associated track creates a significant divide within the urban form of the city, where higher density commercial programs exist on the northern side, while single family residential exists to the south. The length of the station platform and associated track way limits good connections between these two distinct portions of the project area.
- All major streetscape improvement sites: Grants Street, Salvio Street, Willow Pass Road

2.1.4 Major Opportunities

- There are already identifiable neighborhoods such as North Todos Santos to help attract new residents to the downtown.
- Access to the Downtown BART Station is available within a short walk along Grant Street.
- There is an opportunity to help make the station entrance more visible and accessible for pedestrians walking to BART.
- Other transit opportunities (buses and shuttles) are situated near BART and provide key access to other parts of the City and surrounding area.
- Given the pedestrian scale street grid that exists throughout much of the project area, new street scape and bike pathways/networks could be implemented to improve accessibility within the downtown.

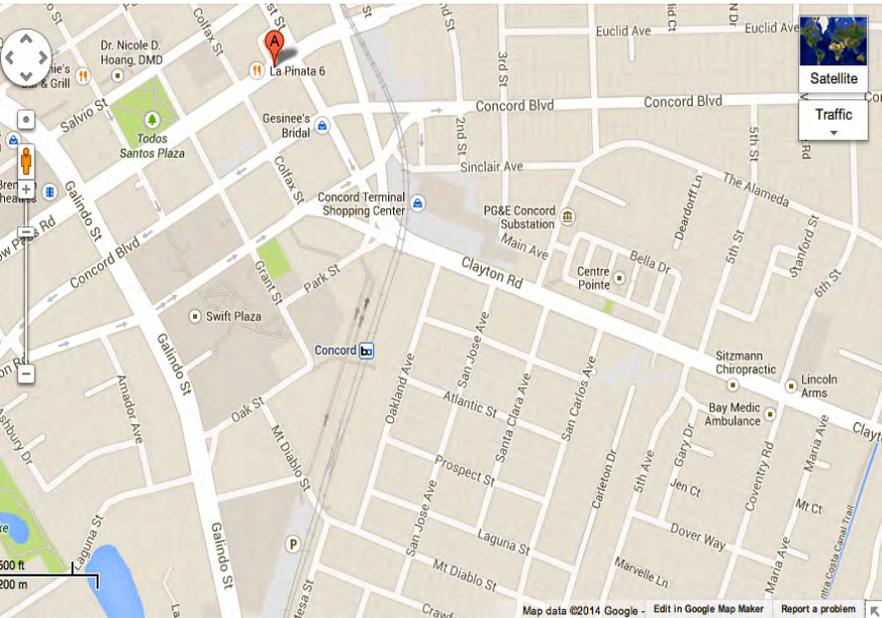


Figure 2-4: BART Station Opportunity Area

2.1.5 Urban Design Strategies

- Develop mixed use, high density near BART station.

- Redevelop Grant Street as key linkage between BART and Todos Santos Plaza.
- Develop area below BART tracks with new bike/pedestrian path to increase connectivity to downtown.

2.1.6 Circulation and Transportation Overview

Bicycle Circulation

- Potential enhancements to the downtown bicycle network have been developed through the specific plan process , which includes:
 - Installation of buffered bike lanes on Concord Boulevard and Clayton Road between Sutter Street and Grant Street.
 - Addition of Class II bike lanes on Grant Street between Concord Boulevard and Grant Street
 - Provision of Class II bike lanes along the majority of the Detroit Avenue corridor (between Clayton Road and Via Del Monte, 0.7 miles) and Class 3 bike routes with sharrows where right of way is constrained (NB between Oakmead Drive and Lynn Avenue; both directions between Via Del Monte and Monument Boulevard; at the NB intersection approach at Clayton Road, 0.2 miles total).
 - Installation of Class 3 bicycle route signage/pavement markings on portions of Grant Street and Salvio Street.
 - Modifications to the un-signalized intersection of Grant Street/Oak Street, adjacent to the BART station area, to a raised intersection with vehicular stop control.
 - Reconfiguration of Oakland Avenue from four- lanes to three between Mount Diablo Street and Clayton Road with Class II bike lanes in both directions to provide last mile connections to BART.
 - Designation of Mount Diablo Street from Oakland Avenue to the BART Bus Access Roadway to a Class III route with sharrows to direct bicyclists from the Class I path paralleling Mesa Street to the bike path parallel to the BART Bus Access road, connecting to the BART bike parking area.
 - Installation of eight additional long-term bicycle parking at the BART station.

Pedestrian Circulation

- Rehabilitation of approximately 30 crosswalks in the downtown area, including the replacement of non-ADA compliant curb ramps and installation of decorative pavement.
- Signalization of the Clayton Road at Sutter Street and Detroit Avenue at Laguna Street intersections to better facilitate pedestrian crossings.
- Intersection enhancements at the Detroit Avenue at Laguna Street intersection to provide ADA ramps, curb extensions, and advanced stop bars.
- Replacement of sidewalk on the north side of Willow Pass Road between Sutter Street and Gateway Boulevard to provide a wider sidewalk, a seat-wall and replacement of non-ADA compliant curb ramps.
- Evaluating a reduction in cycle lengths throughout the Downtown area to decrease pedestrian wait time at all signalized intersections, particularly on weekends, and off- peak times.

- Enhancements to the existing high-visibility crosswalks at Oakland Avenue/Prospect Street and Oakland Avenue/Atlantic -Street with a pedestrian crossing warning system (e.g. RRFB or LED blinker signs).



Figure 2-5: Bicycle Circulation (Source: DSP)



Figure 2-6: Pedestrian Circulation (Source: DSP)

Proposed Vehicular Improvements

- Signalization of the Clayton Road at Sutter Street and Detroit Avenue at Laguna Street intersections to better facilitate pedestrian crossings Modifications to the Grant Street at Clayton Road signal to provide a protected southbound left-turn pocket.
- Elimination of one vehicle travel lane on Clayton Road and Concord Boulevard between Sutter Street and Grant Street to provide buffered bike lanes. Level of service analysis indicates that operations for vehicles would not degrade below the established benchmark under existing or projected future conditions.
- Reconfiguration of Oakland Avenue between Mount Diablo Street and Clayton Road from four vehicle lanes to three to provide Class II bicycle lanes in each direction, proving last mile connections to the BART station.
- Traffic management along the Willow Pass Road corridor through measures such as traffic signal timing to moderate travel speeds through the corridor.
- Installation of all-way stop-control at the Oak Street/ Grant Street intersection and conversion to a raised intersection to better prioritize pedestrian travel to the BART station.

Transit

The study area is served by BART, County Connection (CCCTA), and Tri-Delta Transit. A neighborhood shuttle connecting the Monument Corridor to the BART station and downtown is scheduled to launch in September 2013. BART service provides regional connections to downtown Concord and CCCTA and other transit providers provide more local service. However, many of the bus routes tend to have destinations outside the Specific Plan Area with 30 to 90 minute headways and fares that discourage short trips within the Study Area.



Figure 2-7: Transit (Source: DSP)

Accessibility and Parking

The City has two public parking structures downtown that provide a significant amount of public parking within the study area. On-street parking and other off-street lots, including numerous private parking garages, are also located within the plan area. The existing parking supply is sufficient to accommodate some redevelopment without the need to provide additional off-street parking supplies.

2.2 Fehr and Peers Preliminary Traffic Assessment Summary

The Fehr and Peers traffic memo¹ with attached vehicle counts has some use to our project, but is limited in its scope. As part of the City of Concord Downtown Specific Plan the focus of this analysis is on Concord / Galindo Street. This street is located to the west of the BART line in the downtown area. As mentioned in the report, all the intersections along Galindo Street operate at acceptable vehicle service levels.

Willow Pass Road, Clayton Boulevard, and Concord Road all operate at a level of service (LOS) D. It should be noted that this LOS only applies to the streets west of Grant Street, and outside of this area the exact LOS is unknown. It should also be noted that in this study area Concord Road and Clayton Road act as one way divided street that combine on either side of the study area as a single Clayton Road.

The memo identifies that all the studied intersections have the capacity to support enhancements that improve the LOS for other modes. Of the three roads that were studied, road diets for Clayton and Concord are recommended, but not for Willow Pass due to high vehicle demand on this road. If a road diet were put into place on Willow Pass a reasonable assumption is that traffic on this street would then divert to other streets, and reduce the LOS on those streets. Road diets on Concord and Clayton are a good idea for improving the overall connectivity of Concord's bike network, but are not ideal for enhancing access to the downtown BART station. Using a lower volume street to the south of Clayton would be better for access to the BART station from the west and using existing and proposed trails in conjunction with class 3 bicycle routes on low volume streets from the east would likely lead to a more direct and less stressful commute to the BART station.

In regards to intersections outside of the downtown specific plan study area, this study does not have enough information to make more than reasonable assumptions on what intersections are suited for bicycle and pedestrian enhancements. As a result, this study should be able to make these decisions following a site investigation.

¹ Kaing, E & Tellez, K. (2013, June 20). Downtown Concord Specific Plan – Existing Traffic Conditions. Fehr and Peers.

² City of Concord. (Adopted 2012, January 24). Concord reuse project area plan. Book one:

2.3 Concord Reuse Project Area Plan Summary: Concord Naval Weapons Station

The inland portion of the Concord Naval Weapons Station was designated closed in 2005 by the Base Realignment and Closure (BRAC) process which deemed the base underutilized and no longer necessary for the United States Military. The Concord Reuse Project Area² offers a vision for approximately 5,000 acres complete with a set of standards developed by community members during a one-year public outreach process conducted by the City of Concord. The plan focuses heavily on Transit Oriented Developments around existing transportation stations, mixed-use development, maintaining open spaces, and providing multi-modal transportation alternatives. The project aligns with the objectives set forth by the California Senate Bill 375 (Sustainable Communities and Climate Protection Act of 2008) which focuses on the reduction of greenhouse emissions from passenger vehicles.

The area involved in the Concord Reuse Project is partly overlaps the area assignment to the Concord Complete Streets Study. Research identified the planned developments within the Project Area Plan to support many of the goals and objectives in this study. Ideally, the two areas would work together in order to develop a transportation network which seeks to balance ridership among the North Concord / Martinez and Concord BART stations. Reviewing the information provided in the Concord Reuse Project Area Plan accompanied this study by helping to identify important intersections and strong connection lines between the two areas, along with development guidelines the City plans to follow in the future.

The following presents a summary of land-use zoning, open-space conservation and circulation elements planned for the project area.

2.3.1 Area Plan

- Boundaries include 5,046 acres (only the inland decommissioned zone not tidal portion).
- Over sixty percent of the site—approximately 2,715 acres—will be preserved as open space.
- As many as 12,200 housing units may be built in the CRP area.
- 6.1 million square feet of commercial space.
- 28,800 residents and 26,530 jobs can be accommodated on site.
- Between 2015 and 2035, as much as 10 percent of Contra Costa County's growth could occur on the site.

² City of Concord. (Adopted 2012, January 24). Concord reuse project area plan. Book one: vision and standards. Retrieved from: <http://www.concordreuseproject.org/pdf/CRPAreaPlan.pdf>

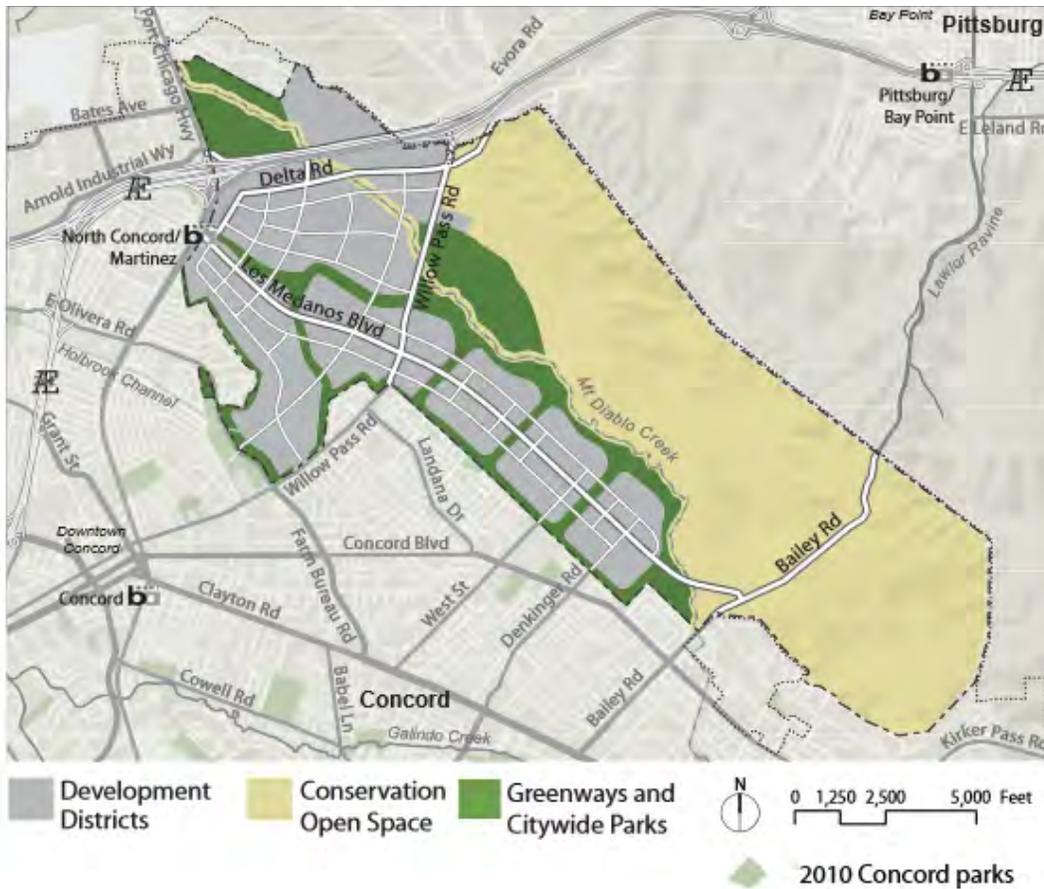


Figure 2-8: Development Districts and Conservation, Open Space, and Recreation Lands (Source: Reuse Plan)

2.3.2 North Concord TOD (dark purple)

- The North Concord/Martinez BART Station acts as a focal point for the Area Plan.
- With the highest densities in the Planning Area, mid-rise Office buildings, structured parking, and streets designed for shopping and strolling, this walkable district will have a downtown feel.
- The district features Class A office space complemented by retail, services and public gathering places, as well as bus, bike, shuttle, and car-share connections.

2.3.3 North Concord TOD Neighborhoods (light purple)

- The mix of uses may include housing, plazas, community facilities, and offices, creating an “urban neighborhood” quality.
- The northern TOD neighborhood will have a unique character that includes hillside housing and parks tailored to the site’s topography.
- Of all the neighborhoods in the Plan Area, the TOD Neighborhoods offer the greatest opportunity for transit-oriented living and walkability.

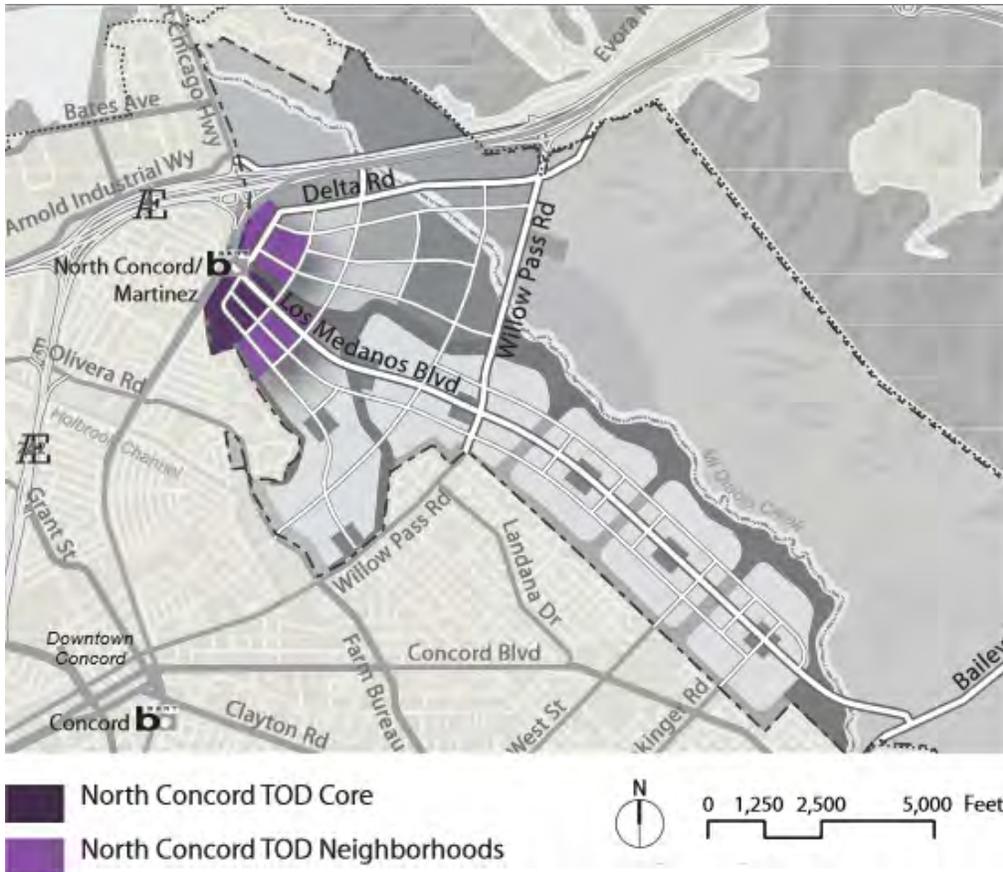


Figure 2-9: Transit Oriented Districts (Source: Reuse Plan)

2.3.4 Central Neighborhoods

- These neighborhoods feature vertical mixed-use development, which means that in some locations—particularly near bus or shuttle stops—shopping, dining and services may locate on the ground floor of buildings that have offices and/or housing on the upper stories.
- Housing may include attached single unit residential, live/work units, and multi-unit buildings.

2.3.5 Village Neighborhoods and Centers

- Quarter-mile neighborhood blocks with village centers.
- Village Neighborhoods will have dense Village Centers with community facilities, local serving retail, and transit hubs while Village Neighborhoods will have a mix of lower-dense housing.
- Villages are surrounded by neighborhood frame-open space offering biking and walking facilities.

2.3.6 Commercial Flex District

- Research and development, light industry, offices, and larger retail establishments could all be appropriate.
- Likely to be a more auto oriented district than the rest of the site.

2.3.7 Campus District

- 120 acres to accommodate a range of educational, research, and development, cultural, and health care uses.

2.3.8 Open Space-Conservation and Recreation

- Regional Park: This 2,537-acre area is reserved, first and foremost, for resource conservation. Trails and facilities for other low impact recreational activities will be included; to the extent they are compatible with that primary aim.
- Mt. Diablo Creek Corridor: Mt. Diablo Creek is a primary feature of the site, influencing its hydrology, vegetation and habitat.
- Greenways: Connected network of linear open spaces or greenways integrated with pedestrian and bicycle paths. Provide areas for picnics, community gardens, and play fields.

2.3.9 Circulation (Complete Streets, Transit and Bicycle Networks)

- Through streets offer moderate-speed that act as spine of TOD and all other development (up to 25 mph auto)
- Collector streets offer low-to moderate speed (20-25 mph)
- Local streets (not pictured below) link internal areas to collector streets (5-25 mph)

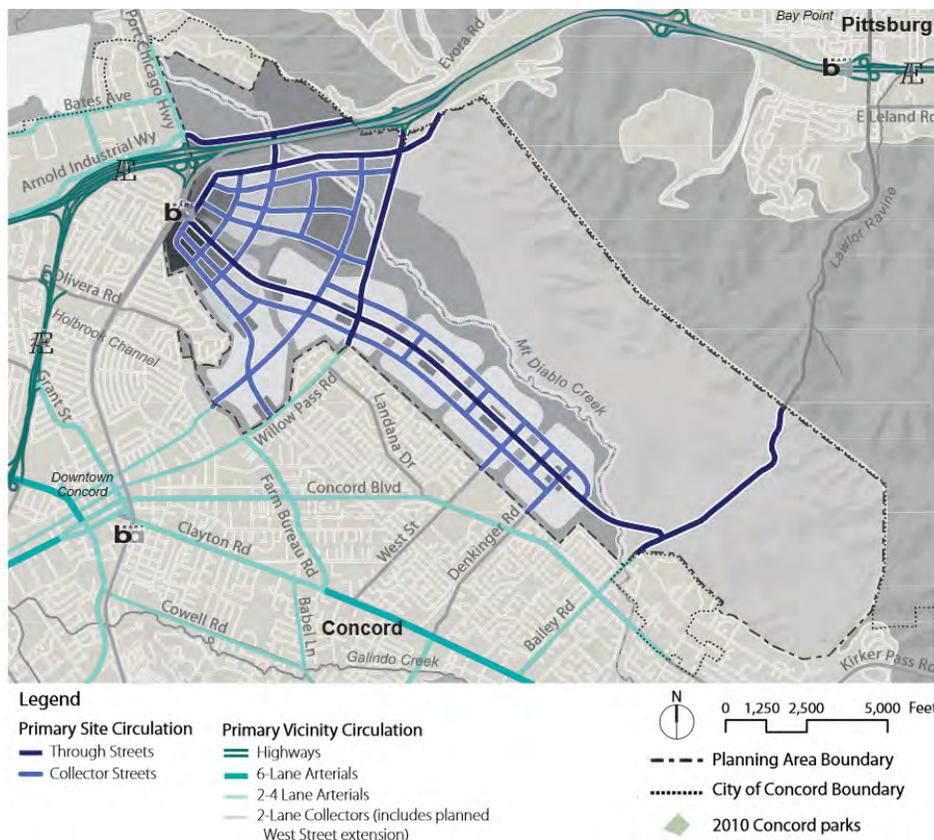
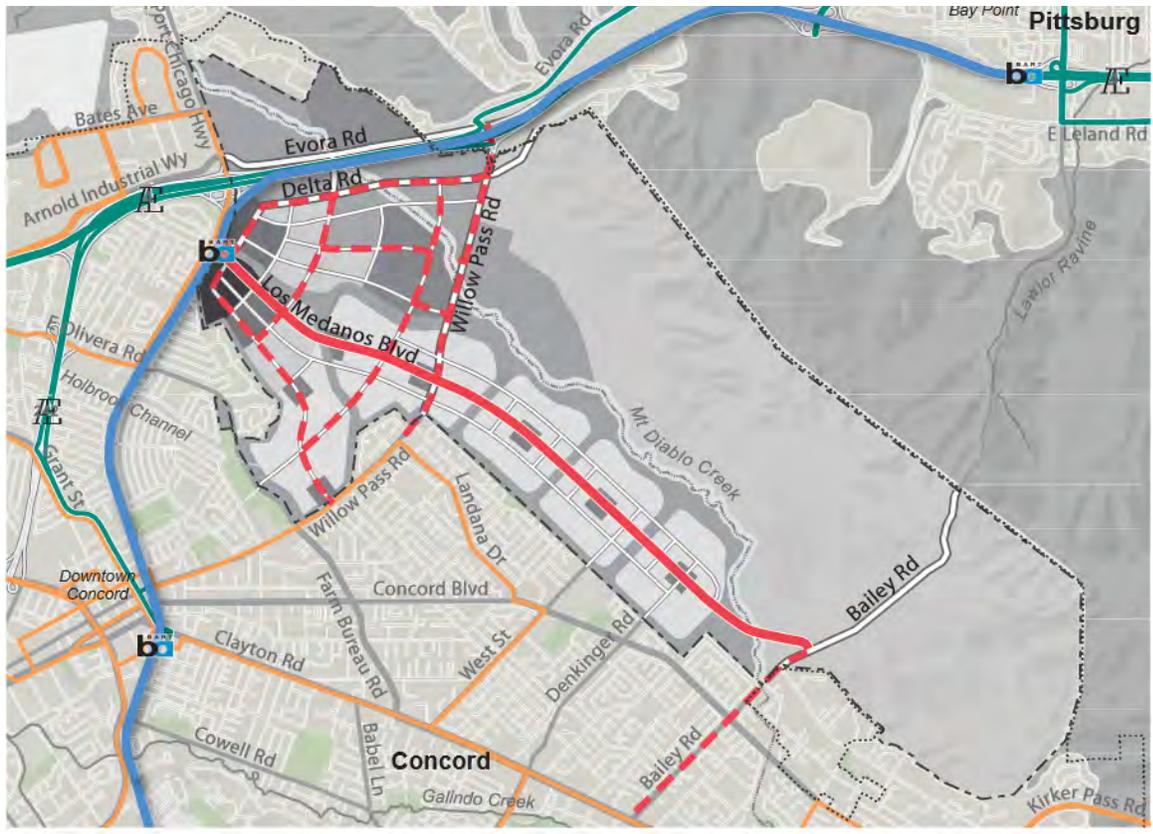


Figure 2-10: Complete Street Network (Source: Reuse Plan)



Legend

- | | |
|--|--|
| Site Transit Service | 2010 Transit Service |
| — High Frequency Transit Service | — Bay Area Rapid Transit |
| - - - Potential Shuttle/Local Transit Routes | — CCCTA County Connection |
| (Paratransit Not Shown) | — Tri-Delta Transit |

N

0 1,250 2,500 5,000 Feet

- Planning Area Boundary
- City of Concord Boundary
- ◆ 2010 Concord parks
- Through Streets

Figure 2-11: Transit Network (Source: Reuse Plan)



Legend

Site Bicycle Network

- Class I Paths (Off-Street Bicycle Path)*
- Class II Lanes (On-Street, Dedicated)

* Location and design of Class I Route along Mt. Diablo Creek subject to permitting.

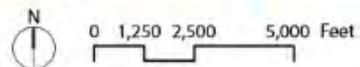
2010 Off-Site Bicycle Network

- Concord Class 1** Path (Off-Street Bicycle Path)
- Concord Class 3B** Lanes (On-Street, Dedicated)
- Class I Paths (Off-Street Bicycle Path)
- Class II Lanes (On-Street, Dedicated)

**Reflect City of Concord bicycle facility designations.

Potential Extensions to Off-Site Bicycle Network

- Concord Class 1 Potential Extension
- Concord Class 3B Potential Extension
- ▶ Bicycle/pedestrian Link Connecting On-street to Off-street Networks



- - - Planning Area Boundary
- ⋯ City of Concord Boundary
- ◆ 2010 Concord parks
- Through Streets

Not shown on map:

1. Class III Routes (On-street, Shared)
2. Concord Class 3A Routes (On-street, Shared)
3. Potential bike facilities in the Conservation Open Space planned for the EBRPD Regional Park.

Figure 2-12: Bicycle Network (Source: Reuse Plan)

2.4 Concord Technical Assistance Panel (TAP) Presentation Summary

A technical assistance panel (TAP) was hired by the City of Concord to provide expert, multidisciplinary advice on resolving the complex land use and real estate issues the City faces. The Urban Land Institute (ULI), a nonprofit education and research institute with over 30,000 members worldwide – 2,000 located in the greater San Francisco Bay Area, organized the panel to produce a final report. The TAP process involves a review of background materials, a sponsor presentation and tour, stakeholder interviews, along with a consideration of data, frame issues and recommendations organized in a single presentation.

2.4.1 Panel Assignment

- 1) What Strategies and implementation measures are most important to include in the Downtown?
 - a. How can Concord attract a more diverse range of housing?
 - b. How can Concord make Downtown attractive to a broad range of retail?
 - c. How can Concord leverage the uniqueness of the Park'nShop commercial center?
- 2) Near-term implementation

2.4.2 Concord Today

- Tremendous interest in living in downtown mixed-use environments.
- Economic resurgence is now heading towards the East Bay Area.
- City of Concord has a Draft Downtown Specific Plan.

2.4.3 What We Heard

- Young and diverse demographics moving to Concord
- Bring more Bay Area visitors to Concord
- Concord community supports higher-density growth
- Community wants downtown to become a vibrant destination
- Todos Santos Plaza gets a “wow” factor from first time visitors

2.4.4 Strengths

- Authentic place and vibe
- Sensitive infill development (Park Central/Renaissance/Santo Pacheco Square)
- BART Station
- Todos Santos at core (great program/market/events)
- Good Walkability Score (85)
- Plenty of Parking
- Sophisticated business owners in key sites
- Strategically located publically controlled parcels
- Pro-development community

2.4.5 Challenges

- What is downtown Concord?
 - Unclear brand
 - Boundaries not defined
 - Contradictory personality (suburban enclave or emerging place)
 - Where is the core?

- Been half a step behind in policy and planning steps. Time to catch up and move ahead.
- Car-centric traffic movement vs. pedestrian/bicycle connections and safety serving the downtown.
- Safety perceptions regarding homeless and property crime.
- Poor way-finding
- Lack of rooftops and disposable income to support current and additional retail
- Lack of clear connections from BART to downtown and to other nearby neighborhoods.
- Office market not likely to drive new investments in near-term
- Pending development and competition from Concord Reuse Project Area.

2.4.6 Perceptions

- Perceived mixed personality (Suburbia vs. walkable, mixed-use)
- Perceived traffic issues/timing/bunching
- Perceived lack of sufficient parking
- Perceived safety/homeless enclave
- Perceived inactivity during off-peak hours and weekends
- Perceived lack of openness to new, younger residents' interests
- Perceived lack of interest by younger residents to locate here
- Perceived lower quality of school district compared to neighboring communities
- Misperception of Concord's assets and therefore lack of interest by developers

2.4.7 Regional Market Context

- Macro forces favor development in highly amenitized inner suburban communities like Concord.
- Strong demand on inner East Bay communities over next 3-5 years.
- Central Contra Costa County's proximity and excellent transportation centers of employment are well poised to benefit from demand.
- Concord is unique in having excellent infrastructure for the creation of an urban/suburban live/work/play/shop environment that is highly desired by the market, while also having attractive development sites and a community receptive to development.
- Concord needs to take advantage of the current favorable development environment.
- Immediate focus on downtown development potentials will avoid the diversion of attention that will come from development implementation of the former Concord Naval Weapons Station.

2.4.8 Where to Start (Short-term)

- Define downtown Concord and create new brand
 - Push BART to fund Station Way-finding Concept Plan to better connect neighborhoods and downtown district
 - Highlight downtown with directional auto and pedestrian signs
 - Integrate art
 - New downtown graphic / web
- Improve access and orientation for auto drivers, pedestrians, and bicyclists
 - Re-signal the timing through streets
 - Fill in deficient / missing sidewalks

- Provide pedestrian access to Parkn'Shop off Salvio Street
- Demonstration bike lanes and connections as economic development - @ConcordBoulevard
- Form parking/downtown improvement district
 - Leverage existing parking spaces
 - Offer shuttle with 15 minute headways linking destinations between BART station, Todos Santos, John Muir Medical complex, and Diablo Valley College
 - Ombudsperson from homeless population
- Increase activity and destinations in downtown
 - Create pop-up retail program with short term leases near Swift Plaza and Grant Street
 - Retail kiosk
 - Target new unique restaurants
 - Add more programming in park (farmer's market on weekends)
- Located Justice Center to existing vacant building near Police station

2.4.9 Development Priorities

- Immediate Market Opportunities
 - Renaissance Phase 2
 - Swift Plaza (2 sites)
 - Small scale infill
 - RREEF site on Grant Street
 - Grant Street kiosk
 - Marginal Properties Site
- Successor Agency
 - Masonic Temple Site
 - Oak Street
 - Concord Avenue
- Additional Opportunities
 - Park and Shop:
 - Renovation of existing center to clean up image and strengthen ties to Salvio pedestrian path to Plaza.
 - Wells Fargo site:
 - Vibrant commercial building increasing the shops / dining on Todos Santos Plaza
 - Building and sidewalk serve as the focal point and entry to the plaza for the office buildings and BART station uses to the South.
 - Bart Station
 - The City can begin to set parameters for future development on BART site.
 - Petsmart block

2.4.10 Bicycle Priorities

- Bike lanes
 - Concord Blvd from Oakhurst to Detroit
 - Clayton Rd and Sunset from Detroit to Concord Blvd
 - Detroit Ave from Concord to Contra Costa Canal Trail Spur
 - Salvio from Port Chicago Highway Path to Olivero and Reuse Project
 - Grant Street from BART station to Willow Pass Rd
- Bike Paths:

- Port Chicago from Salvio to Sunset
- Contra Costa Canal Trail to Detroit Ave
- BART ROW from Systron to BART Station to Port Chicago Highway path
- Neighborhood Greenways
 - Oak and Laguna between Detroit and BART station
 - Salvio Street from Port Chicago to Fry's

2.4.11 Pedestrian Priorities

- Focus on activating Grant through coffee carts, outdoor seating, kiosk retail
- Allow pedestrians to walk down Grant without having to push button to cross street
- Accommodate pedestrian crossings in all signal phases in Specific Plan area, at least during daytime.

2.4.12 Roadway Priorities

- Retime signals for quicker cycle and better progression
- Convert Grant and Mt Diablo to two way between Concord and Salvio
- Adopt NACTO Urban Street Design Guide for use on all streets
- Eliminate LOS thresholds for downtown environmental analysis
- Extend Salvio to Fry

2.4.13 Parking Priorities

- Allow off-site parking arrangements to meet any commercial parking requirements administratively
- Delegate authority to Downtown / Todos Santos Business Association management of parking
- Lease surplus parking from private owners and make available to public
- Valet parking for Thursday evening peak
- Install parking way-finding and real-time availability information
- No need for any additional parking

2.4.14 Station Priorities

- Partner with BART to get Concord Station prioritized in upcoming round of major station improvements
- Prioritize pedestrian arrival at Grant

2.4.15 Transit Priorities

- Partner with Diablo Valley College, John Muir Medical Center, Todos Santos Business Association and County Connection to rebrand and improve frequency on Line 20
- Run every 15 minutes all day to match BART schedule
- Consider rerouting Line 314 between John Muir Medical Center, Concord BART and Pleasant Hill BART via Monument Blvd and improve headway to match BART schedule

2.5 Trails Master Plan Summary

The purpose of the Concord Trails Master Plan³ is to provide framework for the future of planning trails in the city of Concord. The goal of this plan is to create a network for recreation and alternative transportation modes. The trails are for hiking, biking, and equestrian use. In order to create a comprehensive plan the city enlisted the Trails Advisory Group. This group was created with the purpose of representing the needs of the public through special interest groups. These groups included the East Bay Bicycle Coalition, Commission on Aging, Diablo Road Runners, Chamber of Commerce, and Friends of Parks, Recreation, and Open Space.

The plan recommends the trail network provide access to BART plus historic walking tours. The plan identifies the need for new bridges and filling roadway gaps. It includes the plans for a pedestrian underpass under highway 242 and includes trails within the naval weapons station development. The plan also presents the regional connectors to Walnut Creek, Pleasant Hill, Clayton, Martinez, and East Bay Regional Parks.

According to the plan, the trails are intended for outdoor recreation and transportation (commuters to get to work and school), public health, education, social and economic well-being (increase economic benefit and property value), alternative emergency access and egresses. The plan details bike parking, and bus and BART bicycle access coupled with the suggestion for promotional materials such as bikeway mapping, way-finding, and basic information. The community has school bicycle safety education through the police department and through school newspaper some 1st – 3rd grade classes have in class presentations. Bicycle rodeo is a new proposal in this plan, as is school district programing, along with a recommendation for police officers on bikes. There seems to be a large need and lack thereof for auto trip reduction programs, adult bicycle safety and education programs.

The plan presents a List of trail amenities and further class 1 facility designs including street crossings, water management, signage, and engineering specifications. The implementation program calls for \$51,000,000 in order to implement the improvement project under the Capital Improvement Program. The program calls for Class 3A bike ways in residential areas. Class 3A is defined in this report as shared lanes. The program also calls for Class 3B bike routes on arterials, which is defined as a 4 foot wide bike lane.

³ Concord Trails Master Plan. (2002, September). City of Concord. Retrieved from: <http://www.cityofconcord.org/pdf/dept/planning/plng-trails-master-map.pdf>

2.6 Transportation Injury Mapping System (TIMS) Analysis

Roadway safety concerns are powerful hindrances for walking and bicycling in any city. This section utilizes the Transportation Injury Mapping System (TIMS) for analyzing pedestrian and bicycle collisions for the five most recent years of data available ranging from January 1, 2008 to December 31, 2012.⁴ It must be stated that there are many factors to consider when interpreting the results of collision data analysis; road conditions, weather, other parties involved, volume of traffic at given time and location, site characteristics and many other types of factors may contribute to these collisions. As a result, this section is intended to provide the information that was accessible to the team and support the process used when identifying the 12 target intersections focused on in this study.

Pedestrian and bicycle collision data was an importation component of this study because it helped identify specific locations throughout the city where safety improvements are needed. The SWITRS Query and Map tool, found on the TIMS website, was used for this research. The data that was pulled specifically looked at pedestrian and bicycle collision factors for the City of Concord in Contra Costa County.

COLLISION SEVERITY	Number	Percent of Injuries
Fatal	12	2.8%
Injury (Severe)	33	7.7%
Injury (Other Visible)	179	41.8%
Injury (Complaint of Pain)	204	47%

Figure 2-13: TIMS Analysis Collision Severity City of Concord 2008-2012

VEHICLE INVOLVEMENT	Number	Percent of Injuries
Pedestrian Collision	190	44.40%
Bicycle Collision	240	56.10%
Motorcycle Collision	2	0.50%
Truck Collision	3	0.7

Figure 2-14: TIMS Analysis Vehicle Involvement City of Concord 2008-2012

Figure 2-13 identifies 428 collisions involving a bicyclists or pedestrian documented in the City of Concord from 2008 to 2012. According to Figure 2-14, approximately 44% of collisions involved pedestrians and 56% involved bicyclists. Of the total 428 collisions, 12 were fatal, 33 were severely injured, 179 were injured with visible wounds, and 204 were injured with a complaint of pain.

⁴ Date Pulled: September 30, 2014, Date Range: January 1, 2008 to December 31, 2012
Selected Factors: Pedestrian Collision and Bicycle Collision

Type of Collision (2008-2012)

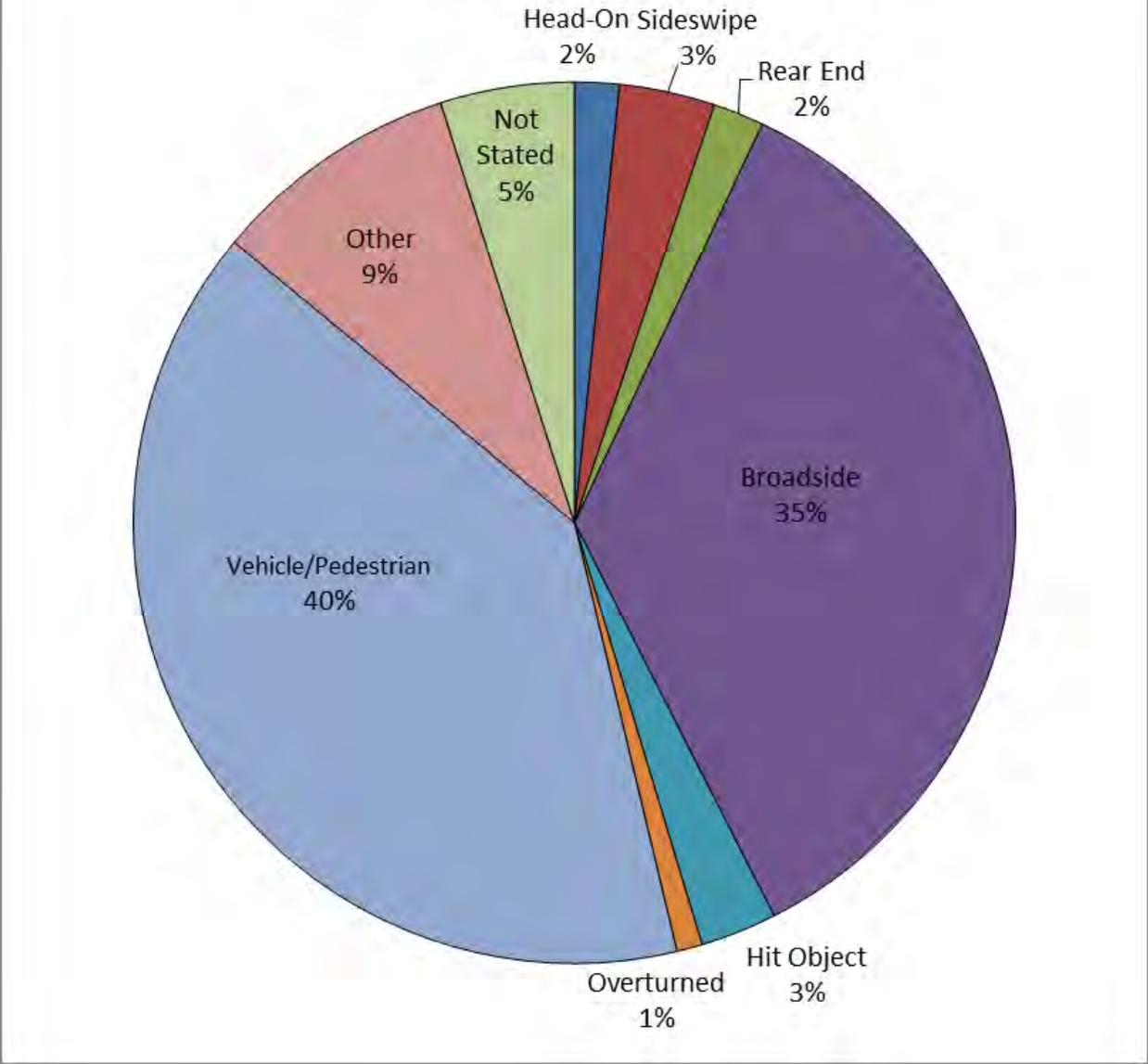


Figure 2-15: TIMS Analysis Type of Collision City of Concord 2008-2012

Figure 2-15 identifies the types of collisions observed in the City of Concord during the five year time period. The top three most recorded bicycle and pedestrian collisions were characterized as vehicle/pedestrian conflicts (40%), broadside collisions (35%) and other collisions (9%). This data suggests that of the total recorded collisions, a significant percentage occur when vehicles are turning, thus causing broadside collisions, or when vehicles interfere with the pedestrians' right-of-way. This assumption is further supported from the data provided in Figure 2-16.

VIOLATION	Number	Percent of Injuries
Wrong Side of Road	91	21.3%
Pedestrian Right of Way	79	18.5%
Pedestrian Violation	58	13.6%
Automobile Right of Way	44	10.3%
Traffic Signals and Signs	27	6.3%
Not Stated	23	5.4%
Unknown	19	4.4%
Other Hazardous Violation	18	4.2%
Improper Turning	16	3.7%
Unsafe Speed	13	3.0%
Driving or Bicycling Under the Influence of Alcohol or Drug	10	2.3%
Other Improper Driving	9	2.1%
Other Than Driver (or Pedestrian)	8	1.9%
Unsafe Starting or Backing	8	1.9%
Improper Passing	4	0.9%
Unsafe Lane Change	1	0.2%

Figure 2-16: TIMS Analysis Violation City of Concord 2008-2012

Figure 2-16 presents the types of violations in order from most to least occurring in terms of percent of injuries. The data identifies wrong side of the road, pedestrian right of way, pedestrian violation, and automobile right of way to make up the top four highest percentages on violations in the City. The number of violations associated with right of way and wrong side of the road suggests improper usage of pedestrian and bicycle facilities, or rather submits possibilities that the bicycle and pedestrian infrastructure is unclear throughout the City of Concord.

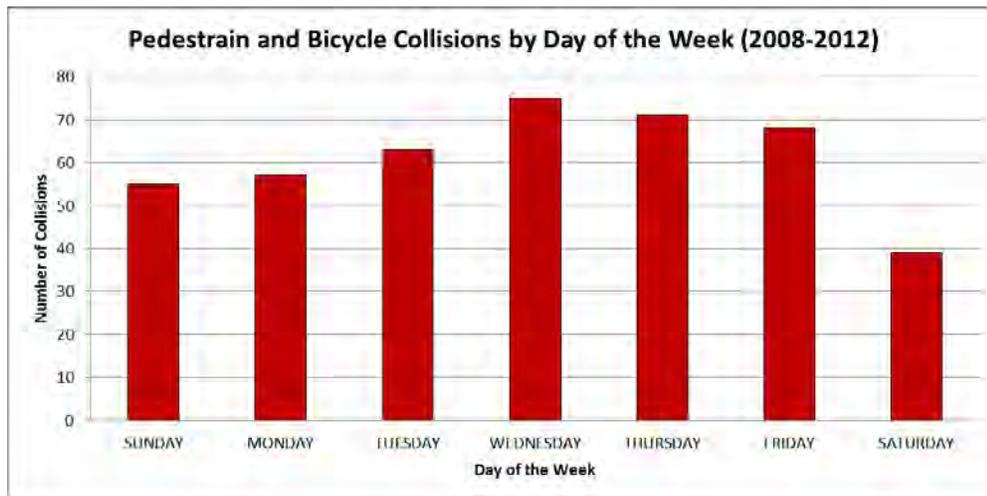


Figure 2-17: TIMS Analysis Pedestrian and Bicycle Collisions by Day of the Week City of Concord 2008-2012

Figure 2-17 identifies the number of bicycle and pedestrian collisions in the City based on the day of the week. There appears to be a smaller concentration of bicycle and pedestrian collisions on Saturday and Sunday compared with the rest of the week. While this data is encouraging to suggest many travelers walk or bike to work, there are many other factors to

consider before that assumption can be made. Furthermore, this information may be useful to future research interested in gathering more information on bicycle and pedestrian collisions in the City of Concord by focusing on Wednesdays, Thursdays and Fridays since these three days appear to have the highest numbers of conflicts during the week.

Figures 2-18 and 2-19 present the bicycle and pedestrian collision data respectively using a collision and heat map city overlay. The major corridors of Clayton Road, Concord Avenue, Monument Boulevard and Willow Pass Roads were observed to have the highest concentrations of pedestrian and bicyclist collisions. Furthermore, a high concentration of pedestrian and bicycle accidents were observed to occur where Clayton Road, a 6-lane highway with two turning lanes, intersects with four other roadways, including East Street. The two pedestrian crosswalks where Clayton meets Park and East Streets, along with Clayton and Oakland Avenue where a driveway for a commercial parking lot, and the four demarcated crosswalks with a pedestrian island, which splits Clayton Road into East Street is the area within the City of Concord with the most pedestrian and bicyclist collisions. Monument Boulevard at Meadow Lane specifically stands as an area with a relatively higher concentration of pedestrian and bicycle collisions. The collision information presented in these maps provided by TIMS helped the team identify key areas for concern which contributed significantly in the intersections and corridors focused on in this study.

Summary Results: 428 Collisions
Results Map: 408 of 428 (95.3%) Collisions Mapped

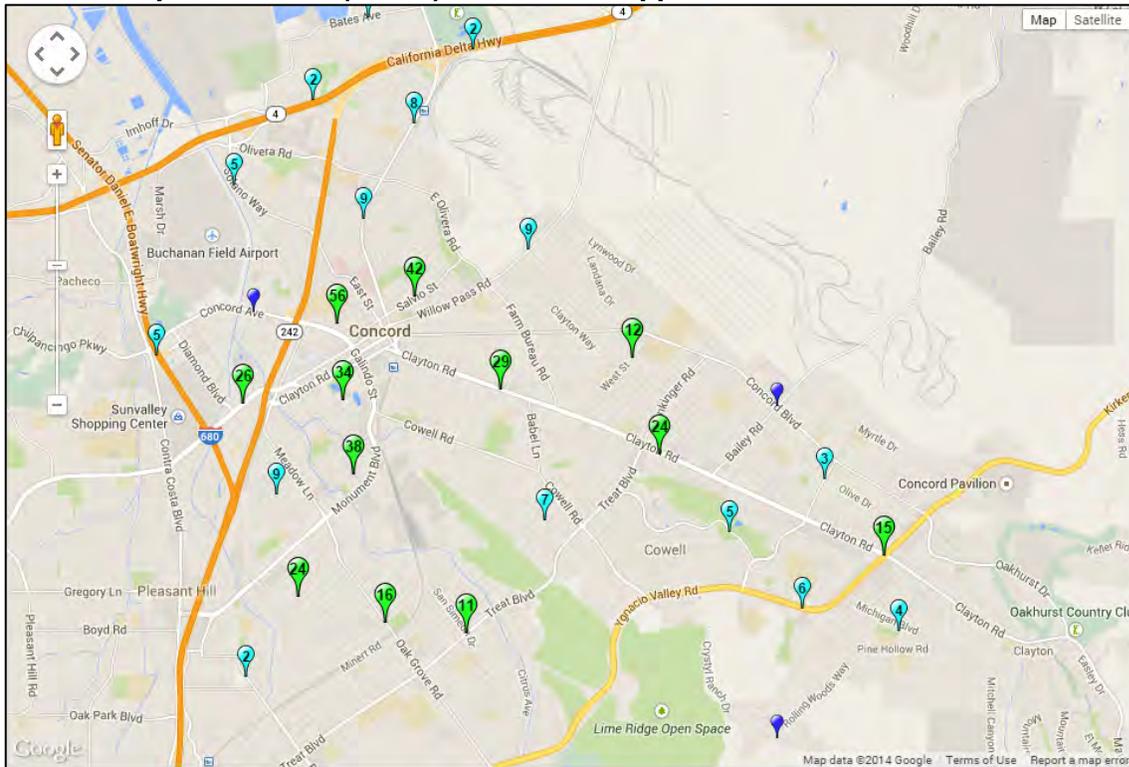


Figure 2-14: TIMS Analysis Collision Cluster Map City of Concord 2008-2012

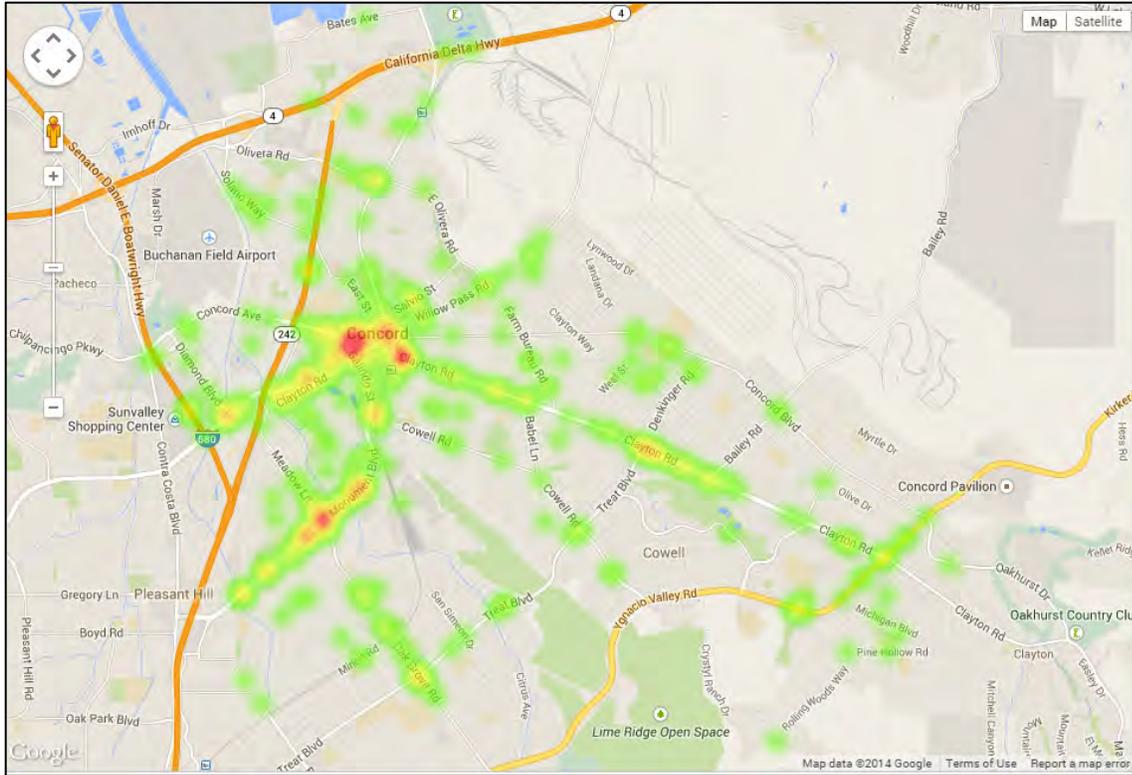


Figure 2-19: TIMS Analysis Collision Heat Map City of Concord 2008-2012

3 Field Analysis and Traffic Counts

Manual traffic counts and observations were made on Wednesday, May 7th and Thursday, May 8th, 2014 during morning peak period (7am-9am) and afternoon peak period (5pm-7pm). On Wednesday, temperature and weather conditions ranged from 50 degrees in the morning to 68 degrees in the afternoon and described by all observers as clear skies and sunny. On Thursday, temperature and weather conditions ranged from 53 degrees in the morning to 65 degrees in the afternoon and described by all observers as cloudy, overcast and windy.

Although limited impressions on our counts, it should be noted that Thursday, May 8th, 2014 was “Bike to Work Day” as dictated by Bike East Bay, the San Francisco Bicycle Coalition and Silicon Valley Bicycle Coalition. Additionally, the City of Concord recognizes a Farmer’s Market which is held every Thursday from the end of April until the end of October from 4 to 8pm in the Todos Santos Plaza.

The following twelve intersections were selected for manual data collection and analysis:

- Salvio Street / Galindo Street
- Babel Lane / Cowell Road
- Meadow Lane / Monument Boulevard
- Clayton Road / The Alameda
- Willow Pass Road / Diamond Boulevard
- Clayton Road / Fry Way
- Willow Pass Road / Galindo Street
- Galindo Street / Laguna Street
- Mt Diablo Street / Oakland Ave
- Mt Diablo Street / Mesa Street
- Clayton Road / Grant Street
- Panoramic Drive / Port Chicago Highway

Figure 3-1 provides the location of each intersection in the City of Concord to be referred to while reviewing this report. Documented observations and findings are recorded for each intersection under their relative heading. Additionally, intersection location, description, condition assessments and volume information are presented in the sections that follow.

Concord Complete Streets Study Intersection Locations

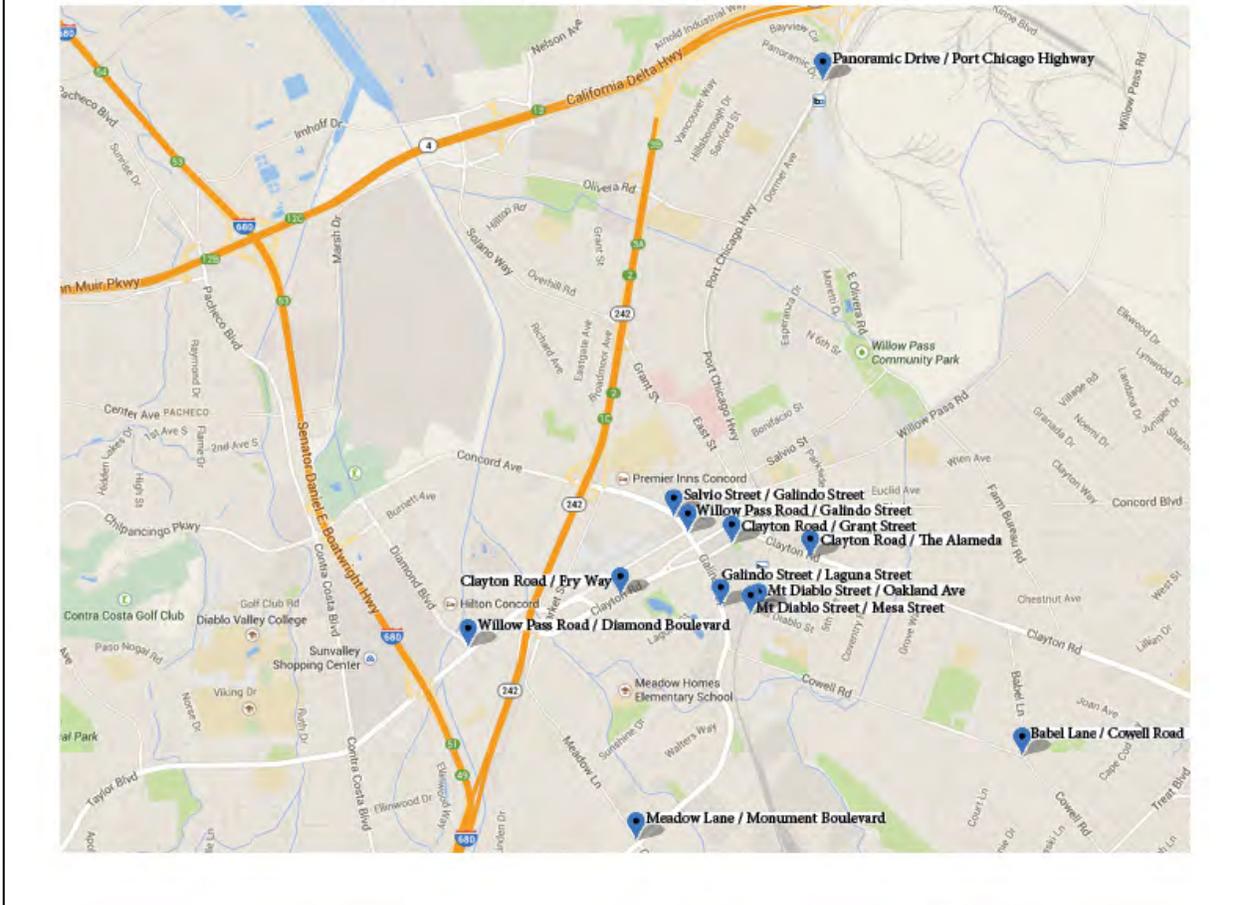


Figure 3-1: Concord Complete Streets Study Intersection Locations

Consolidated bicycle and pedestrian counts for each intersection is available in Appendices 7.3.

Summary of the data is presented in the map below and is available publicly at:
https://mapsengine.google.com/map/edit?mid=zUgcypEGSusE.kTpGu2CWK_OE

More detailed data available at:
https://docs.google.com/spreadsheets/d/13Z9vVB9OaRkM_UCetqXgRAkuSdUht7Qqi1EdiNQCu0CQ/edit?usp=sharing

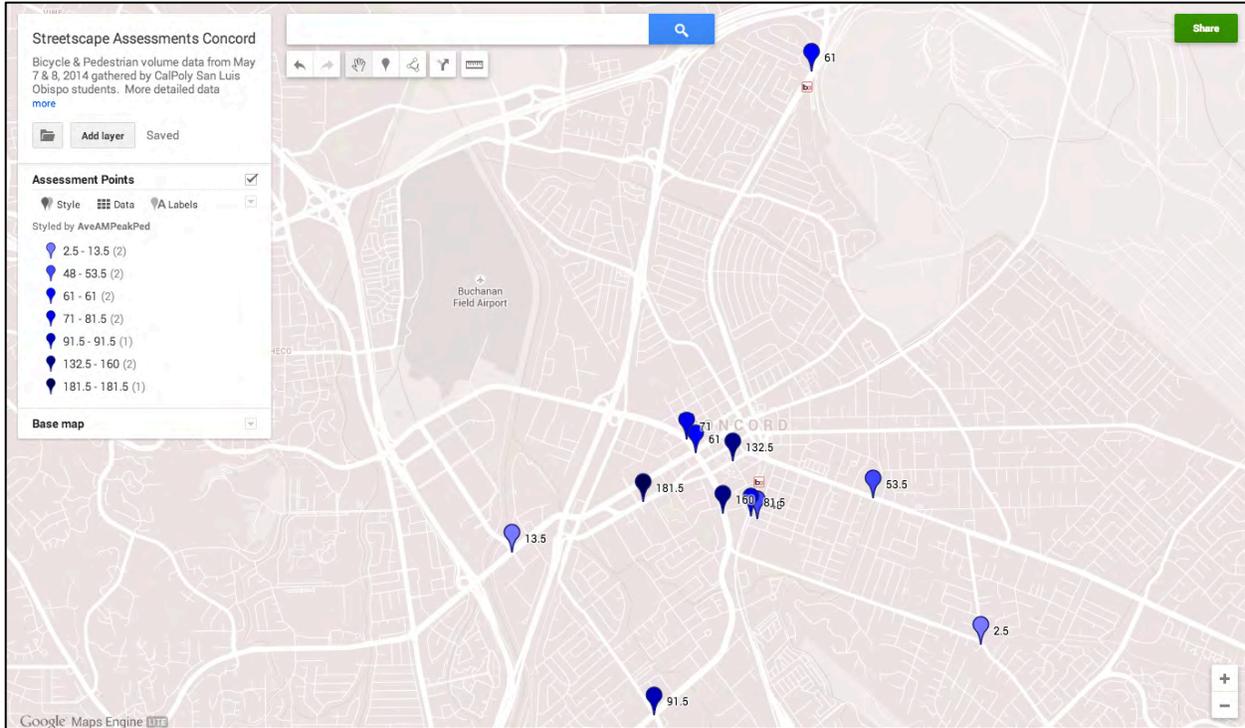


Figure 3-2: Average AM Pedestrian Volume by Intersection

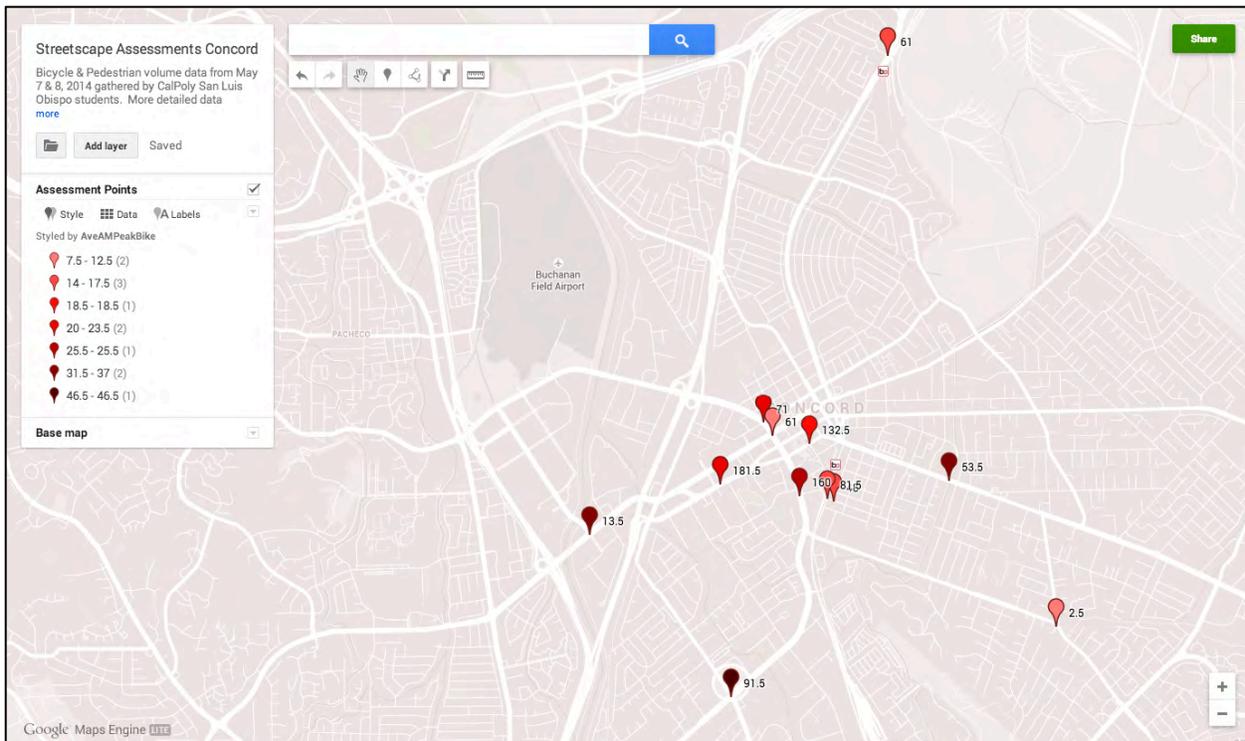


Figure 3-3: Average AM Bicycle Volume by Intersection

3.1 Salvio Street / Galindo Street

3.1.1 Conditions

The Salvio and Galindo Street intersection is located one block away from the Todos Santos Plaza with retail, restaurants and offices in three corners accompanied with a movie theater occupying the south corner of the intersection. The four-way signalized intersection is in the downtown area of Concord and connects with Galindo Street, Concord Avenue and Salvio Street at this intersection. At this point, Galindo Street changes name and continues as Concord Avenue to the northwest. A large shopping center with many stores including food, restaurant and electronics lies only 1/4 mile away.

The pedestrian crossing distance is 98' on the Concord side and 96' wide on the Galindo side. At the accepted 3.5' per second it takes 27 to 28 seconds for pedestrians to cross the intersection. If the ADA accepted 3' per second speed is used then crossing time increases to between 32 and 33 seconds. Salvio is a narrower street with crossings of 48 and 60' length requiring between 16 and 20 seconds to cross at 3 feet per second.



Figure 3-4: View of Salvio and Galindo Intersection from Salvio Street, looking southwest.

3.1.2 Volumes

In total, 326 pedestrians crossed the intersection on Wednesday and 406 on Thursday. Afternoon volumes were much higher than morning volumes on both days. Average for the day on Wednesday was 162.5 pedestrians and 203 on Thursday. The morning average for both days was 77.5 while the evening average was 288 pedestrians. The bicyclist volumes were much lower with a high percentage riding on the sidewalk. 42 bicyclists used the intersection on Wednesday and 48 on Thursday. The average on Wednesday was 21 bicyclists and 24 on Thursday. The morning average for both days was 14 in the morning and 31 in the afternoon.

For pedestrians and bicyclists, afternoon volumes were higher compared in the morning. The presence of a theater at the corner and the shopping mall 1/4 mile southwest of the intersection provides a destination for pedestrians, cyclists and motor-vehicle drivers alike. Todos Santos Plaza and a farmers' market on Thursday resulted in an observable increase of pedestrian volumes late afternoon. Salvio Street connects Todos Santos Plaza to the large shopping center to the southeast.

Pedestrians currently cross 98' of open roadway surface on Galindo Street at the busiest part of the intersection walking from the mall or theater to the plaza and vice versa. Furthermore, 58 out of the 2-day total of 90 bicyclists were observed riding on the sidewalk while only 14 out of 90 were wearing helmets.

3.1.3 Opportunities and Constraints

- Mitigating the downtown splitting effect Galindo Street and Concord Avenue create thus improving connectivity.
- Improving the pedestrian connection between the Movie Theater and shopping mall with Todos Santos Plaza to the northeast.
- Adopting a complete streets treatment along Galindo Street to improve safety for bicyclists and pedestrians.
- Improving pedestrian and bicycle access from adjacent residential neighborhoods to the Movie Theater, shopping mall and Todos Santos Plaza.

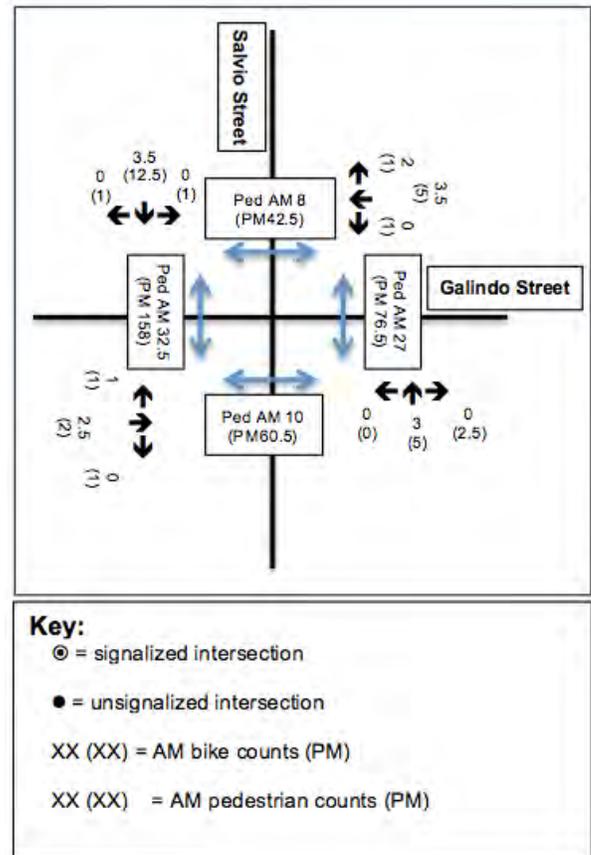


Figure 3-2: Salvio and Galindo Volumes

3.2 Babel Lane / Cowell Road

3.2.1 Conditions

The three-way intersection at Babel at Cowell Streets meets at a Y-shape. Each street is a 2-way street with a left turn lane. There are two crosswalks which form a V-shape for pedestrians to cross. There is a demarcation of a bike route which is used as both a bike lane and pedestrian walkway as there is no grade-separated sidewalk. In terms of physical controls, there are a total of five pedestrian lights at each crossing. There are a total of nine traffic lights to control the traffic flow of the intersection. The speed limit is 35 miles per hour and there is no parking anytime or anywhere along Babel and Cowell.

The neighborhood is largely residential with a front-facing parking lot at a Thai Temple accompanied with residential land use and a parking lot. Cowell Street appears to be tree-lined. Land-use appears to be mostly single-family residential.

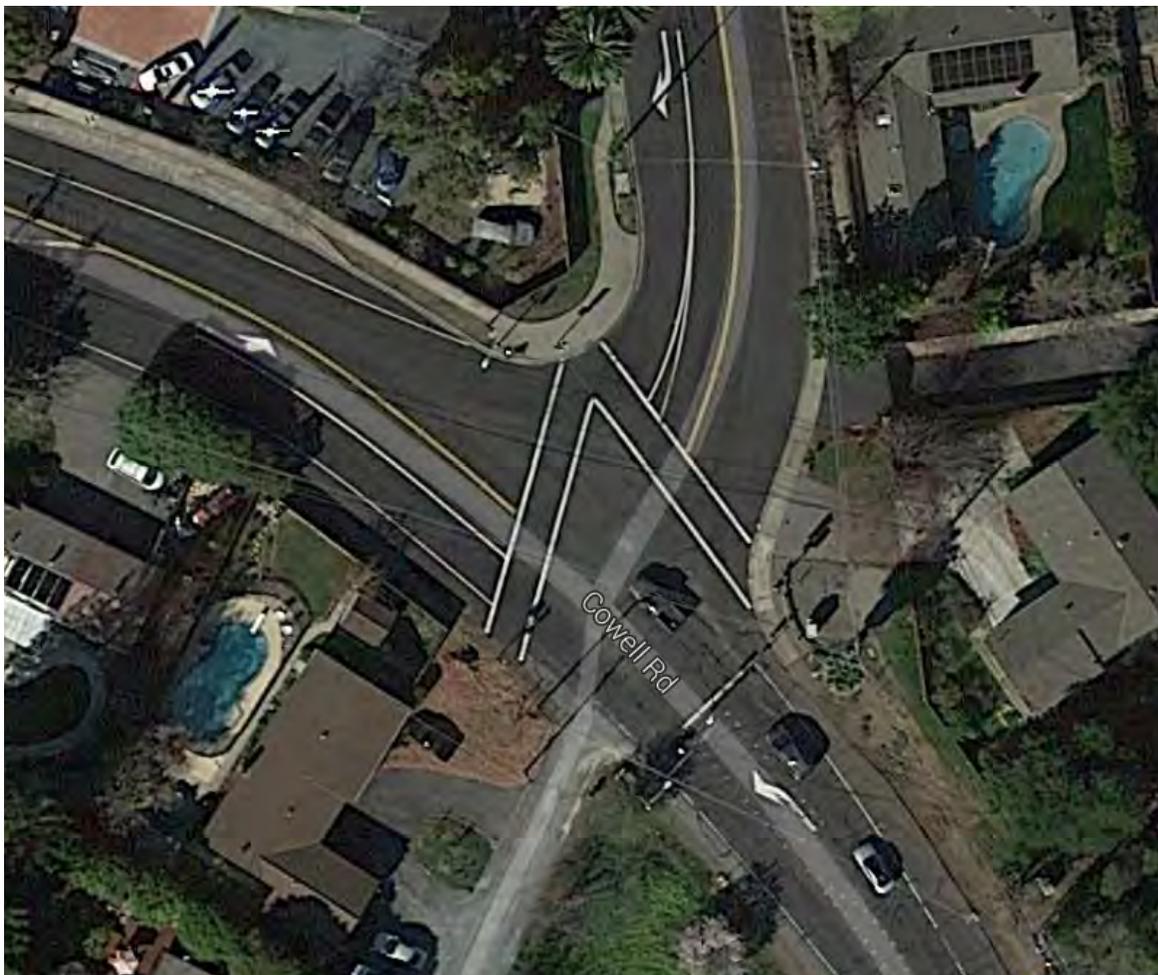


Figure 3-3: Babel and Cowell

There were observed cyclists and pedestrians within this intersection. Most cycling and walking/jogging were recreational in nature. Most cyclists wore helmets. With the rare sighting of a commuter cyclist, he usually rode on the sidewalk and did not wear a helmet. On occasion, a

family with a child rode their bicycles together through this intersection. The signalized pedestrian lights were used to cross the intersection. Notably, a jogger lost patience waiting for the pedestrian light to change and decided to change the direction of her route. Cyclists, pedestrians and joggers used the demarcated bike route as a sidewalk.

3.2.2 Volumes

There were a total of one pedestrian during the AM peak on the first day with as many as 6 cyclists during this same period. Evening volumes were observed similar in pedestrian and bicyclists' traffic counts. There were as many as eight pedestrians and six cyclists at this intersection in the evening peak hour. These activities appeared very recreational in nature.

3.2.3 Opportunities and Constraints

The demarcation of a bike route already provides a bike path for recreationalists. By providing a clear indication of a bike path with a new coat of paint and a bike chevron, the route can easily become a Class 2 lane. However, because of a lack of a grade-separated sidewalk, this particular route is used as both a sidewalk for joggers and pedestrians. With a front-facing parking lot there is opportunity and space to add a separated pedestrian path.

The automobile traffic volumes are high. If the goal is to create safe bike paths and pedestrian walkways, there may be a need for traffic calming treatments and a change of specific infrastructure. However, Cowell appears to be a major connector for the community and slowing down these high volumes can divert traffic further down the residential streets by Cowell and Babel. The signalized intersection provides some respite for pedestrians and cyclists as it allows them to cross the intersection instead of sharing the road with drivers.

3.3 Meadow Lane / Monument Boulevard

3.3.1 Conditions

The four way signalized intersection of Monument Blvd and Meadow Lane/Oak Grove Road, also known as the Four Corners, is located on the southern part of Concord. Monument Boulevard is one of the main thoroughfares in Concord that connects the downtown with the Interstate 680 and the neighboring city of Pleasant Hill. Monument carries large volumes of vehicular traffic and can be noticed by the geometry of its wide streets, the number of vehicular lanes, and bus routes 14 and 16. The intersection is surrounded by commercial properties and large off street parking. Without a doubt this intersection serves mostly vehicular traffic.



Figure 3-4: Four Corners Intersection at Meadow Lane / Monument Boulevard

Table 3-1: Number of Lanes, Meadow and Monument

	Number of Lane(s) on Corridor Intersection				
<i>Street Name</i>	<i>Direction</i>	<i>Right Turn</i>	<i>Through</i>	<i>Left Turn</i>	<i>Total # of Lanes</i>
<i>Meadow Lane</i>	Northbound	0	2	0	7
	Southbound	1	2	2	
<i>Oak Grove Road</i>	Northbound	0	2	2	6
	Southbound	0	2	0	
<i>East side Monument Blvd.</i>	Eastbound	0	3	0	8
	Westbound	0	3	2	
<i>West side Monument Blvd.</i>	Eastbound	1	3	2	9
	Westbound	0	3	0	

Meadow Ln has a class II (dedicated) bike lane for a short period and then goes back to class III bike (friendly) route/road. Oak Grove Rd has a class III bike route. Currently there are no bike facilities on the Monument Blvd corridor. Being that Monument Blvd is an important connection to the Concord Bart Station and, through observation, many bicyclists use this corridor, it has the potential to get a road diet to allow for a class II bike lane through its corridor and fulfill the sustainable mode of transportation demand of pedestrians, cyclists, and transit users.



Figure 3-5: Facing the northeast corner of Meadow Lane / Monument Boulevard, Four Corners Union 76 gas station at corner



Figure 3-6: Facing the northwest corner of Meadow Lane / Monument Boulevard, Best Burger at far end corner

3.3.2 Volumes

The morning pedestrian counts concluded a lower number than evening counts. During the morning peak periods, this intersection was observed to serve students and parents traveling to school. Pedestrians with backpacks were observed multiple times throughout the morning peak periods. During the evening peak period, pedestrians were seen walking to the commercial centers surrounding the intersection. Pedestrians had baskets or strollers for their groceries, some of which were observed walking to the nearby bus stops. All pedestrian peak counts show consistency which concludes that not one crossing is more favorably used over another.

Bicycle activity shows that most cyclists were making through movements rather than turning left or right at the intersection. Being that the intersection serves lots of lanes for automobiles this can discourage cyclists to use the left turn lanes through the intersection. Again what is noticed here is the consistency of bicyclists using the intersection evenly. One crossing is not favorable over another.

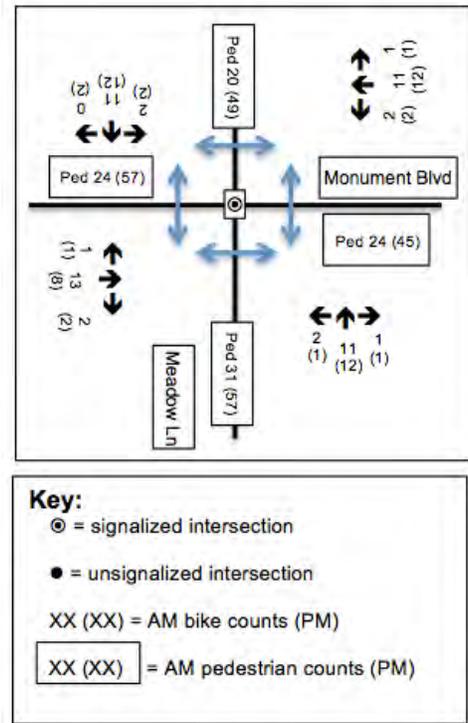


Figure 3-9: Monument and Meadow Volumes

3.3.3 Opportunities and Constraints

There is a recognizable opportunity to fashion Monument Boulevard into a complete street corridor and connect it to the nearest Concord BART station which is approximately 1.5 miles away from the Meadow Lane / Monument Boulevard intersection. Research suggests a commuter has an option of getting to the Concord BART Station through the following modes of transportation:

- Driving (approx. 5 minutes)
- Public Transit (approx. 17 minutes)
- Walking (approx. 29 minutes)
- Biking (approx. 12 minutes)

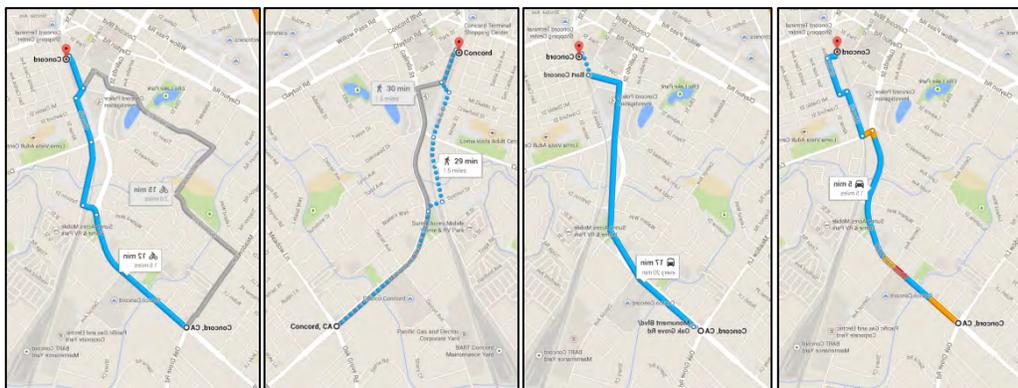


Figure 3-7: Comparing Travel Times of Different Modes of Transportation

3.4 Clayton Road / The Alameda

3.4.1 Conditions

The intersection at Clayton and The Alameda is a three way auto intersection, with The Alameda bicycle and pedestrian trail crossing Clayton Road, as part of the East Bay Regional Trails network. Clayton Road has two lanes of traffic traveling each direction; only the west bound traffic can turn right onto the Alameda Way, which runs parallel to the trail. The Alameda trail has both pedestrian crossing and bicycling crossing infrastructure, with a pedestrian refuge in the center of Clayton Road. There are a total of four traffic signals at this intersection and one stop sign on The Alameda for traffic moving onto Clayton Road. The Leg A crossing does not cross vehicular traffic; this crossing is for pedestrian crossing over the Alameda trail crossing before Clayton Rd.



Figure 3-8: Clayton Road / The Alameda Intersection

This section of Clayton Rd is mostly residential connecting, with the Alameda trail traveling into residential neighborhoods on either side. Clayton Road has a heavy flow of automobile traffic with a speed limit of 40 miles per hour. There are no marked bike lanes on Clayton Road so majority of cyclists traveling along this road used the sidewalk. Many of the cyclists on Clayton were observed traveling the opposite direction of traffic while riding on the sidewalks. Pedestrian use of Clayton was minimal, even though Clayton can be seen as one of the first routes toward the Concord BART station. The County Connection 10 bus line runs along Clayton and stops about a block away from the intersection. Bicycle and pedestrian traffic along the Alameda trail was mainly for recreational use.



Figure 3-9: The Alameda Trail Looking Southeast

3.4.2 Volumes

Pedestrian volumes were primarily observed to take place along the Alameda Trail. Volumes in the morning peak hours on day one were 42 and 65 on day two. PM peak hour volumes were 66 on day one and 49. The bicyclist volumes for day one and day two were consistent. The majority of the cycling was along the Alameda trail as well; both pedestrians and cyclists were observed using the trail for recreational use.

There were more cyclists than pedestrians traveling along Clayton Road on both days, though majority of the cyclists used the sidewalk rather than the roadway due to the lack of bike infrastructure along this corridor. Pedestrian sidewalk facilities were perceived to be narrow and obstructed. Large volumes of vehicle traffic along the roadway did cause a back-up of cars on Clayton Road, blocking the crosswalk for pedestrians and cyclists.

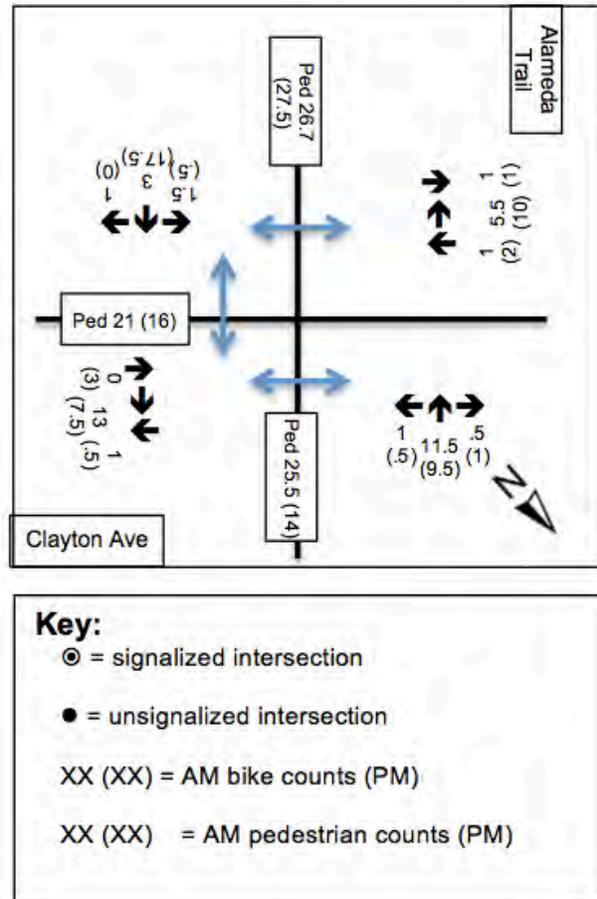


Figure 3-10: Alameda Trail Volumes



Figure 3-11: The Alameda Trail Crossing

3.4.3 Opportunities and Constrains

The Alameda Trail is an opportunity to create connections with other trail networks around the city. It is heavily used by recreational pedestrians and cyclists, but has the potential to serve as a commuter pathway with the right connections. Clayton Road is a direct connection through town to the Downtown Concord BART Station. Although there is heavy traffic along this corridor, designated Class II bike lanes may help cyclists travel more easily along this roadway. Bike lanes may also deter bicycles from traveling on the sidewalk, or in the opposite direction of traffic and as a result increase safety of cyclists and pedestrians alike. The traffic on Clayton Road during these peak hours may be a constraint. This corridor may need to remain vehicle roadway to keep traffic flowing smoothly during these peak hours. Bicycle traffic may be better served by establishing a Bike Boulevard network along less automotive-heavy residential streets.

3.5 Willow Pass Road / Diamond Boulevard

3.5.1 Conditions

The intersection of Diamond Boulevard and Willow Pass Road is located near a major freeway entrance, where most of the city of Concord's auto dealerships are located, and within a five minute walk of a local elementary school. The northeast corner of the intersection is anchored by a Denny's restaurant, very popular with seniors in the early morning and nearby office employee's picking up office breakfast. The northwest corner is anchored by a local dentist group and Elephant Bar restaurant. The southwest corner is currently vacant, but there is signage up announcing an opening soon Hobby Lobby craft store. The southeast corner is anchored by several different office spaces.



Figure 3-12: Willow Pass Road / Diamond Boulevard Facing Northwest



Figure 3-13: Willow Pass Road / Diamond Boulevard Facing the Southeast

The intersection is composed of turning lanes in all directions, pedestrian crossings up to 200 feet, and the intersection is observed to be primarily designed for high volumes of automobile

traffic. There is an absence of bicycle lanes in any direction, along with observed travel behaviors, all bicycle users riding on sidewalks and using pedestrian and the timer is set for 35 seconds.

3.5.2 Volumes

The Diamond and Willow Pass intersection had relatively low pedestrian counts during the two-day analysis when compared to the other intersections in the study. 15 pedestrians used the intersection during first day morning counts; this was on a sunny day, with optimal outside conditions. The second day, which had relatively poorer quality weather, experienced a lower count, around 12 pedestrians during peak morning travel time. Afternoon use of the intersection by pedestrians showed a strong climb the first day, 58, but a less strong climb the second, when only 29 pedestrians used the intersection. The less favorable weather of day two and the evening time-conflict with the city of Concord's Farmers Market Thursday event occurring down the street at the nearby Todos Santos Plaza reduced pedestrian counts strongly on the evening of day two.

Bicycle activity was strongest in the morning peak hours. There were 33 recorded morning riders on the first day, compared to 23 afternoon cyclists. Day two saw 30 morning riders compared to 22 cyclists. The drop in ridership is most likely due to the recording of our afternoon counts. Most of the morning ridership was observed to be young people on their way to the nearby school. The afternoon recording time was from 5-7pm, a time typically reserved for work commuters and excluding students. The school children were recorded earlier in the day were most likely home by the time we arrived to the intersection to begin afternoon recordings. Research suggests future count times should be coordinated with local schools and activity centers to collect more accurate data.

3.5.3 Opportunities and Constraints

Observations and professional opinions suggest the opportunities in the area to improve pedestrian and bicycle facilities are immense. The streets at this intersection can be reduced in size through a road diet with the objective to decrease lane widths and decrease automobile speeds, making automobile drivers more aware of pedestrians and bicyclists, and help bicyclists feel more comfortable on the road. The wide auto lanes suggest an opportunity to implement Class I or II bicycle lanes throughout the corridor. If accompanied with an additional reduction in overall auto lane width, there would be more incentive for residents to bicycle.

The lack of bicycle facilities, far setbacks pushing buildings deep into properties and absence of pedestrian amenities provide many constraints. In order for the area to see an increase in bicycle traffic bicycle facilities must be introduced. Bicycle parking at key activity centers like the Denny's, the new Hobby Lobby, and the office parks would give local users even more incentive to travel by bicycle. Pedestrians face large sidewalks without much shading or barriers between them and very fast moving automobiles. Studies suggest the introduction of trees between pedestrians and auto drivers will create perceived safer routes for pedestrians, is recommended to achieve the objectives of a complete street. Finally, the City should begin to make changes to zoning in the area to allow for greater mix-use, smaller setback requirements to push buildings forward, and reduce parking requirements.

3.6 Clayton Road / Fry Way

3.6.1 Conditions

The intersection at Clayton Road and Fry Way is the primary access point to the shopping mall along Willow Pass from the south. At the intersection is JK Cleaning Company (laundry mat) on the NW corner, the back alley of the Pic-n-Pac Liquors/PetSmart buildings on the NE corner, and the Sunset Pines Apartments on the southern length. The southward continuation of Fry Way, across Clayton Rd turns into a restricted access private parking lot for the apartments, which is exit only. Despite a curb cut for cars exiting the lot, there is no light for this side of the roadway. Though there are four legs coming off of this intersection, the infrastructure and current uses make it a T-intersection. Other notable land uses in this area are the Concord Gateway office buildings and Highway 242 to the west and Ellis Lake Park to the southeast.

Each direction of traffic (with the exception of the abovementioned parking lot) is controlled by traffic signals. Automobile traffic traveling along Clayton Road is separated by a median, with cuts for left turns onto Fry Way. Traffic along Fry Way is separated by a painted divider at the intersection which turns into a built median after roughly 20 yards. There are no bicycle lanes, sharrows or any designated bicycle infrastructure along the roadway. The traffic lanes that converge at this intersection are:

- Westbound Clayton Road: two straight, one straight/right turn lane
- Eastbound Clayton Road: three straight, one left turn lane
- Southbound Fry Way: one right turn, one left turn lane

Pedestrians at this intersection have designated crosswalks along Clayton's westbound lanes crossing Fry Way, and crossing Clayton Road on the west edge. The southern edge of Clayton Road is sidewalk, with a curb cut for the parking lot. There are signs that restrict pedestrians from crossing Clayton on the east side of the intersection. Each designated crossing has pedestrian buttons and crossing lights.

3.6.2 Volumes

Clayton Road is a primary arterial, and thus has high vehicular traffic volumes. Along with these traffic volumes there are bus stops on either side of the road near the intersections along both Clayton and Fry Way. Along Clayton Road (both sides) busses hit these stops every 20 minutes to unload and board passengers. Along Fry Way, busses stop every 40 minutes. Based on observations, the close proximity of these stops to the intersection has a large impact on the pedestrians traversing through the area.

The major pedestrian crossing action is moving along Leg B, the westernmost length crossing Clayton. Pedestrians were funneled onto this crosswalk as it is the only legal way for them to cross Clayton (this still did not stop people from crossing illegally on the other side of the intersection). The number of pedestrians was higher during the PM peak hours for each day, while the highest overall counts occurred during the Wednesday evening peak.

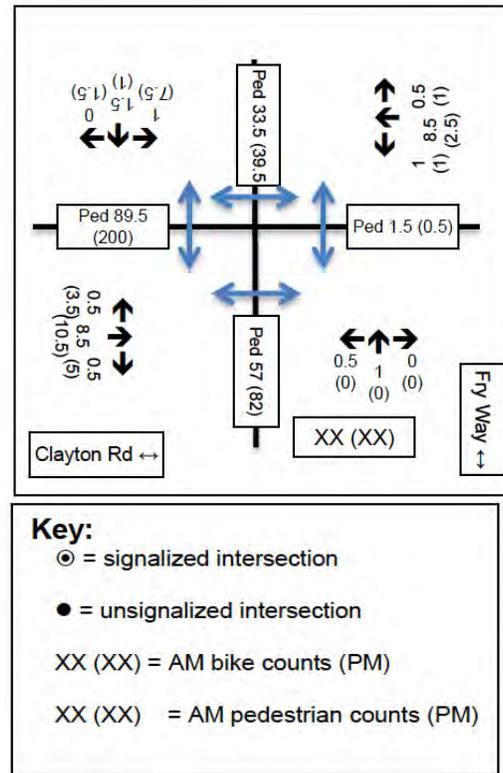


Figure 3-14: Clayton and Fry Volumes

3.6.3 Opportunities and Constraints

There is typically a queue of 3 to 5 pedestrians waiting to cross on either end of the Clayton Road crossing. The cycle for this light goes through all the traffic maneuvers before beginning the pedestrian maneuvers. This traffic cycle can take up to 2.5 minutes, leaving pedestrians to wait that long before they can cross the street. Even while pedestrians are allowed their crossing times, cars are still allowed to drive in certain, primarily non-conflicting, maneuvers.

The bus lines that stop in this area unload up to 10 passengers at each time, while also boarding roughly the same amount. Many people are using this area due to the proximity to the bus line, yet the area is not very welcoming for pedestrian use. Many pedestrians jaywalk across the street immediately after exiting the bus on the eastbound stop along Clayton. Additionally, there are uses nearby that attract much pedestrian use. These include the large apartment complex and residential areas immediately south of the intersection, and the shopping mall along nearby Willow Pass.

The area is not heavily used by bicyclists, but research suggests this may be attributed to the lack of bike infrastructure. Observations identified bike infrastructure at a minimum to non-existent anywhere near this intersection. A large majority of the bicyclists that crossed this intersection did so from sidewalk to sidewalk, using the crosswalks during pedestrian crossing times. The few bicyclists who were riding on the road with traffic looked to be only experienced bicyclists who were very comfortable in that environment.

3.7 Willow Pass Road / Galindo Street

3.7.1 Conditions

Observations identified an eclectic mix of users including pedestrians, cyclists, persons with disabilities, skateboarders, children being pushed in strollers and dog walkers using the Willow Pass Road and Galindo Street intersection. Pedestrian crosswalk facilities were perceived long in distance as they crossed between 5-7 lanes of traffic. Pedestrians were seen crossing in the middle of roadway and chose not to use the crosswalks available at the intersection. Additionally, longer wait times for pedestrians were observed for pedestrians using crosswalks to cross the intersection. Major points of conflicts occurred in multiple occasions as pedestrians were observed being cut-off by vehicles attempting to cross because of left turning green light priority received by vehicles turning left onto Galindo St. There were multiple occasions where pedestrians were forced to stop for traffic still navigating the intersection after pedestrian signal had turned. Overall, pedestrian infrastructure was observed to be very wide and pedestrian friendly sidewalks with what appeared to be ADA compliant curb cuts throughout the intersection and surrounding corridors.

There were witnessed to be no designated bicycle infrastructure within this intersection and surrounding corridors. Cyclists were mainly observed riding on the sidewalks and using the crosswalks which should be primarily used for pedestrians. Additionally, cyclists were observed riding in the wrong direction on the street. Cyclists looking to make a left turn were seen making “L-shaped” crossings using the crosswalks at the intersection. Bikers were perceived to be riding dangerously as they attempted to cross an intersection especially with vehicles attempting to make right turns. Only two female bikers were seen riding through this intersection all day.

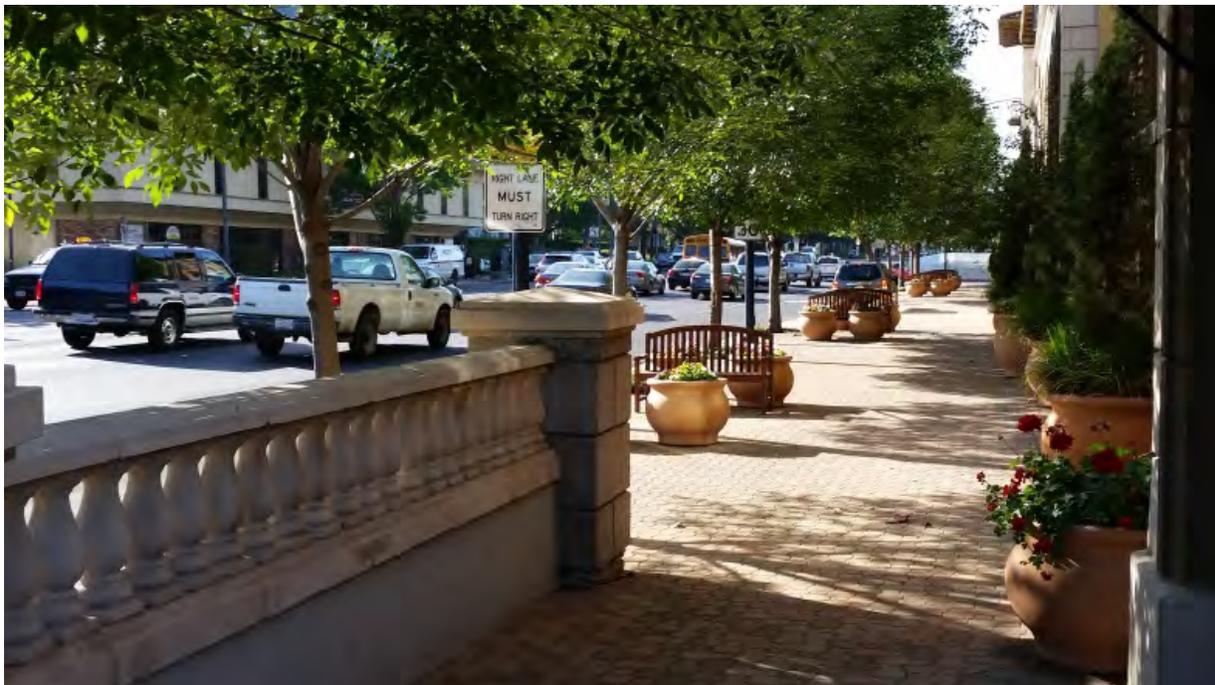


Figure 3-15: Willow Pass Road and Galindo Street Sidewalk

A few cyclists wearing helmets were seen riding on the roadway compared with individuals riding without helmets who were mostly seen riding on the sidewalk. There were a few cyclists seen navigating the intersection with automobile traffic without helmets; however, the mass majority were observed riding on the sidewalks. Many bikers were witnessed riding with headphones in both ears and they attempted to cross the busy intersection. There were observed to be no public bus access or lines running along this corridor. Mount Diablo Unified School District buses were seen using this route with limited riders observed to be on the buses.



Figure 3-16: Willow Pass Road and Galindo Street Protected Right Turn Lane

The protected left-turn vehicular signal along Willow Pass Road for vehicles turning onto Galindo Street caused multiple conflicts. Vehicles would regularly honk at the vehicles not noticing the protected left-turn arrow that would allow only 3-5 vehicles per rotation of protected left turns. After the protected left turning signal, the green light signal would allow vehicles to yield to oncoming traffic. As a result, vehicles attempting to make the light would often turn well after yellow signalization, which caused overlapping traffic to interfere with pedestrian crossings. This signalization timing caused drivers to accelerate quickly in order to make the protected left-turn which resulted in multiple pedestrian and vehicular conflicts and created unsafe conditions. During peak hours, traffic was seen backed up at adjacent intersections and spilling over into the Willow Pass Road and Galindo Street intersection and pedestrian crosswalk facilities.

3.7.2 Volumes

Pedestrian traffic was observed throughout the peak two-hour AM and PM periods. There were seen to be significantly more pedestrians using this intersection in the PM peak period compared with the AM peak periods during both days. Additionally, bicycle traffic was seen to follow a work commute trend where the number of cyclists traveling along Galindo Street would alternate between AM and PM peak times as travelers commuted to and from work.

3.7.3 Opportunities and Constraints

Although there appear to be many negative aspects of this intersection, there are some great opportunities to make improvements that will increase pedestrian and bicycle safety while improving clarity and navigation for automobiles.

Opportunities:

- Signalization order and timing to favor pedestrian crossings improve safety and limit confusion among vehicular travelers.
- Reconsider the Galindo Street signal setup as traveling along Willow Pass Road to reduce vehicle conflicts with pedestrians, bicyclists and other vehicles.
- Bicycle infrastructure that encourages proper riding techniques and improves safety for all users.
- Public and school bus routes and stops.
- Connection to BART stations.
- Adjacent Todos Santos Plaza and surrounding commercial amenities encourage trips made waling or cycling as amenities are closer to the home or office.
- A good quality roadway with wide designated street lanes leaves opportunities for road diets.
- Restriping street designs to accommodate bicyclist infrastructure while thinning traffic lanes.

Constraints:

- High traffic volumes.
- High traffic speeds.
- Bicyclists' improper usage of roadway infrastructure.

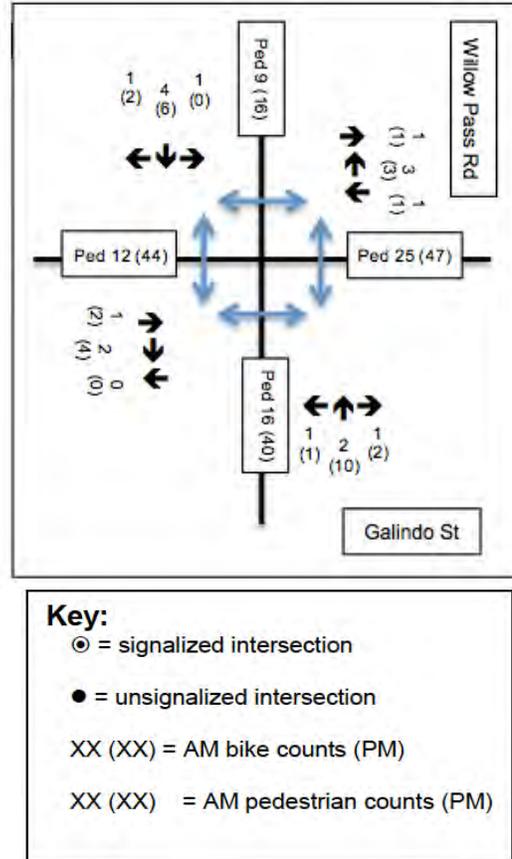


Figure 3-17: Willow Pass and Galindo Volumes

3.8 Galindo Street / Laguna Street

3.8.1 Conditions

The four-way intersection at Galindo and Laguna streets is located south of downtown Concord, close to the Concord BART station. Galindo Street is a thoroughfare that connects residential neighborhoods in the Monument community with downtown Concord, while Laguna Street connects residential neighborhoods with access to the BART station. West of Galindo Street, Laguna Street intersects with Oak Street, leading to the BART station. Galindo has four lanes (two traveling south and two traveling north) that are divided by a landscaped median. Laguna and Oak Street have two lanes, one traveling east and one west. There are no bicycle lanes on Galindo, Laguna or Oak Streets. Leg C (crossing Galindo Street on the Southern portion of the intersection) is the only crosswalk that allows for east – west pedestrian access through the intersection. Pedestrians who crossed Galindo Street at leg A were doing so illegally. There are signalized pedestrian crosswalks at legs B, C and D.

The residential neighborhoods on Laguna Street east of Galindo Street primarily consist of multi-family apartment blocks. Many of the pedestrians that were observed walking east from Laguna Street were accompanying young children. There are two four story residential buildings located on the western side of Galindo Street from Clayton to Laguna Street. The block on the eastern side of Galindo Street (bounded by Laguna, Oak and Mount Diablo streets) is a vacant lot that many pedestrians cut through to reach the BART station. Large commercial buildings and a parking garage are located on the eastern side of Galindo Street north of the vacant lot, between Oak Street and Clayton Road. There are few buildings along Galindo Street south of Laguna Street, except for a police station and several vacant buildings.



Figure 3-18: Vacant Lot Galindo and Laguna Street

3.8.2 Volumes

On May 7th during the AM peak (from 7 to 9 AM) 157 pedestrians were counted in total. 33 bicyclists were counted in total, 16 during the first hour and 13 during the second hour. On May 7th during the PM peak (from 6 to 8 PM) 164 pedestrians were counted in total. 34 bicyclists were counted in total, 15 during the first hour and 19 during the second hour.

On May 8th during the AM peak 163 pedestrians were counted in total. 24 bicyclists were counted in total, 16 during the first hour and 8 during the second hour. During the PM peak 147 pedestrians were counted in total. 22 bicyclists were counted in total, 8 during the first hour and 14 during the second hour.

On both days leg C was the most heavily trafficked leg by pedestrians. The majority of pedestrians crossed leg C heading east towards the BART station in the morning, and during the evening the majority of pedestrians travelled west from the BART station on leg C to residential neighborhoods. The majority of bicyclists crossed leg D heading west during the morning, and crossed leg B heading east during the evening. Almost all bicyclists used crosswalks and waited for walk signals. Very few bicyclists rode in the street with automobile traffic.

3.8.3 Opportunities and Constraints

Almost all pedestrians who used leg C coming to and from the BART station cut through the vacant lot on the western side of Galindo Street rather than use the sidewalk on Laguna and Oak streets. This presents an opportunity to possibly widen the sidewalk to accommodate for pedestrian use, or to use the vacant lot as a temporary pathway before development occurs. The crosswalk on leg C seemed very narrow considering the heavy amount of pedestrian and bicycle traffic. Many pedestrians and bicyclists were observed walking/biking outside of the white lines, and few used the curb cuts on either side Galindo Street. There is an opportunity for pedestrian safety measures on leg C (widening the crosswalk and curb cuts, bulb-outs, etc.). Many pedestrians were also observed jaywalking on legs B, C and D because of long wait times during the Don't Walk phase of the traffic signal. This presents an opportunity to improve signal timing to better accommodate pedestrian mobility.

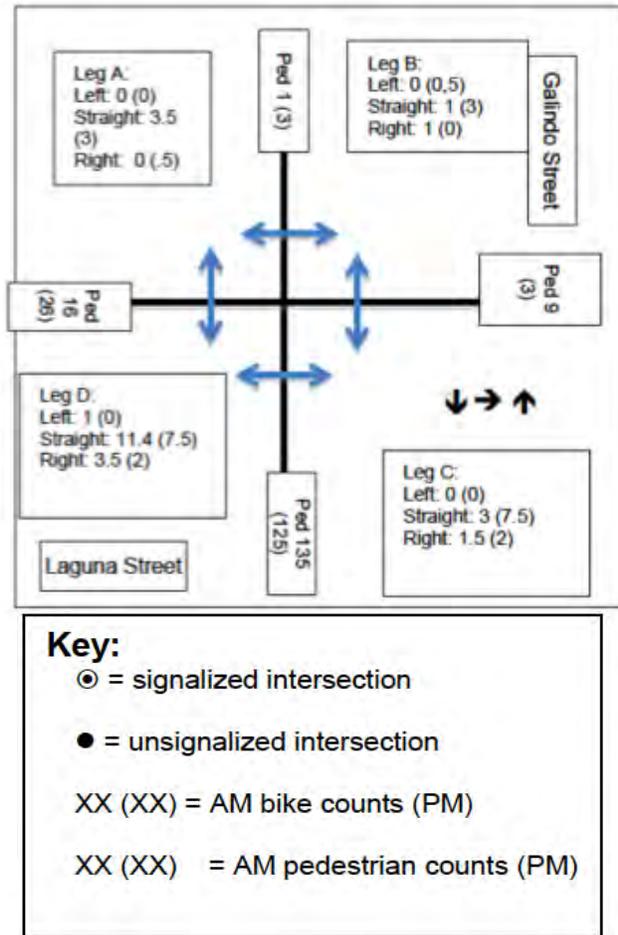


Figure 3-19: Laguna and Galindo Volumes



Figure 3-20: Pedestrians Crossing Leg C Galindo and Laguna Street during Peak PM

The majority of bicyclists used crosswalks rather than travel on streets, likely due to the heavy amount of automobile traffic on both Galindo and Laguna Street. There are currently four lanes on Galindo Street dedicated to automobile traffic travelling north and south. There is an opportunity for a road diet on Galindo Street to support bicycle infrastructure. Bicyclists who did travel in the street were dangerously close to fast-moving automobiles. There is also an opportunity for bicycle infrastructure on Laguna Street heading to and from the BART station, as the majority of bicyclists did not travel in the street.

Several pedestrians were observed crossing Galindo Street at leg A despite the fact that it is lacking in a cross walk. Most pedestrians who crossed leg A did so by walking over the landscape median further north of the traffic light. Because of the way the intersection is currently designed, there may be difficulty in creating a cross walk at leg A. Automobile traffic volumes are very high on Galindo Street relative to bicycle traffic volumes. This could present difficulties in justifying the need for a road diet to support bicycle infrastructure.



Figure 3-21: Bicyclist Crossing Leg C Galindo and Laguna Street

3.9 Mt Diablo Street / Oakland Ave

3.9.1 Conditions

Mount Diablo and Oakland is a T-intersection with Mount Diablo on approach legs A and C, and Oakland on approach leg D. There is no approach leg B, and instead is a single family home. There is a single family neighborhood on approach leg A with relatively low volumes of vehicles. Mount Diablo is marked as a bicycle route along approach leg A. There is a park-and-ride lot for the downtown Concord BART station located at the corner of approach legs A and C. Almost all the pedestrians crossing this intersection came from or went to approach leg A and crossed Oakland when going to or coming from the BART station.

The majority of vehicles going through this intersection came from Oakland and turned right onto Mount Diablo. These cars then turned left onto Mesa to continue going through. In essence these two T-intersection streets acted as one large 4-way intersection. Given the location of the BART station the majority of pedestrian crossings occurred at Oakland as mentioned above, and approach leg C for the intersection of Mount Diablo and Mesa.

Most of the bicyclists were observed using the sidewalks and crosswalks while riding, while a few rode in the lanes to make their turns. Like the vehicles most of the bicyclists were heading to or from Mesa.

3.9.2 Volumes

Over the two hour am peak there was an average of 37 pedestrians crossing leg D; most of whom went to the BART station. An average of 8 pedestrians crossed leg A, but that is because most pedestrians walked down Mount Diablo for a bit before doing a midblock crossing. During the two hour pm peak there was an average of 22 pedestrians crossed leg D; most of whom were leaving the BART station. An average of 13 pedestrians crossed leg A. These numbers would suggest that we did not fully capture all the morning pedestrians during our pm peak study.

Over the two hour am peak period, an average of 15 bicyclists used this intersection. The majority of bicyclists rode on the sidewalks and rode on the crosswalks to make turns. These bicyclists did not have helmets. A few bicyclists did ride on the streets, and these bicyclists had helmets. The most popular movements for bicyclists was either to turn left onto Oakland from approach leg C, or to turn right or go through from approach leg A. Over the two hour pm peak an average of 11 bicyclists used this intersection. The majority of movements were from approach leg D turning left or right, or from approach leg C turning left. These movements coincide with how vehicle traffic used this intersection.

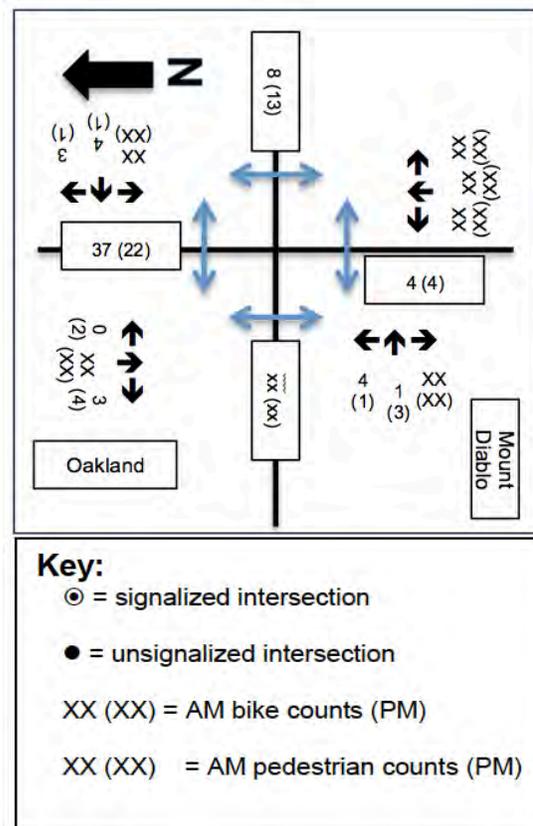


Figure 3-22: Mount Diablo and Oakland Volumes

In the pm peak period 14 bicyclists used the intersection on the second day, May 8th, which is bike to work day; compared to 7 bicyclists on the first day. This was not the case in the am peak period as 16 bicyclists used the intersection on day one, and 14 bicyclists used the intersection on bike to work day, day two.

3.9.3 Opportunities and Constraints

There is some opportunity for improvement with this intersection and the intersection of Mount Diablo and Mesa. The main problem here is one of safety. Oakland and Mesa are used together as a through road, but going through requires vehicles to make two stops in a short space. Combine this with high volumes of traffic and drivers who do this every day twice a day and the result are motorists who do not come to complete and safe stops. Pedestrians were hesitant to use the crosswalks when motorists were there because all the vehicles would stop in the crosswalks and then quickly go again. Pedestrians would wave on traffic until there was a gap in cars to safely cross.

The solution to this problem may be to convert both intersections into roundabouts. Roundabouts would force motorists to slow down using geometry rather than sign control. A motorist can ignore a sign, but if that motorist tries to ignore the geometry they will not be able to navigate the turns. This will improve traffic flow, and improve motorist satisfaction which will likely improve the chances of them stopping for pedestrians. A constraint to this problem is the fact that buses turn right from Oakland and drive through on Mount Diablo. For buses to navigate these turns they need a wider radius, but this will allow smaller vehicles to take these turns at higher speeds. To remedy this situation there needs to be an elevated curb that buses (and emergency vehicles) can easily mount, but would be difficult for a smaller vehicle.

3.10 Mt Diablo Street / Mesa Street

3.10.1 Conditions

Mount Diablo and Mesa is a T-intersection with Mount Diablo on approach legs A and C, and Mesa on approach leg B. There is no approach leg D, and instead is a park-and-ride lot for BART. There is the intersection of Mount Diablo and Oakland approach leg A. Along approach leg B there is an extra-wide sidewalk that is designated as a bicycle route. Almost all the pedestrians crossing this intersection came from or went to approach leg B and crossed Mount Diablo when going to or coming from the BART station.

The majority of vehicles going through this intersection came from Mesa and turned right onto Mount Diablo. These cars then turned left onto Oakland to continue going through. In essence these two T-intersection streets acted as one large 4-way intersection. Given the location of the BART station the majority of pedestrian crossings occurred at approach leg C.

Most of the bicyclists used the sidewalks and crosswalks while riding, but a few rode in the lanes to make their turns. Most of the bicyclists at this intersection rode on the bicycle route along Mesa and crossed Mount Diablo using the crosswalk to go to the BART station.

3.10.2 Volumes

Over the two hour am peak there was an average of 53 pedestrians crossing leg C; most of whom went to the BART station. An average of 21 pedestrians crossed leg B; almost all of whom came from or went to cross leg C. During the two hour pm peak there was an average of 60 pedestrians who crossed leg C; most of whom were leaving the BART station. An average of 15 pedestrians crossed leg B.

Over the two hour am peak period an average of 19 bicyclists used this intersection. The majority of bicyclists rode on the sidewalks and rode on the crosswalks to make turns. These bicyclists did not have helmets. A few bicyclists did ride on the streets, and these bicyclists had helmets. The most popular movements for bicyclists was either to turn left onto Mesa from approach leg A, or to turn right from approach leg B. Over the two hour pm peak an average of 18 bicyclists used this intersection. The majority of movements were from approach legs A and C.

In the pm peak period 20 bicyclists used the intersection on the second day, May 8th, which is bike to work day; compared to 13 bicyclists on the first day. This was not the case in the am peak period as 20 bicyclists used the intersection on day one, and 12 bicyclists used the intersection on bike to work day, day two.

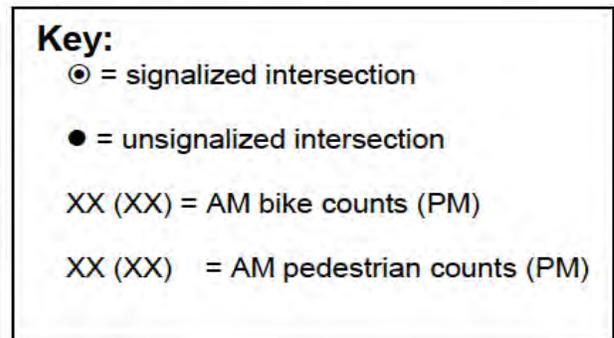
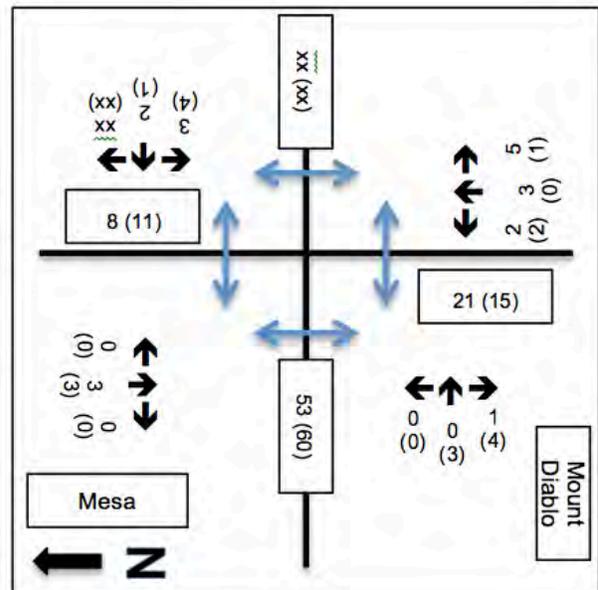


Figure 3-23: Mount Diablo and Mesa Volumes

3.10.3 Opportunities and Constraints

There is some opportunity for improvement with this intersection and the intersection of Mount Diablo and Mesa. The main problem here is one of safety. Oakland and Mesa are used together as a through road, but going through requires vehicles to make two stops in a short space. Combine this with high volumes of traffic and drivers who do this every day twice a day and the result are motorists who do not come to complete and safe stops. Pedestrians were hesitant to use the crosswalks when motorists were there because all the vehicles would stop in the crosswalks and then quickly go again. Pedestrians would wave on traffic until there was a gap in cars to safely cross.

The solution to this problem may be to convert both intersections into roundabouts. Roundabouts would force motorists to slow down using geometry rather than sign control. A motorist can ignore a sign, but if that motorist tries to ignore the geometry they will not be able to navigate the turns. This will improve traffic flow, and improve motorist satisfaction which will likely improve the chances of them stopping for pedestrians. A constraint to this problem is the fact that buses turn right from Oakland and drive through on Mount Diablo. For buses to navigate these turns they need a wider radius, but this will allow smaller vehicles to take these turns at higher speeds. To remedy this situation there needs to be an elevated curb that buses (and emergency vehicles) can easily mount, but would be difficult for a smaller vehicle.

3.11 Clayton Road / Grant Street

3.11.1 Conditions

The intersection of Clayton Road and Grant Street is the gateway to the BART station. Located at the corners of the intersection, a Bank of America office complex and two open lots, with one having an adjacent office building, surround the easily accessible intersection. A block in radius, the Clayton and Grant intersection is surrounded by more office and mixed-use developments. The intersection serves as the focal point of Concord's transit oriented development (TOD). Presently, Grant Street consists of four lanes to the north and four lanes to the south. Comparatively, Clayton Rd. consists of five lanes to the east and west, serving as a one-way street. There are no transit stops at either of the corners, given the adjacent rail system.

The area is very well kept in terms of condition; sidewalks, as well as gutters areas are clean of garbage and debris. Very minimal cracks and disruptive paving make for easy flowing pedestrian traffic. Street markings are clearly labeled and thick. Traffic lights and pedestrian lights function well and show no signs of damage. Pedestrian crossings are clearly paved with a different texture. Vacant lots to the east of the intersection are manicured and maintained. The whole site is planted with healthy trees and shrubbery. All along the Bank of America complex, there are dual tree buffers, one between the street and the sidewalk, and the other between the complex campus and the sidewalk. All four corners of the intersection have ADA accessible ramps. Additionally, there are trashcans at both corners on the west side of Grant Street.



Figure 3-24: Clayton Road and Grant Street Intersection

3.11.2 Volumes

Given its location near the BART station and Highway 242, the Clayton Road and Grant Street intersection is part of a heavily utilized corridor, in terms of motor vehicles and pedestrians. This intersection receives a lot of traffic because of the presence of office buildings, as well as the BART station. Majority of the traffic, whether vehicular, pedestrian, or bicycle, are either traveling to or from the rail station. An average of 158.5 pedestrians traveled across crosswalks leading to and from the station throughout the day, compared to that of 18.5 traveling perpendicular to the station. In addition, there was an average of 32 cyclists traveling to or coming from the BART station out of an average total 50 cyclists throughout the day.

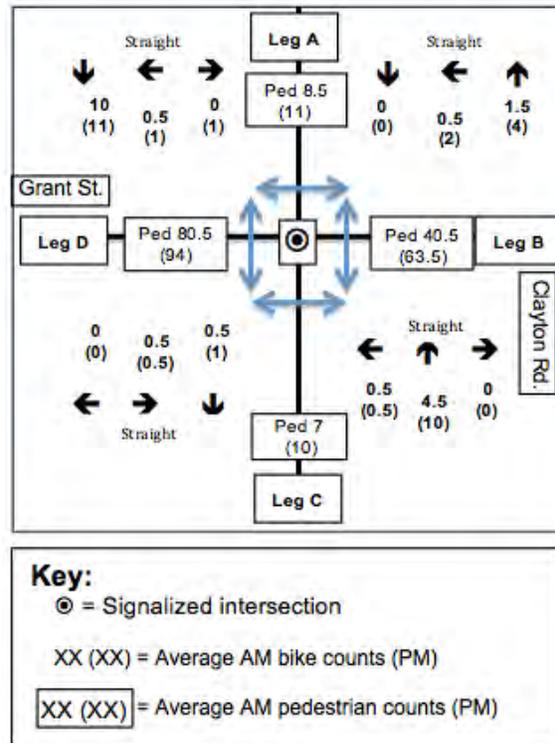


Figure 3-25: Clayton and Grant Volumes

3.11.3 Opportunities and Constraints

The Grant Street and Clayton Road intersection is constrained by its traffic volume, one-way direction, pedestrian activated-only signal, and the lack of proper bicycling knowledge. The traffic volume poses an issue because of its high intensity during peak hours. Traffic volume can affect the perception of safety to not only pedestrians, but bicyclists as well. Because this is a heavily utilized intersection in terms of non-motorized users and there lacks a bike lane, the volume can be discouraging for users trying to bike in the street. As observed, there were a far more cyclists biking on the sidewalk rather than on the street. Moreover, the one-way direction hinders the possibility of two-way bicycling traffic. Although one-way traffic doesn't necessarily negate opposite bicycle traffic, the volume and flow heavily discourages so, especially during peak hours.

The pedestrian activated-only signals pose an issue in terms of safety. Because the signal is only activate when pressed, those who choose not to result in waiting through two traffic cycles, or decide to jaywalk when the opportunity is present. The final observed constraint is that of the lack of proper bicycling knowledge. There were several instances where bikers were riding without a helmet. Of the average total of 50 cyclists observed riding throughout the day, an average 29.5 bicyclists were riding on the sidewalk. Cyclists also used the crosswalk simultaneously with pedestrians. Although, at the time there were no conflicts, riding in the crosswalk can substantiate into a safety concern should bicyclist volumes increase.

There were plenty of opportunities observed by identifying the wide road widths and additional possibilities that could fit within the City's right-of-way. With Clayton Road being five lanes wide and containing two separate turn-only lanes, there is a possibility to reduce the number of vehicle lanes and implement a bicycle lane with a buffer. Given the volume and the perceived

traffic speed, a two foot buffer, one foot of flexible post and one foot of striped markings between the bike lane and flexible posts, would really benefit cyclists in terms of perceived safety. Turning the right turn-only lane into a bike lane, bicyclists can be drawn from the sidewalk and into the street.

This also presents an opportunity to inform the public of proper bicycling in the street, and help create a transition from riding on the sidewalk to riding on the street. Programs and organizations can be formed to help promote bicycle safety and educate the public on how to use their bikes. In addition, Grant Street provides an opportunity to implement a road diet through adding bike lanes to both sides of the road. Given the volume on Grant Street is not as intense as that of Clayton Road the subtraction of one lane would not be detrimental to the flow of traffic.

The intersection of Clayton Road and Grant Street is a site that was overall designed and maintained well. Although it is kept clean and accommodates pedestrians greatly, bicyclists are observed to be neglected in proper infrastructure. While the high intensity of the traffic volume in the area is a constraint on development, the street widths prove to be an opportunity to install bike lanes. Given the relatively low bicycle count, there is also an opportunity to encourage and educate the public about bicycling. Should this site evolve into encompassing well-marked bike lanes, it can become a well-kept, multi-modal accommodating intersection.

3.12 Panoramic Drive / Port Chicago Highway

3.12.1 Conditions

The intersection of Port Chicago Highway (PCH) and Panoramic Drive is the entrance to the North Concord BART Station. The North Concord BART Station is a park and ride facility primarily used by people who do not live in the City of Concord. This is a 4-way intersection with a neighborhood to the Northwest, BART to the South; a freeway entrance ramp for Hwy 4 is directly to the Northeast, and the city of Concord to the southwest. Port Chicago Highway is a median divided highway with a posted speed limit of 40 mph. Panoramic Drive is a residential street with a posted speed limit of 25 mph. The BART side of Panoramic Drive is a median divided arterial. Parking at the BART Station is free and the station entrance is oriented toward the parking lot. The station is located in the South corner of the intersection. Pedestrians and bicyclists coming from this main entrance intersection must walk past the station in order to reach the station entrance.

There are crosswalks on 3 of the 4 legs; the northeastern leg across Port Chicago Highway does not have a crosswalk. There are sidewalks on both sides of Panoramic Drive. There was observed to be a multiuse Class I bike path that starts at the southeast corner of the intersection and travels adjacent to Port Chicago Highway. It ends abruptly and does not continue until after the Hwy 4 freeway on ramp. There is no sidewalk on Port Chicago Highway at the southeast or northwest corners. There are two bus stops at this intersection; one located on Port Chicago Highway near the southeast corner and the other located on Port Chicago Highway at the southwest corner of the intersection. There was observed to be no Class II or Class III bike lanes in the area around this intersection.



Figure 3-26: Panoramic Drive and Port Chicago Highway Intersection

3.12.2 Volumes

The pedestrians and bicycles make up a small percentage of the traffic at this intersection. It is clear that the majority of pedestrians are traveling between the west corner of the intersection and the BART station. Most are going to or from the Panoramic Drive neighborhood. Some are heading southwest on Port Chicago Highway. The Bicyclists are mostly traveling from the BART station onto Port Chicago Highway. There were a few illegal diagonal crossings performed by bicyclists crossing from the northeast corner to the southwest corner. Most cyclists were observed riding on the sidewalk. The only bikes that were witnessed riding on the street were the ones coming from leg B, making left hand turns into the BART Station and a few coming from the BART Station heading south on Port Chicago Highway. The only riders on the street looked like very experienced riders, they had advanced equipment. Most bike riders were wearing helmets. The bike riders and pedestrians seem to be regular commuters. For the most part the same people were seen both days during both am and pm peaks. Many bikes and pedestrians that are familiar with the intersection take advantage of the light signalization and advanced halfway across leg D to the median while they wait for cars coming from leg c to turn left.

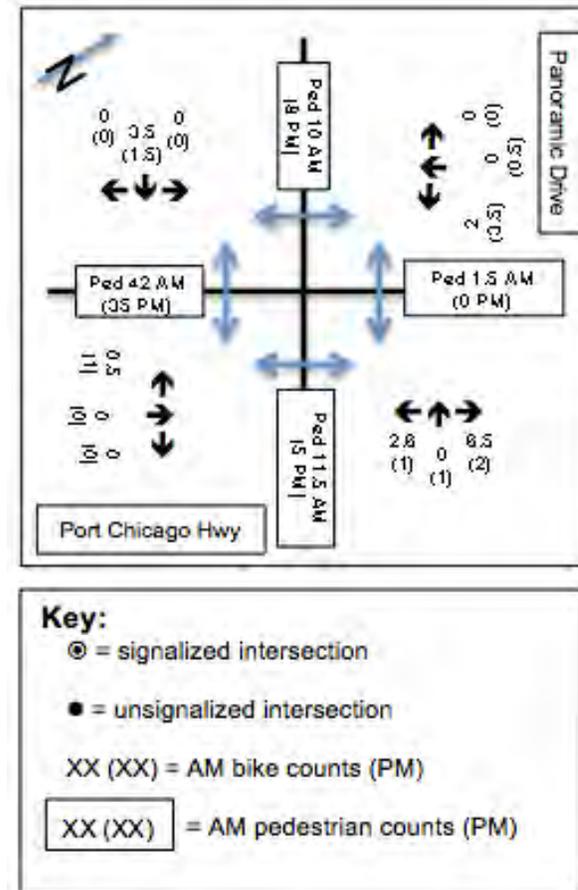


Figure 3-27: Panoramic and PCH Volumes

3.12.3 Opportunities and Constraints

The BART Station provides a great opportunity for this area; however, the current area primarily serves as a park and ride for automotive travelers looking to connect with the BART trains. The nearby freeway is a barrier to the neighborhood northeast, which also attracts cars at high speeds into this intersection. The high level of auto traffic using Port Chicago Highway as a connection from Hwy 4 to get into Concord is also constraint. The large intersection also provides an opportunity to utilize the medians as pedestrian islands. The new Naval Weapons Station development has the potential to increase foot traffic and bike traffic in this area. The current lack of bike lanes or sidewalks is both an opportunity and a constraint. There is a huge opportunity to provide a better connection between the Class I (multiuse) path and the area to the northeast and across Panoramic Drive to the multiuse path on the south side of the BART station. The neighborhood up Panoramic Drive has the potential to serve as a transit-oriented development.

3.13 Automated Counts

An automated counter was set up in the intersection of Concord Boulevard and Alameda Way to record total bicycle and pedestrian traffic during an analysis period lasting from June 30, 2014 through July 27, 2014. A cyclists and pedestrian counting device called the Pyro Box Compact was developed by Eco-Counter, Inc. and uses a patented eco-counter pyroelectric sensor⁵. The pyroelectric sensor works by using a combination of infrared technology and high precision lenses that detects a change in temperature when a person passes within range of the sensor. According to Eco-Counter, Inc., the high sensitivity of the sensor allows the device the ability to detect two different people walking through the sensor at the same time. The Pyro Box Compact has a range up to 15 meters, approximately 50 feet, is waterproof, has 10 years of battery life, 2 years of data storage, and records data hourly or in 15 minute time intervals. The data was automatically sent using global systems for mobile communication (GSM) alerts daily to ensure the device is working correctly and to backup information.

Figures 3-32, 3-33, and 3-34 below show the average daily volumes, average hourly volumes, and volumes by day that were recorded. Pyro 01_IN indicates a pedestrian entering the crosswalk heading southbound across Concord Boulevard, and Pyro 01_OUT indicates a pedestrian exiting the crosswalk and continuing on Alameda Way heading northbound as being demonstrated in Figure 3-31.



Figure 3-28: Eco-counter Location (Northbound designated as 'Out' direction)

⁵ Eco Counter, Inc. (Retrieved on 2014, October 6). Pyro Box Compact. Retrieved from: <http://www.eco-compteur.com/Pyro-Box-Compact.html?wpid=39431>

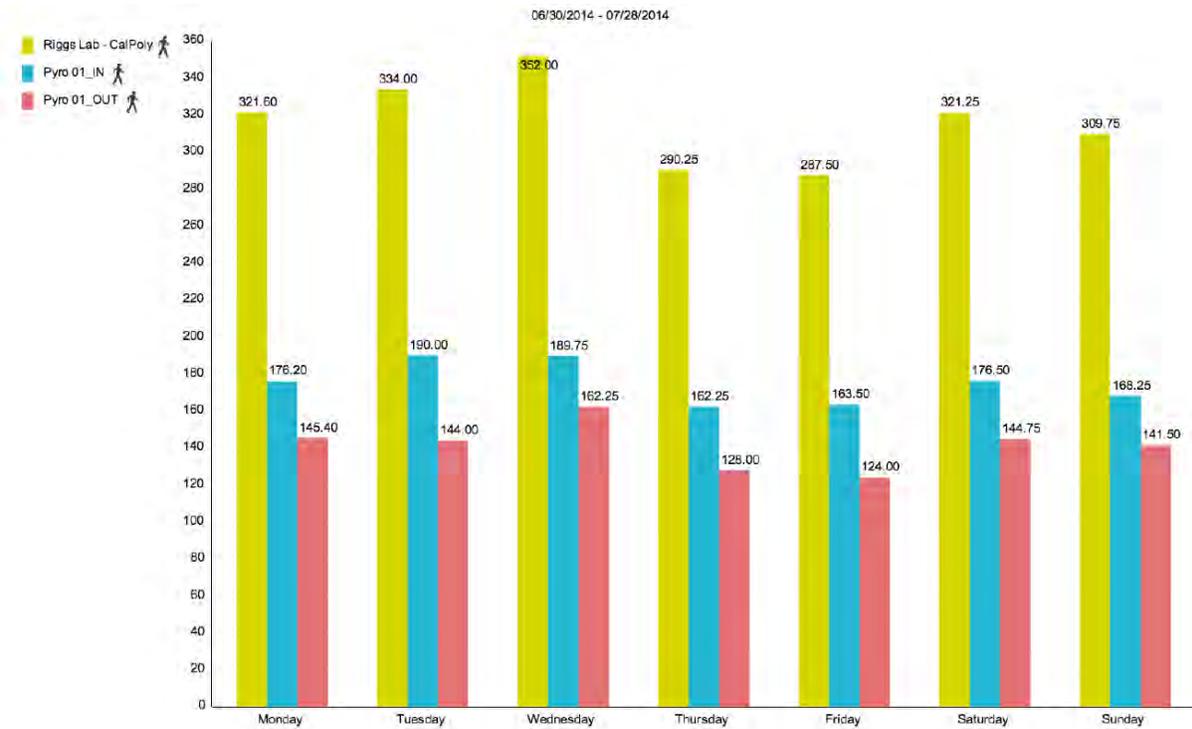


Figure 3-29: Average Daily Volumes

A total 8,872 crossings were recorded during the analysis period as they crossed Concord Boulevard via Alameda Way. Approximately 45% of pedestrians and bicyclists were moving in the same direction, while 55% were headed southbound. The total number of average daily pedestrian and bicyclists crossings in either direction was 317. Figure 3-32 identifies Wednesday to have experienced a slightly higher volume of average pedestrian traffic compared to the other days in the week. During the weekdays, peaks in average hourly pedestrian and bicycle traffic were seen at 8am and 7pm as shown in Figure 3-33. In comparison, the weekend peak in pedestrian and bicyclist traffic occurred at 9am.

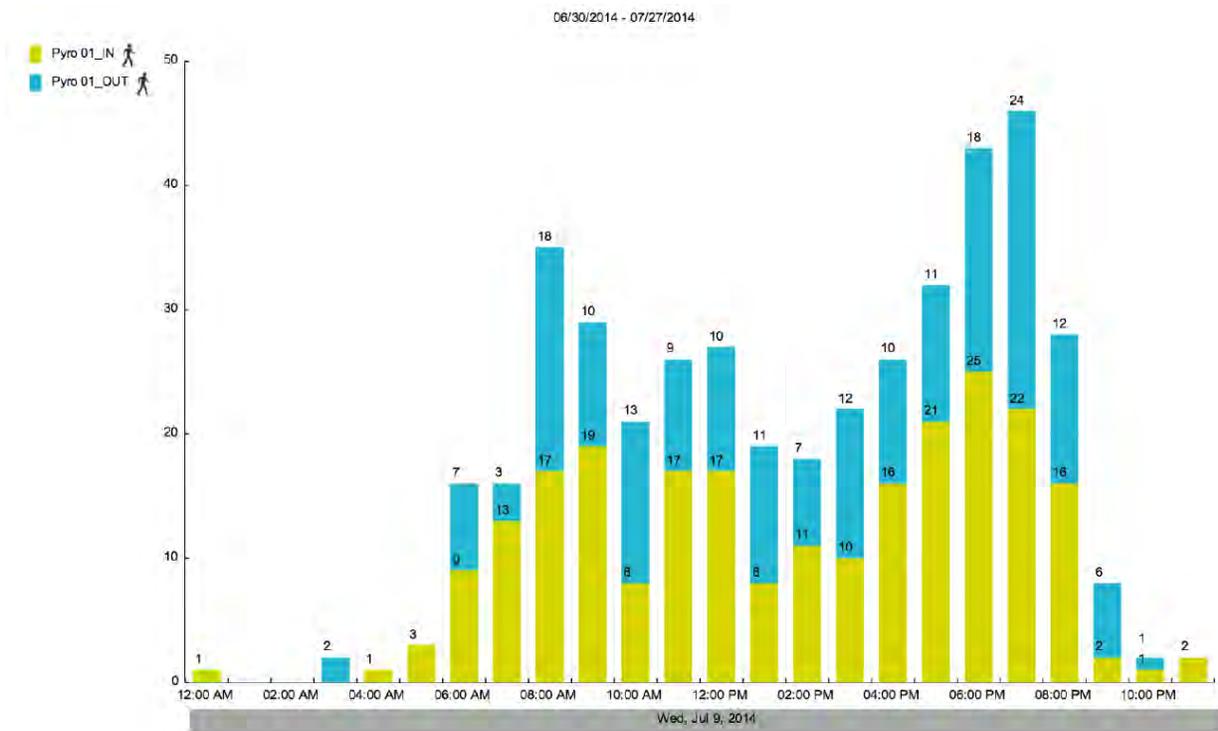


Figure 3-30: Average Hourly Volumes

As is shown in Figure 3-33, there are distinct peaks for the am and pm, although there is observed to be a steady use of the trail throughout the day. The breadth of the peaks provides anecdotal evidence that much of the traffic is likely not commute but for exercise or recreation.

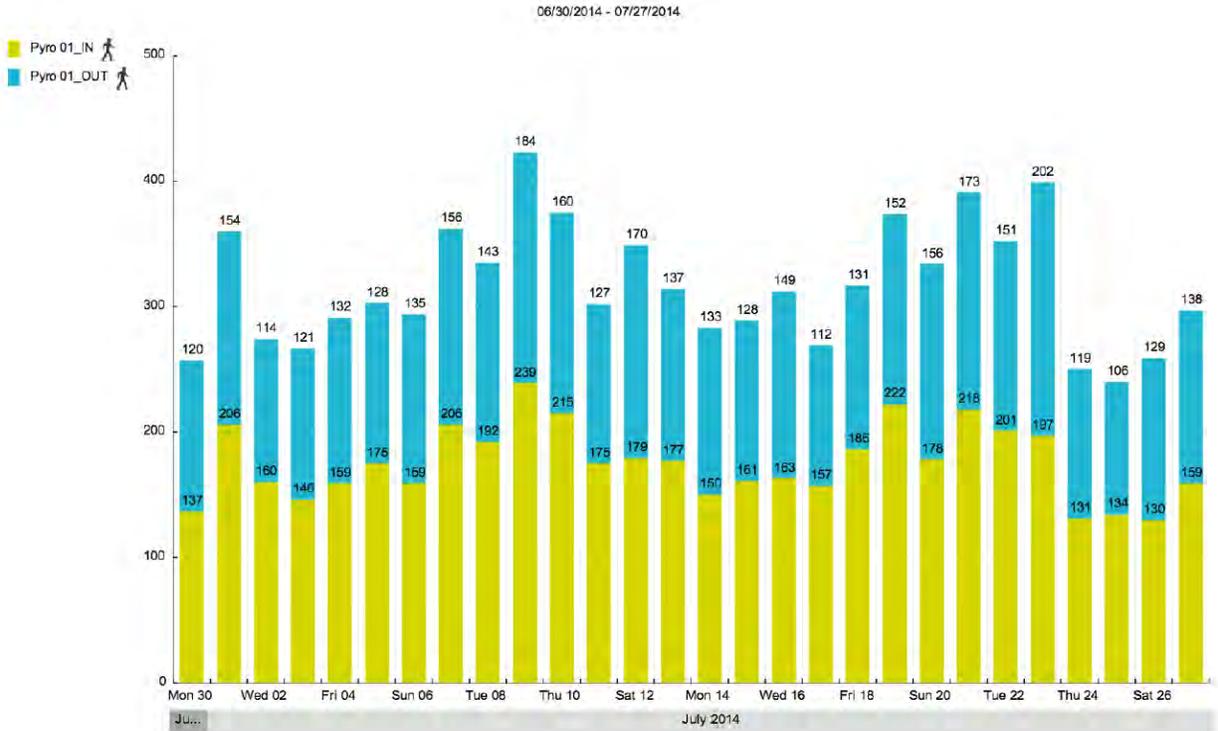


Figure 3-31: Traffic by Day (July 2014)

Figure 3-34 identifies the three days in July, 2014 with the highest recorded pedestrian and cyclist traffic as Wednesday July 9th, Wednesday July 23rd and Monday July 21st, respectively. The hourly data from Wednesday July 9th shown as Figure 3-33 is consistent with the patterns and conclusions discussed about how the data recognizes that much of the pedestrian and bicycle activity at the intersection of Concord Boulevard and Alameda Way is likely for recreational use and exercise.

VOLUME 2

4 Proposed Treatments

The study proposes a series of treatments at each intersection based on the available data, observations of the environment, and findings from the study. Students were encourage to push the limits in their creative ideas for intersection treatments in order to provide the City of Concord with a repertoire of open-minded ideas while also educating the community on some new techniques being used to develop complete streets in other cities around the world. The treatments identified in the pages that follows are merely suggestions to the City of Concord based on the results of data collection, analysis, community input, and the collective knowledge and experience of the students and professionals who were involved in this study.

4.1 Salvio Street / Galindo Street

4.1.1 Intersection Description

The four-way signalized intersection is in the downtown area of Concord a block away from Todos Santos Plaza. Galindo Street, Concord Avenue and Salvio Street meet at the intersection. It is the point where Galindo Street changes name and continues as Concord Avenue to the northwest. Retail, restaurants and offices exist in 3 of the 4 corners and a movie theater at least two stories high occupies the southwest corner. A large shopping center with many stores including food, restaurant and electronics lies only .25 miles away.

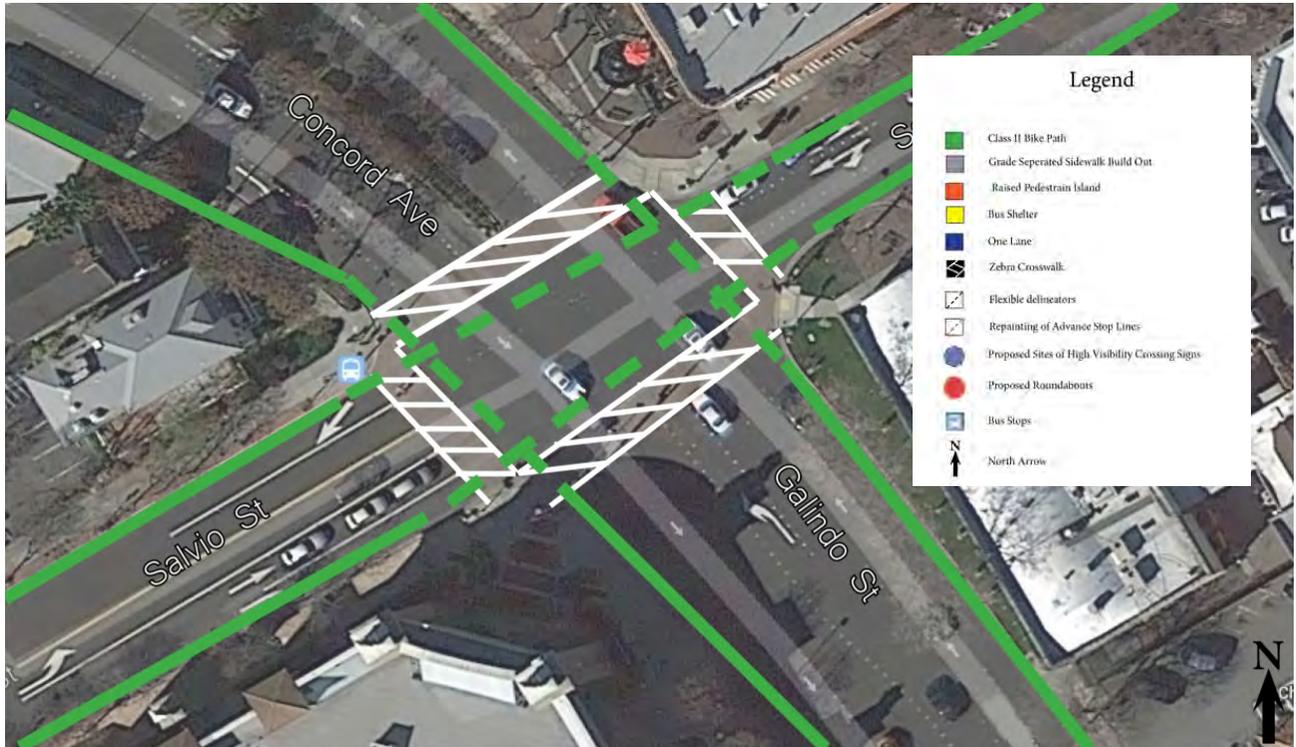


Figure 4-1: Galindo Street and Salvio Street Intersection

4.1.2 Intersection Proposed Treatment

Intersections create the biggest risk factors for bicyclists. At intersections, right turning vehicles often cross the bicycle lane to turn creating a conflict zone with bicycles. The most successful solution to this problem is the protected intersection design with refuge islands, also called Dutch intersection design because it was first developed and tested in the Netherlands. Protected intersections resolve conflicts between bicyclists, pedestrians and vehicles by improving visibility and minimizing vehicle-bicycle conflicts.

4.2 Babel Lane / Cowell Road

4.2.1 Intersection Description

The three-way intersections at Babel at Cowell Streets meet at a Y. Each street is a 2-way street with a left turn lane. There are two crosswalks from Corner 3 to Corner 4 and Corner 3 to Corner 2. Crosswalks form a V-shape. There is a demarcation of a bike route along Leg B to Leg D as well as Leg A, which is used as both a bike lane and pedestrian walkway as there is no grade-separated sidewalk. In terms of physical controls, there are a total of five pedestrian lights at each crossing. There are a total of nine traffic lights to control the traffic flow of the intersection. The speed limit is 35 miles per hour and there is no parking anytime or anywhere along Babel and Cowell.

The neighborhood is largely residential with a front-facing parking lot at a Thai temple at Corner 2. At Leg A, land use is residential with a large parking lot. Cowell Street appears to be tree-lined. Land-use appears to be mostly single-family residential.

There were few cyclists and pedestrians within this intersection. Most cycling and walking/jogging were recreational in nature. Most cyclists wore helmets. With the rare sighting of a commuter cyclist, he usually rode on the sidewalk and did not wear a helmet. On occasion, a family with a parent and a child rode their bicycles together through this intersection. The signalized pedestrian lights were used to cross the intersection. Notably, a jogger lost patience waiting for the pedestrian light to change and decided to change the direction of her route. Cyclists, pedestrians and joggers used the demarcated bike route as a sidewalk.

4.2.2 Intersection Proposed Treatment

Bicyclist and pedestrian volume for this particular intersection is very low. However, to plan for future growth and greater use of the facilities, there appears to be a need for specific treatments. An addition of grade-separated sidewalks through much of this intersection will allow for safe use for both pedestrians and bicyclists. Grade separated sidewalks will encourage walking and greater use by the residents living in the neighborhood. Next, striped signalized crossings will reinforce yielding of vehicles turning during a green signal phase. Striping the crosswalks as wide or wider than the walkway it connects to will ensure that when people walk, they can comfortably pass. The use of high-visibility, zebra crosswalk markings are more visible to approaching vehicles. In addition, the crossing distances should be as short as possible for pedestrians.

For bicyclists, a clearly demarcated Class II bicycle lane with green striping in the existing pathway would help to alleviate confusion for pedestrians, cyclists and drivers. The high volume traffic and speeds along Cowell pose a risk to the safety of cyclists. A “trail of bread crumbs” will guide the bicyclist across the intersection, while alerting drivers to approaching cyclist crossing. In the future, when bike path circulation is further coordinated and connected, implementing a buffered bike path with flexible delineators would help to shield cyclists from high volume and high-speed traffic. A Class I facility would be appropriate for Babel as there were few bicyclists turning in from Babel onto Cowell. Most cyclists used Cowell.

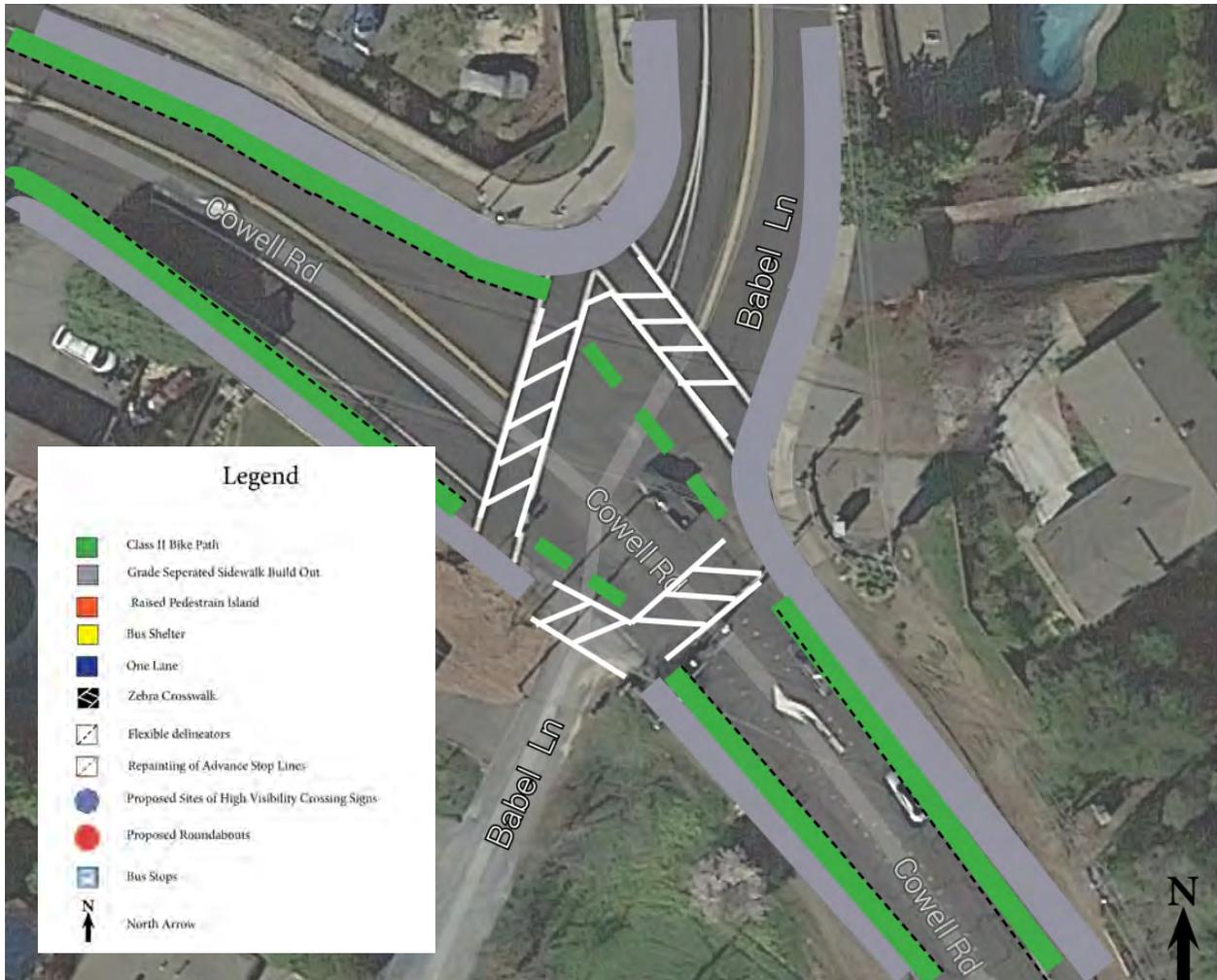


Figure 4-2: Babel Lane and Cowell Road Intersection

4.3 Meadow Lane / Monument Boulevard

4.3.1 Intersection Description

Monument Blvd consists of five vehicular lanes (three through lanes and two left turn lanes) heading southwest and six vehicular lanes (three through lanes, two left turn lanes, and one right turn lane) heading east north. Meadow Lane consists of five vehicular lanes (two through lanes, two left turn lanes, and one right turn lane) heading south. Oak Grove Rd. consists of four vehicular lanes (two through lanes, and two left turn lanes) heading north.

The intersection serves bus routes 14, 16, and 314 heading east-west and bus routes 11 and 311 heading north-south. There are 5 bus stops within the intersection. Of the 4 bus stops only one of them had a place for seating.

Currently the intersection has a designated Class III (Bike Route) facility on Oak Grove Rd that connects to a recently development Class I (Bike Lane) on Meadow Lane North of the intersection. However, Monument Blvd. does not have any bike designated paths. From the pedestrian and bicycle count study performed on this intersection it was noticed that bicyclists are using the Monument Blvd corridor as a desired route to get to their destination. They are either heading towards (Downtown/Bart station) northeast on Monument Blvd or towards (Interstate 680/Pleasant Hill) southwest on Monument Blvd.

Some notable improvements made to this intersection are the textured crosswalks, and ADA curb ramps which were completed sometime in April of 2011 based on aerial imagery from Google Earth. Since the intersection primarily serves automobiles, pedestrians crossing the intersection must wait through the long signal phase. Also, the crosswalks are relatively long distances to go from one corner to the other. The shortest crosswalk distance in the intersection is approximately 107 feet long, and the longest approximately 120 feet long.

4.3.2 Intersection Proposed Treatment

Add a protected/buffered Class II (Bike Lane) facility on Monument Blvd and improve the current Class II (Bike Route) on Oak Grove Rd/Meadow Lane to a protected/buffered Class II (Bike Lane). In order to achieve this, a road diet will need to be performed to allocate proper widths of the bike lanes and vehicular lanes.

Add a Standard Crosswalk to complement the current textured crosswalk. This will help to contrast the textured crosswalk, make pedestrians more visible, and cars will stop ahead of time. Since, cars were noticed to stop directly on the textured crosswalk adding a solid white border can help prevent cars from doing so.

Add a bus shelter and bench on each bus stop to improve transit rider usage.

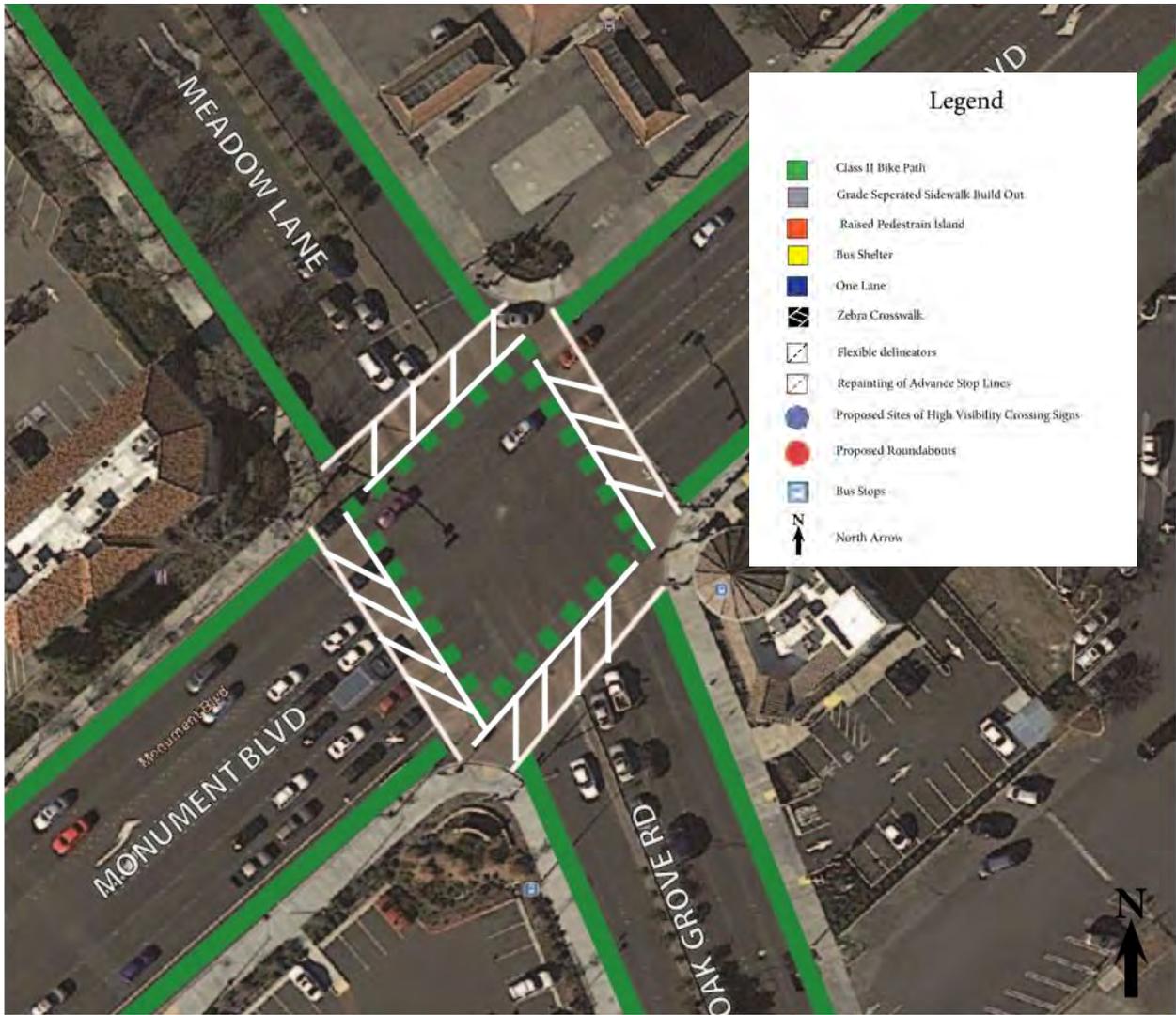


Figure 4-3: Monument Boulevard, Meadow Lane and Oak Grove Road Intersection

4.4 Clayton Road / The Alameda

4.4.1 Intersection Description

The intersection at Clayton Road and the Alameda Trail is a three way auto intersection, with the Alameda bicycle and pedestrian trail crossing Clayton Road in Concord California. Clayton Road has two lanes of traffic traveling in direction, with only the west bound traffic able to turn right onto Alameda Way. Alameda Way is a quiet residential street that runs parallel to the trail, which stretches between two residential neighborhoods that are located on either side of Clayton Road. The Alameda trail crossing over Clayton Road has two traffic signals on Clayton Road to allow pedestrians and cyclists to use the marked crossing. The crossing includes a bike and pedestrian signal, and a pedestrian refuge in the center.

Clayton Road connects commercial centers on either side of town. Clayton serves as one of the main auto routes to the downtown BART station. This accounts for the heavy levels of automobile traffic in either direction. The County Connection 10 bus route also travels along this route, servicing stops along Clayton Road to and from the BART station. There are no bike lanes on Clayton Road, and due to the heavy amount of traffic, most cyclists travel on sidewalks, and often against traffic rarely wearing helmets. Pedestrian use of Clayton Road is very minimal, while pedestrian and bicycle use was very heavy along the Alameda Trail. The trail users were mostly recreational users, and crossed Clayton Road, to continue along the trail, rather than turning to travel along Clayton Road in either direction and wore helmets more often.

4.4.2 Intersection Proposed Treatment

Bicyclists using sidewalks to travel along Clayton Road is an indicator that there is a need to incorporate safe bicycling infrastructure along this route. By removing cyclists from the sidewalks, there will be more room for pedestrians to use the sidewalks along Clayton Rd. Adding high visibility Class II bike lanes with green striping along both sides of Clayton Rd will help achieve this.

Through observation, as well as conversations with the Alameda Trail users, many motorists run the traffic light for the trail crossing or do not stop where the road is marked before the trail. This stretch of Clayton Road has very few major intersections, so motorists are traveling quickly and have little indication of the trail crossing that they are approaching. There is a need for a stronger notification of motorists that they are approaching a possible stop for pedestrian or bicycle crossing. It is suggested that the crosswalk be repainted in the original ladder design, to increase visibility to oncoming motorists. This is true for the existing advance stop lines at this intersection as well. It is also suggested that higher visibility pedestrian and cyclist warning signs and rectangular rapid flashing beacons to be installed to improve driver awareness of the trail crossing ahead. Larger more visible signs, and the flashing beacons at the crosswalk can increase visibility for oncoming traffic when activated by pedestrians or cyclists.



Figure 4-4: Clayton Road & Alameda Intersection

4.5 Willow Pass Road / Diamond Boulevard

4.5.1 Intersection Description

Diamond Blvd is comprised of six lanes; four southbound lanes and two northbound lanes. Lanes are greater than the standard ten feet. Willow Pass Rd is comprised of eight lanes; five westbound and three eastbound. Lanes are greater than the ten feet and a five-foot median helps separate opposing sides of traffic. Pedestrians at the intersection are served by three crosswalk legs; the north-south connection on the west side of the intersection is absent. All crosswalks are greater than 120 feet. Two measured approximately 128 feet and one 120 feet. All existing crosswalks use a two-stage cross approach. The connection is not direct and pedestrians are forced to wait on pedestrian islands with traffic running on both sides. Given the size of the intersection, an estimated diameter of 200 feet, the pedestrian crosswalks are poorly marked. The ample size of the street, as mentioned above, does not provide dedicated bicycle lanes. As traffic counts proved, there is a high use of crosswalks by both bicyclists and pedestrians.

The intersection is located in a heavy retail/commercial corridor. Adjacent or nearby locations include: the Concord Auto Mall, Denny's, Interstate 680, Diablo Valley College, College Park High School, Valley View Middle School, REI, Macy's, JC Penny, and Sears. The heavy commercial in nearby areas strongly affects the intersection as the big box retailers located nearby attract customers who seek to purchase large items, like a refrigerator or television, which require a car to transport.

4.5.2 Intersection Proposed Treatment

The future concept was developed using observed vehicular, bicycle, and pedestrian traffic behavior, including the bicycle counts performed at the intersection. The white and green lines found in the proposed future concept identify locations of improved pedestrian crossings and bicycle lane infrastructure.

This report suggests that the Diamond Blvd and Willow Pass Road intersection receive a fourth leg crossing, to allow for more efficient pedestrian circulation. The intersection should also receive a heavy dosage of paint along pedestrian crosswalks to further improve pedestrian visibility at this large intersection. Furthermore, this report strongly urges the city of Concord to reduce the overall width of automobile lanes, to under ten feet, and introduce highly visible Class II bicycle facilities throughout the corridor. As shown above, the Class II bicycle facilities will strategically utilize green paint throughout the intersection to increase bicycle visibility.

As the bicycle lanes approach the intersection, the design pattern shifts from a stripe pattern where the bicycle lane is marked with green paint every 10-15 feet, to a solid green line. This is done to further increase bicyclist visibility near the intersection and to act as a traffic calming device. At turning lanes, where it is much more difficult to implement a bike-only lane, we introduce "sharrows"; large green arrows that let automobile drivers know that bicyclists are equally as able to utilize that lane to turn as they are.

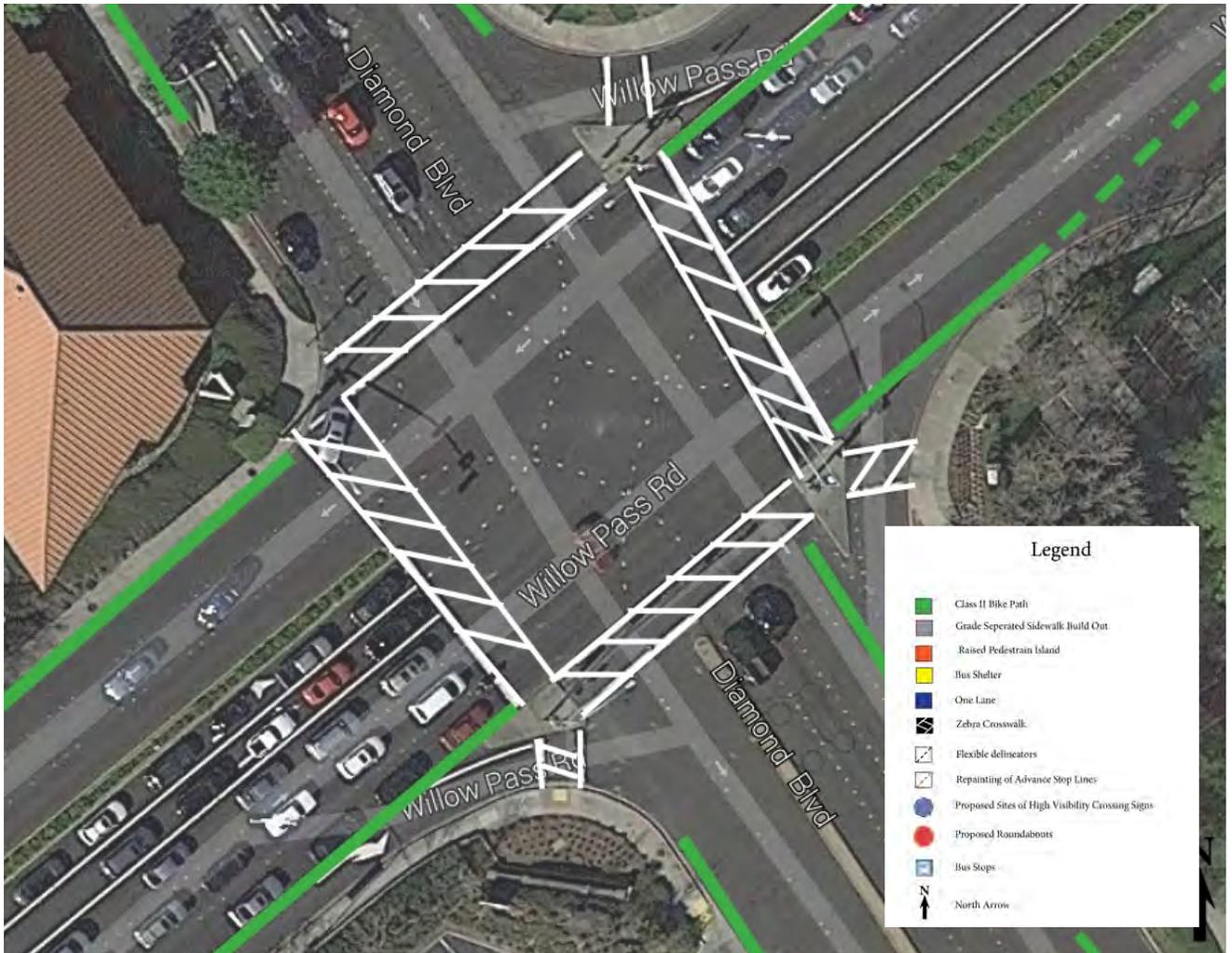


Figure 4-5: Willow Pass Road and Diamond Boulevard Intersection

4.6 Clayton Road / Fry Way

4.6.1 Intersection Description

The intersection is a T-intersection, but has a curb cut for cars exiting the apartments on the south side of Clayton Rd; this exit was never used while viewing the roadway, and has a retractable fence across it. The intersection is controlled by traffic lights for all directions, including protected green arrows for those turning left from Clayton Rd onto Fry Way. Raised medians separate the east and west bound traffic along Clayton, while a painted median separates traffic along Fry Way. Crosswalks exist across Fry Way and the west side of Clayton Rd, while crossing is prohibited across the east side of Clayton Rd. A large majority of the traffic flows along Clayton Rd, while the large majority of pedestrians were attempting to cross this same arterial. Each traffic lane along Clayton and Fry Way (including turning lanes) is 12 feet wide.

4.6.2 Intersection Proposed Treatment

As Clayton is a primary arterial through the city and has very high traffic volumes, the proposal for this area focuses on making it safer and more comfortable for bicyclists and pedestrians alike, while not drastically hindering vehicular mobility. The changes at this intersection include the repainting of lanes to allow for a 5 foot wide Class II bicycle lane in both directions along Clayton Rd, the painting of sharrows along Fry Way, the repainting of crosswalks to increase visibility, and phasing adjustments to the traffic light to reduce the queue time for pedestrians attempting to cross Clayton Rd. Examples of these changes can be seen in the image on the next page. The major change, the restriping of the road to allow for 5 foot Class II bicycle lanes, are feasible as there is enough room for the lanes as well as the current number of automobile lanes.

This restriping would simply change lane widths on either side of the Clayton Rd median to two 10 foot and one 11 foot lanes, but acceptable widths for the speeds at which vehicles are traveling at this intersection. As Clayton continues westward from the intersection, there are two right turn lanes for vehicles to connect onto Willow Pass. This area causes issues with the Class II bicycle lane as there is a large conflict with vehicles moving into this lane and bicycles continuing westward. A fully painted, dashed Class II bicycle lane is proposed, possible with textured pavement to visually and physically inform drivers that they are crossing the bicycle lane. Due to the lower traffic volumes and a fewer number of lanes on Fry Way, sharrows are a more appropriate measure as there is not enough room for a full 5 foot Class II bicycle lane immediately off the intersection with the raised median further down the road.

Additional, and alterations at this intersection could include textured pavement along the crosswalk across Clayton Rd, the development of an elevated pedestrian bridge from the bus stop along eastbound Clayton Rd to the opposite side, and a Class II bicycle lane between the two turning lanes on southbound Fry Way. These alternatives would be more costly than the initially proposed intersection alterations, but can have a greater effect on increasing pedestrian and bicycle comfort and safety.

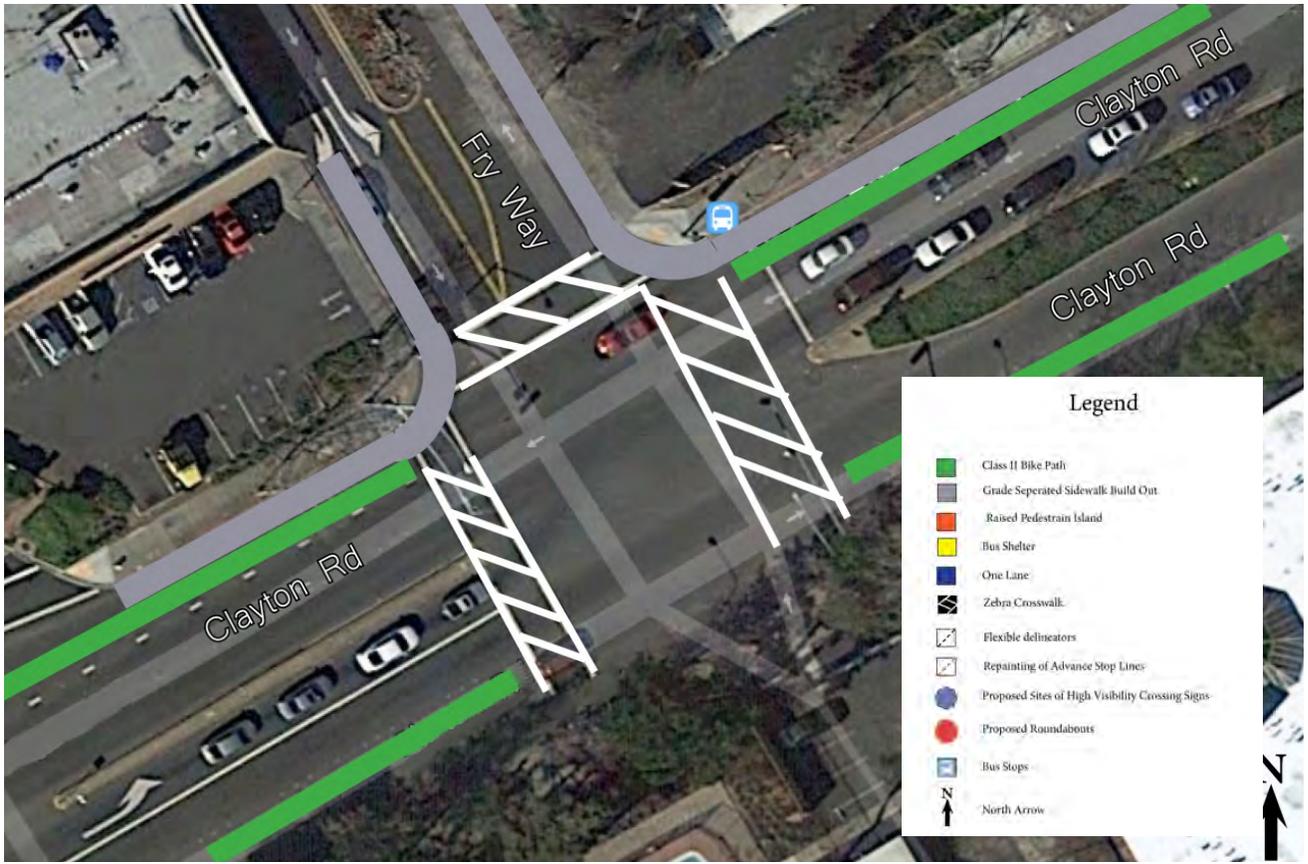


Figure 4-6: Clayton Road and Fry Way Intersection

4.7 Willow Pass Road / Galindo Street

4.7.1 Intersection Description

Galindo Street is comprised of seven lanes with protected left/right turn lanes; similarly, Willow Pass Road has five to six lanes with protected left and right turn lanes at the intersection as well. The intersection was observed to have zero bicycle infrastructures within the roadway, forcing the majority of cyclists to travel on the sidewalks. Crosswalks were identified with light-red textured pavement and slight indentations along the borders. Sidewalks are currently available throughout the corridor coupled with tree shading and benches. Located at the corners of the Galindo and Willow Pass intersection is a Chevron gas station, Bank of America, residential building, and an Agave Mexican Restaurant, I Love Teriyaki & Sushi Restaurant and Brenden Theaters built within the a single large structure. One block away from the intersection is Todos Santos Plaza where a variety of food choices, office buildings and open space accompanied by playground structures are available.

According to Google Earth, the crosswalks measure approximately 75ft across from curb to curb starting from the top and moving clockwise, 81ft across, 75ft across and 96ft across. Diagonal measurements were 120 and 125 feet. As already mentioned, the crosswalks are delineated using a textured and slightly different colored pavement. Although, aesthetically pleasing, the crosswalks were observed to not be highly visible to drivers, bikers and pedestrians alike.

Vehicular travel lanes were observed to be marked using yellow and white reflectors with limited solid stripe painting used. According to Google Earth, the street lanes appear to range between approximately 9-11 feet wide; however, the widest turning lane measure to be approximately 15 feet wide along Galindo Street. Research identified an issue with the signalization order and timing for vehicles traveling along Willow Pass Road receiving a protected left-turn arrow turning onto Galindo Street. Vehicles would regularly honk at other vehicles not noticing the protected left-turn arrow that would only allow 3-5 vehicles per rotation before turning to a solid green light for through traffic. Furthermore, vehicles attempting to make the protected left-hand light late would interfere with pedestrian crossings as the pedestrian signal initiated.

4.7.2 Intersection Proposed Treatment

This report suggests the Galindo and Willow Pass Road intersection as a possible location for a pedestrian and bicycle diagonal crossing, often referred to as a scramble. Diagonal crossings stop all vehicular traffic at the intersection and safety allow pedestrians and cyclists alike to cross diagonally as they please. Furthermore, in order to accommodate bicyclists and pedestrian safety, this report suggests highly visible Class II bicycle lanes along both Galindo Street and Willow Pass Road.

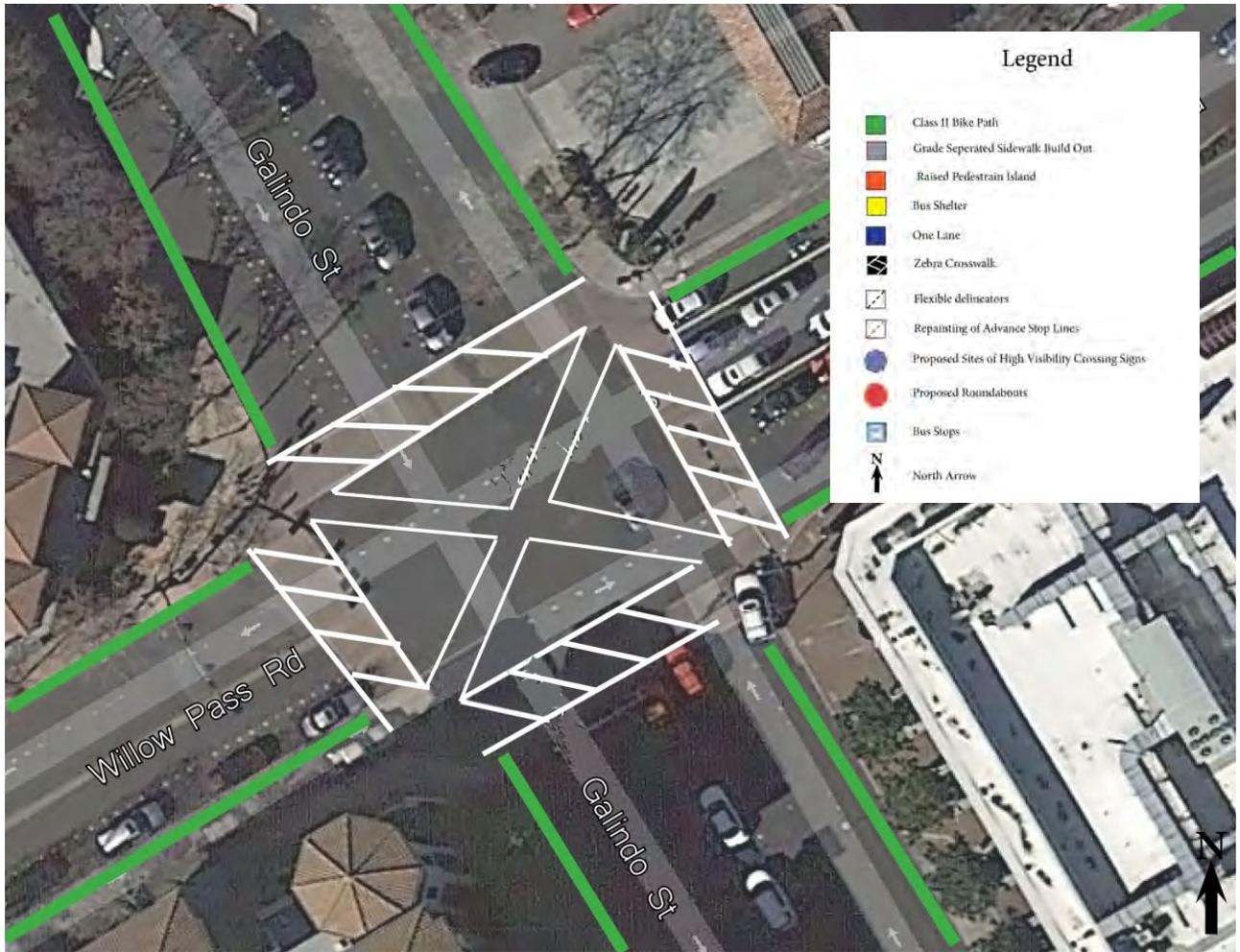


Figure 4-7: Willow Pass Road and Galindo Street Intersection

4.8 Galindo Street / Laguna Street

4.8.1 Intersection Description

The four-way intersection at Galindo and Laguna streets is located south of downtown Concord, close to the Concord BART station (see map below). Galindo Street is a thoroughfare that connects residential neighborhoods in the Monument community with downtown Concord, while Laguna Street connects residential neighborhoods with access to the BART station. West of Galindo Street, Laguna Street intersects with Oak Street, leading to the BART station. Galindo has four lanes (two traveling south and two north) that are divided by a landscape median. Laguna and Oak streets have two lanes, one traveling east and one west. There are no bicycle lanes on Galindo, Laguna and Oak streets. Leg C (crossing Galindo Street on the Southern portion of the intersection) is the only crosswalk that allows for east – west pedestrian access through the intersection. Pedestrians who crossed Galindo Street at leg A were doing so illegally. There are signalized pedestrian crosswalks at legs B, C and D.

4.8.2 Intersection Proposed Treatment

A “zebra crossing” at this crosswalk in particular will help to increase the visibility of the intersection for pedestrians and drivers. Zebra crossings are recommended for all other crosswalks at this intersection. A diagonal crossing is proposed to allow for pedestrian crossing from the northwest corner to the southeast corner of the intersection (see illustrated mockup on following page). The distance between these corners is approximately 101 feet in length. Because the average person walks at 3.4 feet per second, it would take approximately 30 seconds for the average person to cross the proposed diagonal crossing. Bulb-outs are proposed on each corner of the intersection to reduce pedestrian crossing distance and the speed of turning vehicles. Improvements to signal timing would better accommodate pedestrian mobility at every crossing at this intersection, especially along the southern crosswalk on Galindo Street.

Galindo street is identified as a “community” street type in the draft Complete Streets Amendment to the Transportation Element of the Concord 2030 General Plan. The Complete Streets Amendment calls for “on-street striped lanes or alternative routes” for community street types. Clearly demarcated class II bicycle lanes with green stripping for both Galindo and Laguna streets (displayed on the illustrated mockup on the following page) will increase bicyclist safety and help to guide bicyclists through the intersection. Although class II bicycle lanes may currently conflict with existing automobile traffic volumes, they should be considered for future implementation as Concord’s bicycle path circulation network is further developed. Almost all pedestrians coming to and from the BART station cut through the vacant lot on the western side of Galindo Street rather than use the sidewalk on Laguna and Oak streets. This presents an opportunity for future development to incorporate a pedestrian corridor in building design.

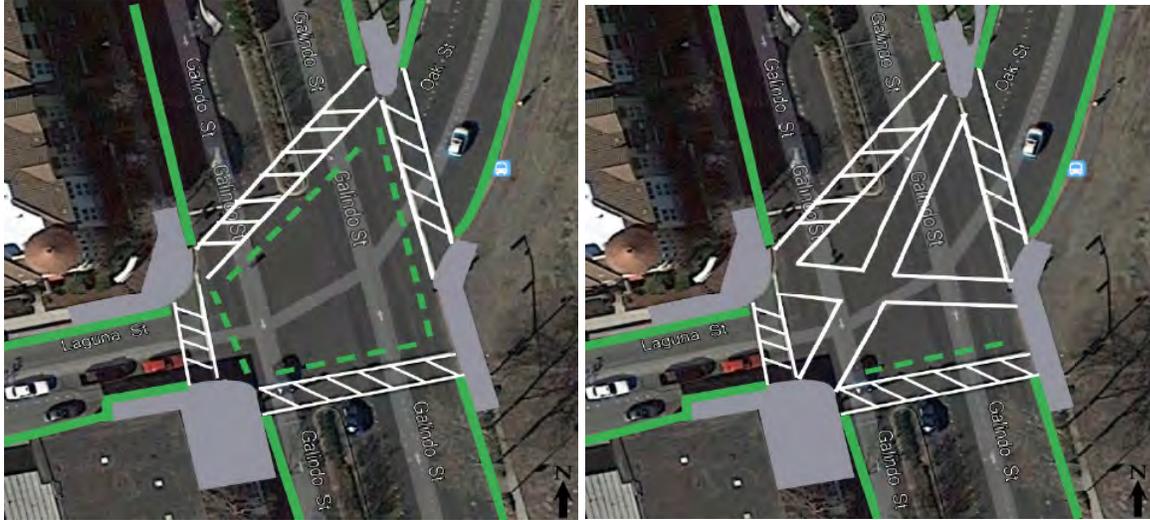


Figure 4-8: Galindo Street and Laguna Street Intersection Options 1 and 2

4.9 Mt Diablo Street / Oakland Ave and Mt Diablo Street / Mesa Street

4.9.1 Intersection Description

There is some opportunity for improvement with the intersections of Mt. Diablo and Oakland, and Mt. Diablo and Mesa. The main problem here is one of safety. Oakland and Mesa are used together as a through road, but going through requires vehicles to make two stops in a short space. Combine this with high volumes of traffic and drivers who do this every day, twice a day, and the result is a group of motorists who do not come to complete and safe stops. Pedestrians were hesitant to use the crosswalks when motorists were present at the intersections because all the vehicles would stop in the crosswalks and then quickly go again. Pedestrians would wave on traffic until there was a gap in cars to safely cross.

4.9.2 Intersection Proposed Treatment

The solution to this problem may be to convert both intersections into roundabouts. Roundabouts would force motorists to slow down using geometry rather than sign control. A motorist can ignore a sign, but if that motorist tries to ignore the geometry they will not be able to navigate the turns. This will improve traffic flow, and improve motorist satisfaction which will likely improve the chances of them yielding to pedestrians. Buses will be able to turn right from Oakland and drive through on Mt. Diablo by mounting a small elevated curb around the inner diameter of the roundabout that would be difficult for smaller vehicles to navigate over. Emergency vehicles would also be able to use this raised apron curb.

To further improve pedestrian safety at these two intersections the crosswalks should also include bulb outs and high visibility crosswalks. Bulb-outs can cost anywhere from \$2,000 to \$25,000 depending on the need to accommodate drainage and if patterned concrete is used. To increase visibility at the crosswalks a different colored paint and signage can be used for a low cost alternative. Ladder crosswalks cost around \$300 and patterned concrete crosswalks cost around \$3,000. Sidewalks can be widened to create multi-use paths to give bicyclists a place to ride. At the time of our observations most bicyclists already were using the sidewalks and the multi-use sidewalk parallel to Mesa and the BART line operated well with pedestrians and bicyclists using it.

To encourage bicycle ridership in an area where bicyclists are reluctant to ride in Concord, the City can create bicycle boulevards. Bicycle boulevards are streets that have been modified to prevent through vehicle access, but allow through bicycle traffic. This allows residents to access their homes while preventing through traffic, and creates a safe atmosphere for bicyclists. Laguna Street can be turned into a bicycle boulevard to provide a safer bicycling alternative to Mt. Diablo Street east of these intersections.

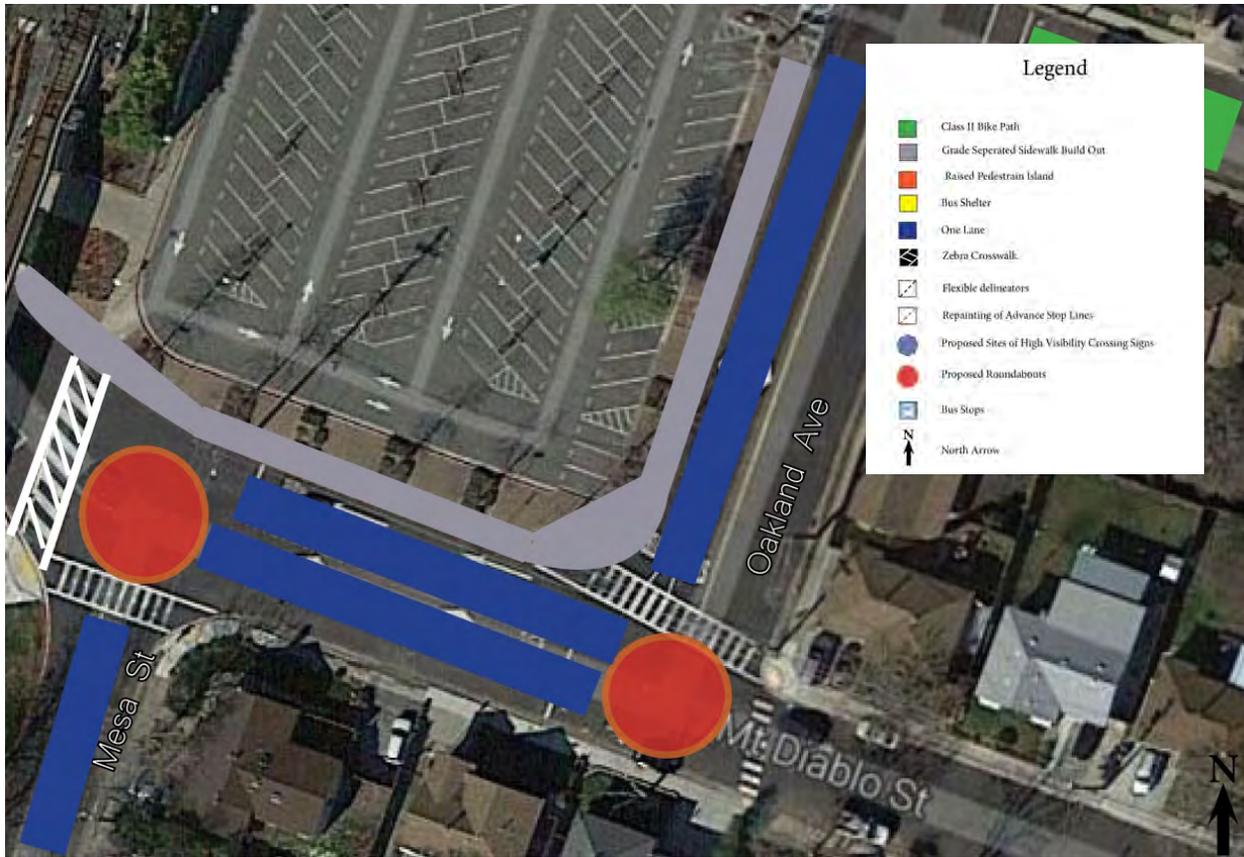


Figure 4-9: Mt. Diablo Street and Oakland Ave Intersection

4.10 Clayton Road / Grant Street

4.10.1 Intersection Description

Presently, Grant St. consists of four lanes to the north and four lanes to the south. Comparatively, Clayton Rd. consists of five lanes to the east and west, serving as a one-way street. There are no transit stops at either of the corners, given the adjacent rail system. Sidewalks, as well as gutters areas are clean of garbage and debris. Very minimal cracks and disruptive paving make for easy flowing pedestrian traffic. Street markings are clearly labeled and thick. Traffic lights and pedestrian lights function well and show no signs of damage. Pedestrian crossings are clearly paved with a different texture. Vacant lots to the east of the intersection are manicured and maintained. The whole site is planted with healthy trees and shrubbery. All along the Bank of America complex, there are dual tree buffers, one between the street and the sidewalk, and the other between the complex campus and the sidewalk. All four corners of the intersection have ADA accessible ramps. Additionally, there are trashcans at both corners on the west side of Grant St.

4.10.2 Intersection Proposed Treatment

Though, there are limitations in this site, there are plenty of opportunities within this intersection. This report suggests that with Clayton Rd. being five lanes wide and containing two separate turn-only lanes, a reduction of the width of the vehicle lanes should be implemented to incorporate high visibility bicycle lanes. The bike lanes would be implemented on both sides of Grant St. and only on one side of Clayton Rd. Given the volume and the perceived traffic speed, a two foot buffer, along with added color to the lane, would really benefit cyclists in terms of perceived safety and visibility. As shown above, the Class II bicycle facilities will strategically utilize green paint throughout the intersection to increase bicycle safety. As the bicycle lanes approach the intersection, the design pattern shifts from stripes, every 10 to 15 feet, to a solid green line. This is done to increase bicyclists' visibility near the intersection and act as a traffic calming device. Diminishing the turn-only lanes for a bike lane, bicyclists can be drawn from the sidewalk and into the street. The cost for a project of this size can approximate up to \$9,000. This proposal also presents an opportunity to inform the public of proper bicycling in the street, and help create a transition from riding on the sidewalk to riding on the street. Programs and organizations can be formed to help promote bicycle safety and educate the public on how to use their bikes.

In addition, it is suggested that in order to embrace the TOD, higher visibility be given to crosswalks. Although there are different pavers to alert drivers of crossing an intersection, more visibility can be given in a zebra-like manner as shown in the image above. The design pattern would be striping every 16 inches to 2 feet along the crosswalk. This allows for pedestrians to be clearly seen from further away, as well as accommodate for an increase in pedestrian usage. This in turn encourages more pedestrian-oriented development within the area and emphasizes on the TOD overlay of the site. The cost for a project of this size can range from \$3 to \$6 per linear foot



Figure 4-90: Clayton Road and Grant Street Intersection

4.11 Panoramic Drive/Port Chicago Highway

4.11.1 Intersection Description

Port Chicago Highway and Panoramic Drive is the entrance to the North Concord BART Station and the Panoramic Neighborhood. It is the last intersection in Concord before the Highway 4 freeway entrance ramp. The BART right of way is directly adjacent to Port Chicago Highway and crosses under Panoramic Drive. Auto traffic is high and moves at high speeds that create an environment that does not encourage walking or biking. The intersection is also adjacent to a class I bike path. However, this path is not clearly marked and does not adequately connect with the rest of the city. Pedestrians and bicyclists crossing the intersection must do so over an intersection that is not clearly visible, accessible, or safe. There is a lot of potential for this intersection to help encourage bicycle and pedestrian access to transit in a safe and comfortable way. Improvements are vital for this area, especially because it will be an access point to the Naval Weapons Station Reuse Plan. The recommendations made in this section consider the needs of the area now and will also help prepare the area for the future planned development.

4.11.2 Intersection Proposed Treatment

Multiple interventions are suggested for the intersection at Port Chicago Highway and Panoramic Drive. These suggested improvements are made based on observations and pedestrian and bicycle traffic counts made during AM and PM peak hours on May 7th and 8th. Measures are necessary to increase bicycle and pedestrian access, visibility, and safety. It is recommended that the sidewalk is continued on the east side of Port Chicago Highway north of Panoramic Drive. This should continue to the north in order to connect with the existing sidewalk at the Hwy 4 North off ramp. In order to shorten crossing time and create a safer pedestrian crossing, improvements need to be made to the crosswalks. The crosswalks with the highest pedestrian volumes should have their medians extended into the crosswalks and pedestrian islands should be included. A crosswalk should also be added to the north side of the intersection. All crosswalks should have zebra striping in order to increase visibility.

This will improve access for pedestrians. In order to create a more comfortable transit riding experience, a shelter and bench should be added to the bus stop on southwest corner of the intersection. The class I bike path that travels along the BART line and Port Chicago Highway needs substantial improvement. This path is the key bicycle connection between the North Concord BART station and the surrounding neighborhoods with the rest of the city. It is underutilized and has the potential to increase bicycle usage throughout Concord. The path needs to be clearly marked with painted bicycle symbols and lanes. It must be connect to the rest of the path through proper street crossings and way-finding signage. Way-finding signage needs to be prominent at all cross streets and within the BART station to direct people to the class I path and the destinations found near the route. The path needs to be fully connected throughout the route. There should be no gaps in this path. This means that there needs to be a clear bicycle crossing within the BART station. Also the gap in the path to the north, between the intersection and the freeway entrance ramp, must be filled in. These improvements will become more necessary as the Naval Weapons Station Reuse Plan comes into effect. It is recommended that these improvements are made before development construction begins.

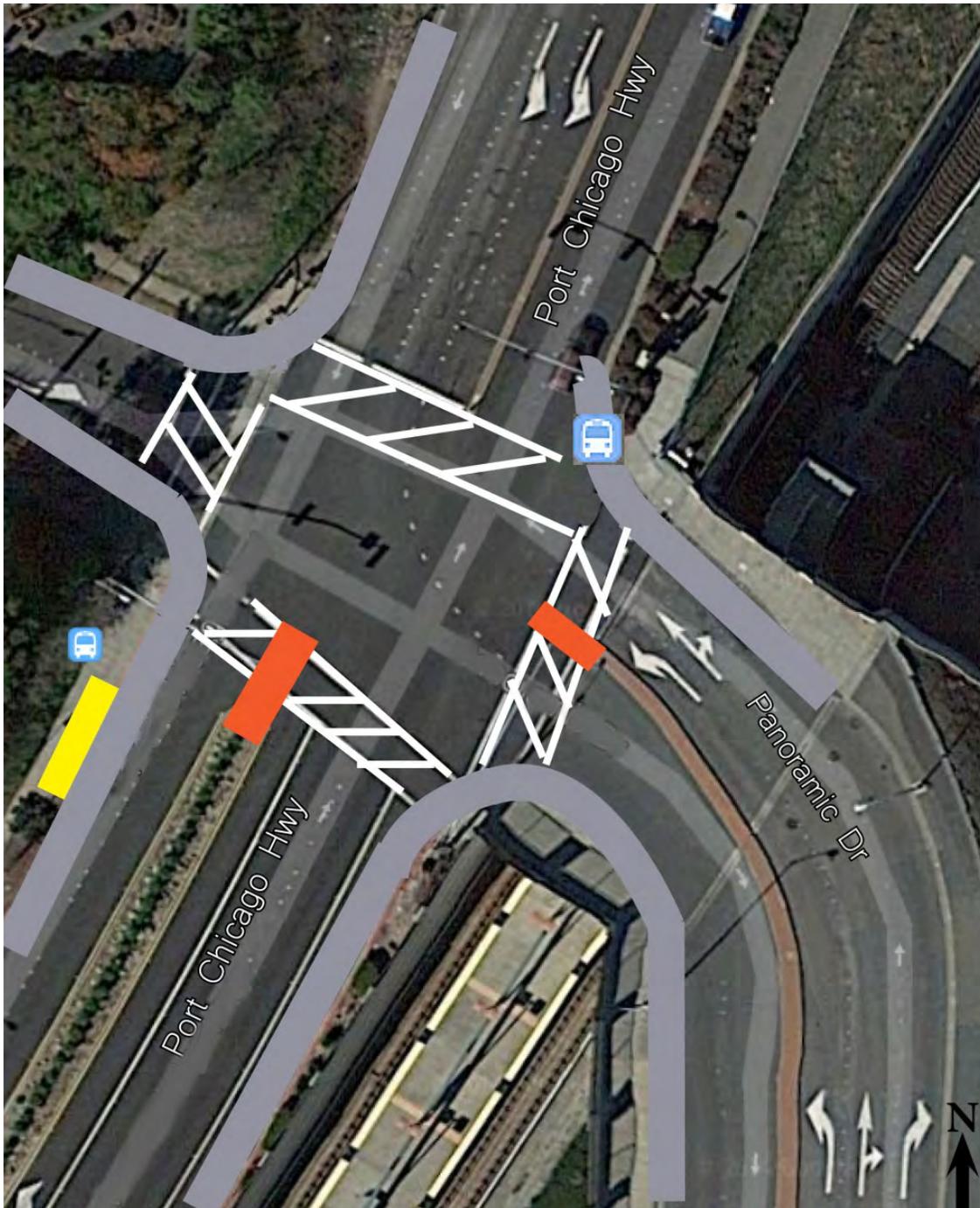


Figure 4-11: Panoramic Drive and Port Chicago Highway Intersection

5 Educational Workshop Public Outreach – July 31st

The study involved with an educational workshop and public outreach event that was held in Todos Santos Plaza on Thursday, August 7th, 2014. The event was coordinated with the City of Concord's Planning Department to be held during Concord's Farmers' Market, where many members of the community gather to buy goods from farmers and food vendors and enjoy the live music. Concord's Thursday Farmers' Market runs seasonally from late April until late October every year and began at roughly 4pm ending around 8pm with live music being played from approximately 6:30pm to 8pm. Dr. William Riggs, Charlie Coles, Camille Jackson, and Megyn Rugh were acting representatives of the Concord Complete Streets Study and were available encouraged and engaged the public to participate in the outreach and educational workshop while also answering many questions relating to the topic.

Preparing the event involved the development of four boards which would be used to educate the public on the work which was involved in the study and provide the community with a medium to express their thoughts and opinions on pedestrian and bicycle planning in the City of Concord. The objective of this public outreach event was to educate the community on the work that is being done their city and encourage their feedback and opinions on the subjects presented throughout this report. The observations and data received from this event can be used by the City and other organizations as preliminary information that can contribute to the effectiveness of future outreach events and the project as a whole.

The first board, shown as "What Are Pedestrian & Bicycle Counts?", briefly describes the process the Concord Complete Streets Study followed to gather its initial data. The board begins by stating the purpose of pedestrian and bicycle counts, then provides a graphical representation of the team's process of selecting the intersections to study, includes a list of count instructions accompanied by copies of actual bicycle and pedestrian count sheets, and an image representing the eco-counter and its findings which was installed at the Iron Horse Trail and Concord Street intersection. Concluding at the bottom of the board, the reader would be introduced to an exact definition of what a pedestrian and bicycle count was to help summarize the images presented throughout the display. This graphical representation was observed to provide the team members present at the event with an effective medium to help explain the process of the study. Although very brief in nature, the display was effective in explaining the data collection process and helped community members understand the details and work involved in the transportation planning process.

The second board, shown as "Comment Wall", allowed members of the community to comment on topics related to bicycling and pedestrians in the City of Concord. The display posed the question, "What is YOUR VISION for bicycles and pedestrians in the City of Concord?" in order to spark comments and discussion from members of the community and encourage them to take post-it notes and summarize their ideas related to bicycle and pedestrian designs in Concord. This type of open forum was observed to encourage many members of the community to share their thoughts, opinions, expertise and experiences relating to bicycle and pedestrian planning in the City of Concord. The comments shared by the public establish to identify and

development new ideas and/or issues that maybe were not focused on throughout the study and can be included in future public outreach events.

A total of 17 comments were added to the comment wall and are listed below:

1. "Physically challenged people"
2. "The bike paths here in Concord would start and stop at major streets. Makes it very dangerous to cross to continue on the path. Maybe a safer connection."
3. "Tree-lines streets"
4. "Buffered bike lanes!"
5. "Take space for bikes!"
6. "Longer times at lights so you can get across the intersection"
7. "More bike lane all over major roadway (Willow Pass, Clayton and Port Chicago) sign for bikes"
8. "Raise pavement on class II painted bike lanes"
9. "Bike lanes across (under) freeway overpasses"
10. "Seconds count down at lights when crossing so you know how much time is left to cross the intersection"
11. "Equal share of roads"
12. "Bike lane on Willow Pass Rd"
13. "Separate bike lanes to and from Todos Santos Plaza"
14. "Traffic calming things like bulbs and bumps on the road"
15. "Start bike sharrows. Cheap, effective, simple, immediate."
16. "Please coordinate with other cities i.e. Pleasant Hill and Willow Pass Rd etc."
17. "Ask cyclists how they travel on and around crowded areas. I avoid major routes and use residential areas and paths. Willow Pass / Concord Avenue are brutal and we stay away as much as possible."

The third board, shown as "What Do You Like Most?", was designed to evaluate the types of bicycle and pedestrian street infrastructure which the community in Concord valued most. The display showed a photograph and title of fourteen different types of bicycle and pedestrian infrastructure and encouraged participants to place a "star" under the designs they valued most. The infrastructure designs chosen in this activity were taken directly from the suggestions made throughout this report in order to see how the public would react to the proposed changes in this study. Additionally, an "Other?" section was included to inspire contributors to think outside the box and embrace new ideas which were not included. This board was also observed to encourage discussion and communication between the public and the planners on these different types of infrastructure and their possible benefits for a community. The results concluded that Class II Bike Lanes, Neighborhood Greenway Bicycle Boulevards, Class II Bike Lanes Painted Green and Bike Box Turning Lanes were among the top four most favored infrastructure designs for the City. The findings of this activity are graphed below in Table 1 where each infrastructure is listed and coordinated with the number of total stars they received during the event. Furthermore, two suggestions were added to the "Other?" section which are not included in the graph: 1) Wheelchair Access and 2) Buffered Bike Lanes.

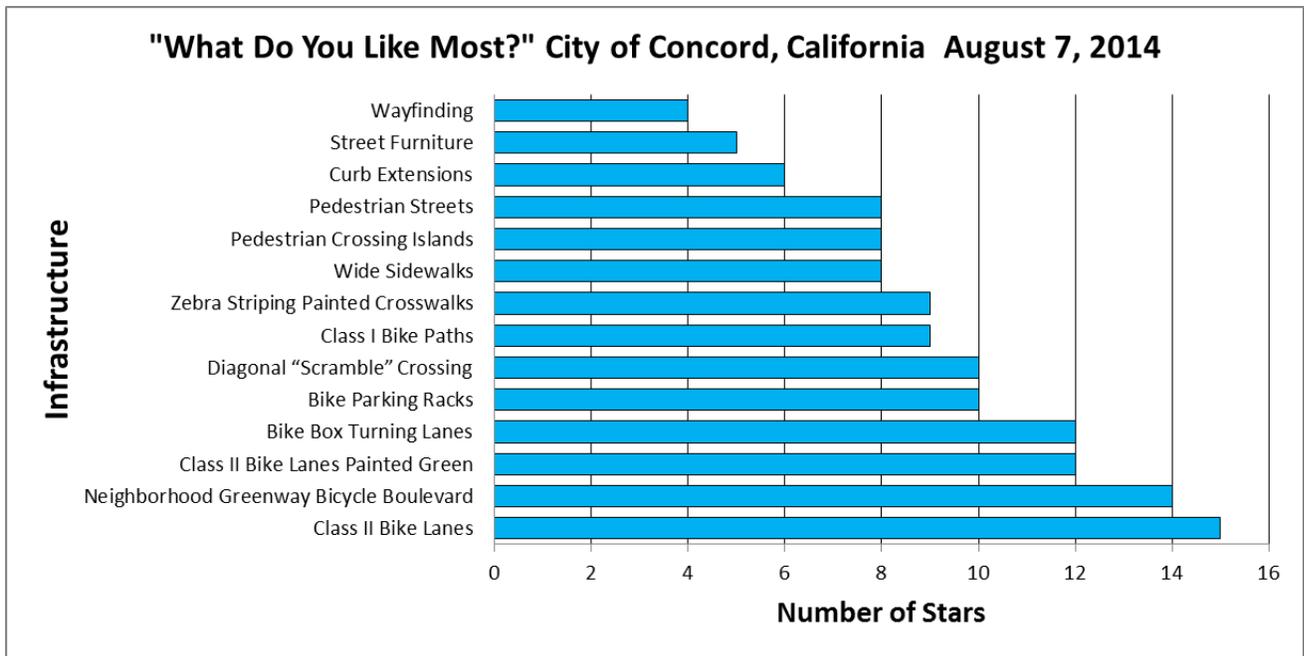


Figure 5-1: "What Do You Like Most" City of Concord, California August 7, 2014 Results

The fourth board, shown as "Intersection Treatments", illustrated the thirteen actual intersections which were used in the study and their proposed treatments. This board was created to show some members of the community ideas and first draft proposals for the City of Concord that are found in the report. Furthermore, the display encourages participants to communicate their thoughts and impressions on the proposed treatments in order to gauge how the public felt about the designs being presented in their city. Street names were generally left out and bright colors were used throughout the graphics of the display in order to prevent members of the community from thinking these designs are complete. Observations found by engaging with members of the public concluded no real opposition to the ideas presented in the graphics; rather contributors were interested in which intersections were selected and even identified other intersections which could be focused on in the future. Participants were encouraged to record their thoughts and suggestions from this display on the "Comment Wall" so their contributions could be used for future developments.

6 Conclusions & Next Steps

Based on the counts and analysis conducted as a part of this study it is clear that there are many opportunities to improve access for bicycles and pedestrians in the City of Concord. Much of this is low-hanging fruit, especially as more Millennials move to the area seeking to walk and bike from home to places they work or socialize. Many of our suggested intersection treatments in high-volume locations are simple – looking at the continuity of bike lanes and sidewalks as constant paths and corridors for travel. Establishing a clear citywide plan for routes is a clear next step and a recommended outcome for future documents. In addition to that outcome the following concepts may provide a roadmap for future planning efforts.

- Establish a clear plan for making all sidewalks and curbs ADA accessible
- Evaluate the potential for lower-volume streets to serve as boulevards
- Explore use of consistent class 2 bike lanes and sharrows that eliminate gaps in the network, and buffered bike lanes two-way cycle tracks as a possibility for higher volume areas where safety is needed
- Explore programs that incentivize and educate citizens and create a culture of active transportation through biking and walking

The City of Concord can greatly benefit from the institution of a comprehensive pedestrian and bicycle plan. The simple continuation of bike paths is a feasible starting point for the city to improve the infrastructure of alternate travel modes and create a more accessible community. The combination of future planning programs and the suggested intersection treatments can help reshape the city into creating safe and confident pedestrians and bike travelers.

7 Appendices

7.1 Public Outreach Boards

What Are Pedestrian & Bicycle Counts?

Purpose: To provide data to be used in the process of creating a bike friendly and more walkable City of Concord

Select the Intersections



Count Instructions

Record your name as the observer.
Record the date and time period of the count.
Estimate the current temperature (°F) and weather (sunny, cloudy, rainy, etc.).
Describe the intersection, including surrounding buildings (e.g., restaurants, single, family houses, offices, etc.), and roadway characteristics (traffic signals, median islands, fast traffic, etc.).

Counting Procedure:
Tally each time a subject enters the designated intersection from each of the approaches. Gathering the following info allows us to refine our judgments.
For Bikes you should use the nomenclature that indicates whether or not they are wearing a helmet "Y" or "N"
Mark a "W" next to the row if a bicyclist dismounts his or her bicycle to cross the intersection. Do not count bicyclists who only walk, and do not ride their bike throughout the observation.
Place tally in the turn direction that is appropriate.
Count bicyclists or pedestrians who may be riding / walking on the wrong side of the street (against traffic) or breaking the law.
Work in 15 minute increments and move to the next observation block every 15 minutes.
Take notes of any odd occurrences.

Pedestrian Count Sheet

Bicycle Count Sheet

Eco-Counter



A pedestrian and bicycle count is a count of the number of bicyclists and pedestrians observed traveling on major city streets. Counts are completed between the morning and afternoon peak periods, or between 7 AM - 9 AM and 5 PM - 7 PM, over two days in order to represent a typical 48 hour period. Pedestrian and bicycle traffic is counted in each direction of traffic flow at a predetermined intersection.

Concord Complete Streets Study

@BikePedAction

CAL POLY
SAN LUIS OBISPO

Comment Wall

What is YOUR VISION for bicycles and pedestrians
in the City of Concord?



Concord Complete Streets Study

@BikePedAction

CAL POLY
SAN LUIS OBISPO

What Do You Like Most?

Please place your stickers on the bicycle and/or pedestrian designs you like most!



Class I Bike Paths



Class II Bike Lanes



Class II Bike Lanes Painted Green



Bike Parking Racks



Diagonal "Scramble" Crossings



Bike Box Turning Lanes



Zebra Striping Painted Crosswalks



Wide Sidewalks



Pedestrian Crossing Islands



Pedestrian Streets



Curb Extensions



Wayfinding



Neighborhood Greenway Bicycle Boulevard



LET US KNOW!!!!



Street Furniture

Intersection Treatments

Imagine If...

Legend

- Class II Bike Path
- Grade Separated Sidewalk
- Raised Pedestrian Island
- Bus Shelter
- One Lane
- Zebra Striped Crosswalk
- Flexible Delineators
- Repainting of Advance Stop Lines
- High Visibility Crossing Signs
- Roundabouts
- Bus Stops
- North Arrow

Please let us know what you think!

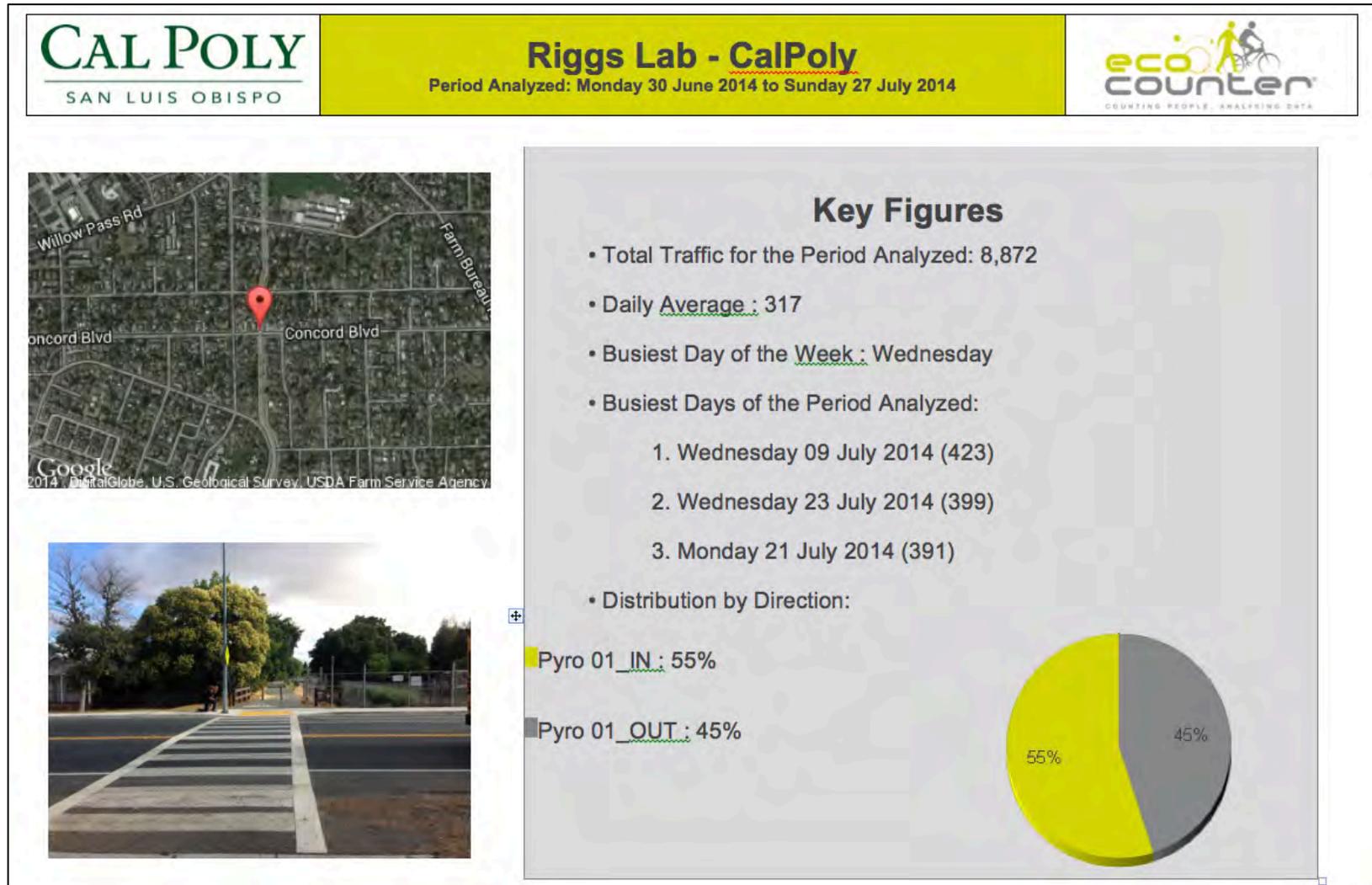
Concord Complete Streets Study

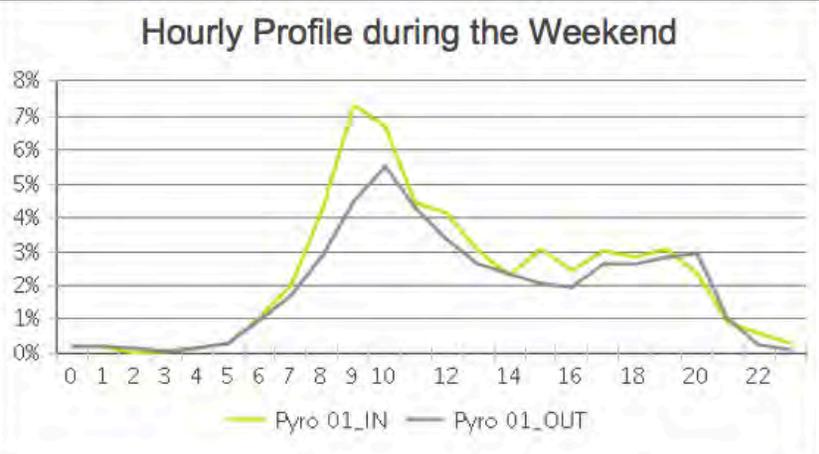
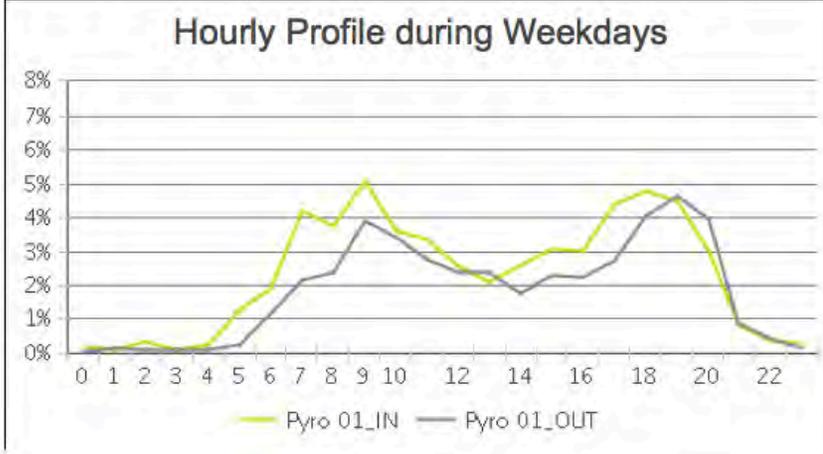
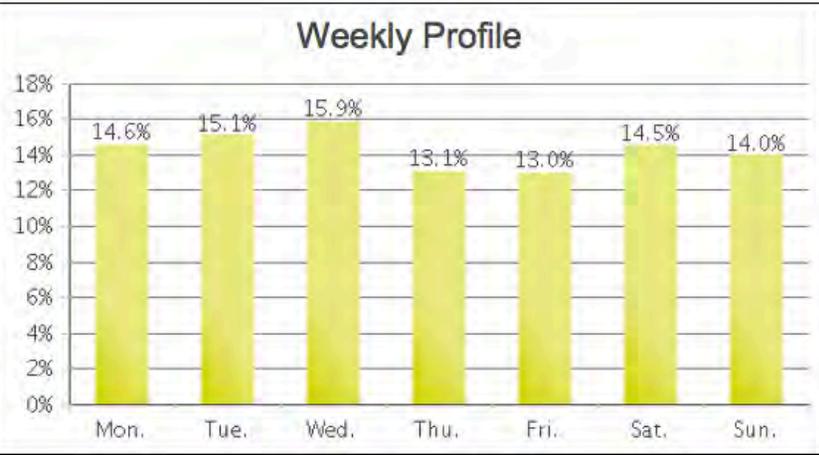
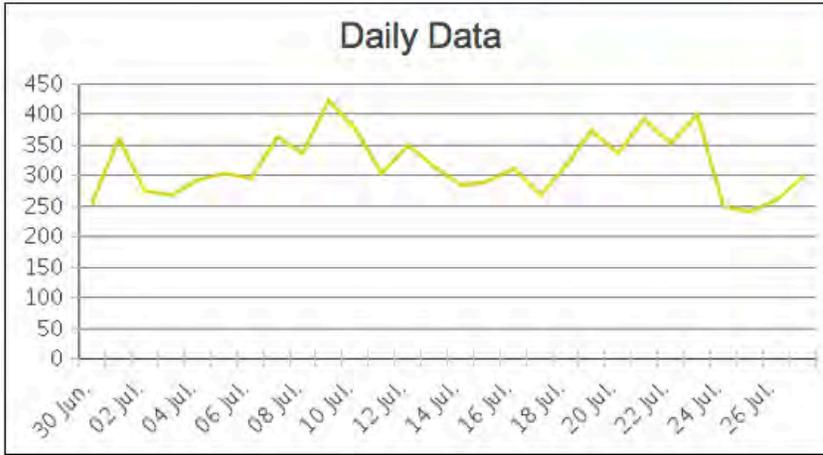
@BikePedAction

CAL POLY
SAN LUIS OBISPO

7.2 Eco-Counter Summary Report

Pyro 01_IN indicates a pedestrian entering the crosswalk heading southbound across Concord Boulevard, and Pyro 01_OUT indicates a pedestrian exiting the crosswalk and continuing on Alameda Way heading northbound.





7.3 Concord Complete Streets Data Consolidation

7.3.1 Day 1 AM Hour 1 Pedestrian Crossing Leg A and Leg B

Observer Last Name	Temperature, Weather & Other Conditions	Intersecting Roadway	Pedestrian Day 1 (PM Peak) TOTAL	HOUR 1 Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	HOUR 1 Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Chin	50s Sunny	Babel Lane / Cowell Road	1	0	0	0	0	0	0	0	0
Williams	Warm and sunny	Clayton Road / Fry Way	169	9	11	9	10	9	15	10	12
Knox	50s Sunny	Clayton Road / Grant Street	139	1	1	0	3	4	6	5	9
Steffen	50s Sunny	Clayton Road / The Alameda	42	2	5	8	1	0	0	0	0
Chamberlain	50s Sunny	Galindo Street / Laguna Street	157	0	0	0	0	2	1	1	0
Rodriguez	50 F, Sunny/Clear View	Meadow Lane / Monument Boulevard	98	0	1	0	4	1	5	4	3
Scales	50s Sunny	Mt Diablo Street / Mesa Street	65	0	0	0	0	3	1	3	2
Scales	50s Sunny	Mt Diablo Street / Oakland Ave	39	0	1	1	1	0	1	1	0
Gross	50s Sunny Windy	Panoramic Drive / Port Chicago Highway	66	2	0	0	0	0	1	0	0
Evangelopoulos	54 Sunny Windy	Salvio Street / Galindo Street	69	0	3	1	0	0	1	0	3
Gallardo	50s, Sunny	Willow Pass Road / Diamond Boulevard	15	0	0	1	0	0	0	0	0
Coles	50-51 Sunny	Willow Pass Road / Galindo Street	62	1	3	0	0	3	2	5	2

7.3.2 Day 1 AM Hour 1 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOUR 1 Ped Crossing Leg C: 0-15 minutes	Ped Crossing Leg C: 15-30 minutes	Ped Crossing Leg C: 30-45 minutes	Ped Crossing Leg C: 45-60 minutes	HOUR 1 Ped Crossing Leg D: 0-15 minutes	Ped Crossing Leg D: 15-30 minutes	Ped Crossing Leg D: 30-45 minutes	Ped Crossing Leg D: 45-60 minutes
Babel Lane / Cowell Road	1	0	0	0	0	0	0	0
Clayton Road / Fry Way	6	3	2	7	0	0	0	0
Clayton Road / Grant Street	0	0	1	0	7	2	17	15
Clayton Road / The Alameda	6	2	4	3	2	4	2	0
Galindo Street / Laguna Street	25	21	12	11	0	4	0	3
Meadow Lane / Monument Boulevard	2	9	3	2	5	3	1	2
Mt Diablo Street / Mesa Street	3	3	11	7	0	1	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	3	5	0	1
Panoramic Drive / Port Chicago Highway	2	5	2	3	4	6	9	4
Salvio Street / Galindo Street	0	1	0	0	0	5	6	1
Willow Pass Road / Diamond Boulevard	2	2	0	1	0	0	0	0
Willow Pass Road / Galindo Street	1	0	2	3	1	1	2	1

7.3.3 Day 1 AM Hour 2 Pedestrian Crossing Leg A and Leg B

Intersecting Roadway	HOUR 2 Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	HOUR 2 Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	3	1	11	4	8	3	12	9
Clayton Road / Grant Street	2	1	0	2	3	8	6	5
Clayton Road / The Alameda	5	1	3	4	0	0	0	0
Galindo Street / Laguna Street	0	0	0	0	0	2	4	4
Meadow Lane / Monument Boulevard	3	3	5	4	1	4	4	1
Mt Diablo Street / Mesa Street	0	0	0	0	3	1	4	1
Mt Diablo Street / Oakland Ave	1	1	2	2	2	0	0	1
Panoramic Drive / Port Chicago Highway	1	1	2	0	0	0	1	0
Salvio Street / Galindo Street	2	1	0	1	2	5	4	7
Willow Pass Road / Diamond Boulevard	0	0	1	0	0	0	0	0
Willow Pass Road / Galindo Street	1	1	1	3	5	2	2	3

7.3.4 Day 1 AM Hour 2 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOUR 2			HOUR 2				
	Ped Crossing Leg C: 0-15 minutes	Ped Crossing Leg C: 15-30 minutes	Ped Crossing Leg C: 30-45 minutes	Ped Crossing Leg C: 45-60 minutes	Ped Crossing Leg D: 0-15 minutes	Ped Crossing Leg D: 15-30 minutes	Ped Crossing Leg D: 30-45 minutes	Ped Crossing Leg D: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	3	6	6	0	0	0	0	0
Clayton Road / Grant Street	2	1	1	2	10	12	5	8
Clayton Road / The Alameda	5	4	5	2	6	2	3	2
Galindo Street / Laguna Street	13	18	19	11	1	3	1	1
Meadow Lane / Monument Boulevard	5	3	4	3	5	2	1	5
Mt Diablo Street / Mesa Street	9	3	6	2	0	0	0	2
Mt Diablo Street / Oakland Ave	0	0	0	0	2	2	3	9
Panoramic Drive / Port Chicago Highway	0	0	0	1	4	7	6	5
Salvio Street / Galindo Street	1	2	2	3	1	11	0	6
Willow Pass Road / Diamond Boulevard	1	1	2	2	0	0	2	0
Willow Pass Road / Galindo Street	3	2	1	4	4	1	1	1

7.3.5 Day 1 AM Hour 1 Bike Crossing Leg A

Intersecting Roadway	Bike Day 1 (PM Peak) TOTAL	HOUR 1	CROSSING LEG A HOUR 1												
			Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	21	15	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	15	8	0	0	0	0	2	0	0	0	1	0	0	0	0
Clayton Road / The Alameda	31	9	0	0	0	0	0	0	0	0	0	0	0	1	0
Galindo Street / Laguna Street	21	14	0	0	0	0	0	0	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	49	21	0	1	0	0	0	0	0	0	0	0	0	3	0
Mt Diablo Street / Mesa Street	21	9	0	0	0	1	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	10	8	0	1	0	0	0	0	0	0	0	0	0	2	1
Panoramic Drive / Port Chicago Highway	15	5	0	0	0	0	0	0	0	0	0	0	0	0	0
Salvio Street / Galindo Street	15	9	0	0	0	0	0	0	0	0	0	0	0	1	0
Willow Pass Road / Diamond Boulevard	31	16	0	1	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	14	6	0	0	0	0	0	0	0	0	0	0	0	1	0

7.3.6 Day 1 AM Hour 1 Bike Crossing Leg B

Intersecting Roadway	HOUR 1 LEG B Turning Left: 0-15 minutes	CROSSING LEG B HOUR 1													
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes			
Babel Lane / Cowell Road	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	0	3	0	0	0	1	0	0	0	0	0	0	0	1	0
Clayton Road / Grant Street	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
Galindo Street / Laguna Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	0	1	0	0	0	1	0	2	0	2	0	0	0	0	0
Mt Diablo Street / Mesa Street	1	0	0	0	0	1	0	2	0	1	0	0	0	0	1
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Salvio Street / Galindo Street	0	0	0	0	0	2	0	0	1	0	0	0	0	3	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0

7.3.7 Day 1 AM Hour 1 Bike Crossing Leg C

Intersecting Roadway	HOOR 1 Leg C Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	1	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	0	2	0	0	1	0	0	0	0	0	0	0
Clayton Road / Grant Street	0	1	0	0	0	0	0	1	0	0	0	0
Clayton Road / The Alameda	0	0	0	0	1	0	0	0	0	1	0	1
Galindo Street / Laguna Street	0	0	0	0	1	0	0	0	0	1	1	0
Meadow Lane / Monument Boulevard	0	0	0	1	3	0	0	1	0	0	0	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	1	0	1	0	0
Panoramic Drive / Port Chicago Highway	0	0	1	0	0	0	1	0	1	1	0	1
Salvio Street / Galindo Street	0	0	0	0	0	0	0	0	0	0	1	0
Willow Pass Road / Diamond Boulevard	1	0	0	0	5	0	0	2	0	0	0	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	0	0	0	0	0

7.3.8 Day 1 AM Hour 1 Bike Crossing Leg D

Intersecting Roadway	HOOR 1 Leg D Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	1	0	1	0	0	0	1	0	0	0
Clayton Road / Fry Way	0	0	1	0	2	0	0	1	0	1	2	0
Clayton Road / Grant Street	0	0	0	0	1	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	1	0	0	1	0	0	0	0	0	1	0
Galindo Street / Laguna Street	0	4	2	0	3	0	0	1	1	0	0	0
Meadow Lane / Monument Boulevard	0	1	0	0	1	0	0	2	1	0	3	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	1	0	0	1	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	1	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0
Salvio Street / Galindo Street	0	0	0	0	1	0	0	0	0	0	0	0
Willow Pass Road / Diamond Boulevard	5	0	0	0	0	0	0	2	0	0	0	0
Willow Pass Road / Galindo Street	0	2	0	0	0	0	0	0	0	0	0	0

7.3.9 Day 1 AM Hour 2 Bike Crossing Leg A

Intersecting Roadway	HOOR 2	CROSSING LEG A HOOR 2 Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	9	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	7	0	3	0	0	1	0	0	0	0	0	0	0
Clayton Road / The Alameda	23	1	0	0	0	0	0	0	0	0	0	1	1
Galindo Street / Laguna Street	13	0	0	0	0	0	0	0	1	0	0	3	0
Meadow Lane / Monument Boulevard	25	0	0	0	2	0	0	1	0	1	2	0	0
Mt Diablo Street / Mesa Street	12	0	0	0	2	0	0	0	0	0	1	0	0
Mt Diablo Street / Oakland Ave	8	0	0	0	0	0	0	0	1	0	0	0	0
Panoramic Drive / Port Chicago Highway	10	0	0	0	0	0	0	0	1	0	0	0	0
Salvio Street / Galindo Street	8	0	0	0	0	0	0	0	0	0	0	1	0
Willow Pass Road / Diamond Boulevard	17	0	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	10	0	0	0	0	1	0	0	2	0	0	1	0

7.3.10 Day 1 AM Hour 2 Bike Crossing Leg B

Intersecting Roadway	HOOR 2 LEG B Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	1	0	1	0	0	0	0	0	0	0	1	0
Clayton Road / Grant Street	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	1	0	0	0	0	0	3	0	0	1	0
Galindo Street / Laguna Street	0	0	0	0	0	0	0	0	0	0	0	1
Meadow Lane / Monument Boulevard	0	1	0	0	3	0	1	1	0	0	3	1
Mt Diablo Street / Mesa Street	0	0	1	0	1	1	0	2	0	0	0	1
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	1	0	0	1	0	0	1	0	0
Salvio Street / Galindo Street	0	0	0	0	2	0	0	1	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	2	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	1	0	0	0	0	0	0	0	0	0	0

7.3.11 Day 1 AM Hour 2 Bike Crossing Leg C

Intersecting Roadway	HOUR 2 Leg C Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	0	0	0	0	0	0	0	0	0	0	0	1
Clayton Road / Grant Street	0	0	0	0	0	0	0	1	0	0	2	0
Clayton Road / The Alameda	0	1	0	0	1	0	0	2	0	0	0	0
Galindo Street / Laguna Street	0	0	0	0	0	1	0	1	0	0	0	0
Meadow Lane / Monument Boulevard	0	1	0	0	1	0	0	1	0	1	4	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	0	0	0	1	1
Mt Diablo Street / Oakland Ave	1	0	0	1	0	0	0	0	0	1	1	0
Panoramic Drive / Port Chicago Highway	0	0	4	0	0	0	0	0	2	0	0	0
Salvio Street / Galindo Street	0	0	0	0	0	0	0	1	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	2	0	0	0	0	0	4	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	1	1	1	1	0

7.3.12 Day 1 AM Hour 2 Bike Crossing Leg D

Intersecting Roadway	HOUR 2 Leg D Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	0	3	0	0	0	0	0	1	0	0	1	0
Clayton Road / Grant Street	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	3	0	0	1	1	0	1	0	0	5	0
Galindo Street / Laguna Street	0	2	0	0	2	1	0	2	0	0	0	0
Meadow Lane / Monument Boulevard	0	0	0	0	0	1	0	0	0	0	0	0
Mt Diablo Street / Mesa Street	0	1	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	2	0	0	0	0	0	1
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0
Salvio Street / Galindo Street	0	0	0	0	0	0	0	0	0	1	0	0
Willow Pass Road / Diamond Boulevard	2	5	0	0	0	0	0	1	0	0	1	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	0	0	0	1	0

7.3.13 Day 1 PM Hour 1 Pedestrian Crossing Leg A and Leg B

Observer Last Name	Temperature, Weather & Other Conditions	Intersecting Roadway	Pedestrian Day 1 (PM Peak) TOTAL	HOUR 1 Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	HOUR 1 Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Chin	60s Sunny	Babel Lane / Cowell Road	8	1	0	0	0	1	0	0	0
Williams	Warm and sunny	Clayton Road / Fry Way	333	20	12	9	9	28	14	19	18
Knox	60s Sunny	Clayton Road / Grant Street	195	2	1	2	0	9	9	6	4
Steffen	60s Sunny	Clayton Road / The Alameda	66	4	4	2	2	0	0	0	0
Chamberlain	60s Sunny	Galindo Street / Laguna Street	164	0	0	0	0	1	0	0	0
Rodriguez	68 F, Sunny/Clear View	Meadow Lane / Monument Boulevard	116	1	6	3	3	2	6	0	2
Scales	Sunny	Mt Diablo Street / Mesa Street	84	0	0	0	0	3	0	3	0
Scales	Sunny	Mt Diablo Street / Oakland Ave	36	0	4	4	1	0	0	0	0
Gross	mid 60s sunny windy	Panoramic Drive / Port Chicago Highway	54	0	1	0	0	0	0	0	0
Evangelopoulos	68 degrees, sunny some wind	Salvio Street / Galindo Street	251	14	6	0	1	21	7	6	7
Gallardo	68 and sunny	Willow Pass Road / Diamond Boulevard	58	0	0	0	1	0	0	0	0
Coles	68 Party Sunny	Willow Pass Road / Galindo Street	119	9	1	0	0	6	11	3	9

7.3.14 Day 1 PM Hour 1 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOUR 1 Ped Crossing Leg C: 0-15 minutes	Ped Crossing Leg C: 15-30 minutes	Ped Crossing Leg C: 30-45 minutes	Ped Crossing Leg C: 45-60 minutes	HOUR 1 Ped Crossing Leg D: 0-15 minutes	Ped Crossing Leg D: 15-30 minutes	Ped Crossing Leg D: 30-45 minutes	Ped Crossing Leg D: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	2	6	5	4	1	0	0	0
Clayton Road / Grant Street	4	2	2	2	20	14	30	16
Clayton Road / The Alameda	3	0	3	2	3	3	2	2
Galindo Street / Laguna Street	28	19	15	30	0	0	0	5
Meadow Lane / Monument Boulevard	5	4	5	4	4	5	0	5
Mt Diablo Street / Mesa Street	6	11	5	5	1	2	2	2
Mt Diablo Street / Oakland Ave	0	0	0	0	2	3	6	2
Panoramic Drive / Port Chicago Highway	0	0	0	3	13	3	9	6
Salvio Street / Galindo Street	15	0	2	8	17	8	14	14
Willow Pass Road / Diamond Boulevard	6	3	2	4	3	0	1	3
Willow Pass Road / Galindo Street	7	5	2	5	4	8	1	5

7.3.15 Day 1 PM Hour 2 Pedestrian Crossing Leg A and Leg B

Intersecting Roadway	HOUR 2 Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	HOUR 2 Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	1	0	0
Clayton Road / Fry Way	13	14	5	10	35	41	26	17
Clayton Road / Grant Street	2	0	1	0	9	10	2	9
Clayton Road / The Alameda	3	6	3	3	0	0	0	0
Galindo Street / Laguna Street	0	0	0	0	0	0	1	2
Meadow Lane / Monument Boulevard	4	4	10	5	4	5	1	4
Mt Diablo Street / Mesa Street	0	0	0	0	4	2	2	1
Mt Diablo Street / Oakland Ave	0	0	1	2	2	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0
Salvio Street / Galindo Street	3	7	11	7	1	12	9	2
Willow Pass Road / Diamond Boulevard	1	1	0	0	0	0	0	0
Willow Pass Road / Galindo Street	1	1	2	1	4	3	6	2

7.3.16 Day 1 PM Hour 2 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOUR 2 Ped Crossing Leg C: 0-15 minutes	Ped Crossing Leg C: 15-30 minutes	Ped Crossing Leg C: 30-45 minutes	Ped Crossing Leg C: 45-60 minutes	HOUR 2 Ped Crossing Leg D: 0-15 minutes	Ped Crossing Leg D: 15-30 minutes	Ped Crossing Leg D: 30-45 minutes	Ped Crossing Leg D: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	2	0	3
Clayton Road / Fry Way	7	8	2	8	0	0	0	0
Clayton Road / Grant Street	2	0	0	0	9	11	4	13
Clayton Road / The Alameda	3	3	3	1	6	1	1	3
Galindo Street / Laguna Street	25	10	7	10	2	2	7	0
Meadow Lane / Monument Boulevard	4	5	5	2	0	0	3	5
Mt Diablo Street / Mesa Street	12	13	5	3	1	1	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	4	1	1	1
Panoramic Drive / Port Chicago Highway	0	3	1	0	4	3	3	5
Salvio Street / Galindo Street	8	3	4	3	6	7	11	17
Willow Pass Road / Diamond Boulevard	8	7	3	0	10	3	0	2
Willow Pass Road / Galindo Street	2	0	10	3	2	6	0	0

7.3.17 Day 1 PM Hour 1 Bike Crossing Leg A

Intersecting Roadway	Bike Day 1 (PM Peak) TOTAL	HOUR 1	CROSSING LEG A			CROSSING LEG A			CROSSING LEG A			CROSSING LEG A				
			HOUR 1	Turning Left: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes
Babel Lane / Cowell Road	6	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	29	17	0	3	0	0	0	1	0	0	1	0	0	0	0	0
Clayton Road / The Alameda	55	33	0	2	0	0	0	1	0	0	2	0	0	0	6	0
Galindo Street / Laguna Street	34	15	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	48	22	0	1	0	0	0	2	0	0	0	0	0	0	4	0
Mt Diablo Street / Mesa Street	13	5	0	0	0	0	0	0	0	0	0	0	0	0	1	0
Mt Diablo Street / Oakland Ave	7	3	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	9	8	0	0	0	0	0	1	0	0	0	0	0	0	1	0
Salvo Street / Galindo Street	39	17	0	1	0	4	0	0	3	0	0	2	0	0	1	1
Willow Pass Road / Diamond Boulevard	23	12	0	0	1	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	25	14	0	0	0	0	0	1	0	0	1	0	0	0	0	0

7.3.18 Day 1 PM Hour 1 Bike Crossing Leg B

Intersecting Roadway	HOUR 1 LEG B Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Clayton Road / Fry Way	0	1	0	0	4	1	0	0	0	3	0	0
Clayton Road / Grant Street	0	0	0	0	1	1	0	0	1	0	0	1
Clayton Road / The Alameda	0	2	0	1	3	0	0	1	0	0	0	0
Galindo Street / Laguna Street	0	0	0	0	0	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	0	1	0	0	4	0	0	1	0	0	1	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	1	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	2	0	0	0	0	0	0	1	0	0	0	0
Salvo Street / Galindo Street	0	0	0	0	1	0	0	0	0	0	1	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	1	0	1	0	0	0	0	0	0	0	0

7.3.19 Day 1 PM Hour 1 Bike Crossing Leg C

Intersecting Roadway	HOUR 1 Leg C Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Clayton Road / Fry Way	1	0	0	0	1	0	0	0	0	0	0	2
Clayton Road / Grant Street	0	2	0	0	2	0	0	1	0	0	1	0
Clayton Road / The Alameda	0	0	0	0	1	0	0	2	0	0	7	0
Galindo Street / Laguna Street	0	2	0	0	1	0	0	0	0	0	0	2
Meadow Lane / Monument Boulevard	0	3	0	0	0	0	0	0	0	0	1	1
Mt Diablo Street / Mesa Street	0	0	0	0	0	1	0	0	0	0	1	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	1	0
Panoramic Drive / Port Chicago Highway	0	0	0	1	0	0	0	1	0	0	1	0
Salvo Street / Galindo Street	0	0	0	0	1	0	0	0	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	1	0	0	3	0	0	1	0	0	1	0
Willow Pass Road / Galindo Street	0	0	0	0	3	0	0	2	0	0	2	0

7.3.20 Day 1 PM Hour 1 Bike Crossing Leg D

Intersecting Roadway	HOUR 1 Leg D Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Clayton Road / Fry Way	0	1	0	0	0	0	0	0	1	0	0	0
Clayton Road / Grant Street	0	0	0	0	0	1	0	0	0	0	0	1
Clayton Road / The Alameda	0	2	0	0	1	0	1	0	0	1	0	0
Galindo Street / Laguna Street	0	3	0	0	0	1	0	5	0	0	0	1
Meadow Lane / Monument Boulevard	0	2	0	0	0	0	0	0	0	0	0	1
Mt Diablo Street / Mesa Street	0	0	0	0	1	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	1
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	0	1	0	0	0	0	0	0	0	0	0	1
Willow Pass Road / Diamond Boulevard	0	0	0	0	1	0	0	0	3	0	0	0
Willow Pass Road / Galindo Street	0	0	0	2	0	0	0	0	0	0	1	0

7.3.21 Day 1 PM Hour 2 Bike Crossing Leg A

Intersecting Roadway	HOUR 2	CROSSING LEG A											
		HOUR 2 Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	14	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	12	0	1	0	0	1	2	1	0	0	0	3	0
Clayton Road / The Alameda	22	0	3	0	0	1	0	0	3	0	1	1	0
Galindo Street / Laguna Street	19	0	3	0	0	1	0	0	0	0	0	2	0
Meadow Lane / Monument Boulevard	26	0	3	0	0	0	0	0	0	0	0	2	0
Mt Diablo Street / Mesa Street	8	0	0	0	0	1	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	4	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	1	0	0	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	13	0	2	0	0	2	1	0	1	0	0	1	0
Willow Pass Road / Diamond Boulevard	11	0	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	11	0	0	1	0	0	0	0	1	0	0	1	0

7.3.22 Day 1 PM Hour 2 Bike Crossing Leg B

Intersecting Roadway	HOUR 2 LEG B Turning Left: 0-15 minutes	CROSSING LEG B											
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	1	0	0	0	1	0	0	0	0	0	0	2	3
Clayton Road / Grant Street	0	0	0	0	0	0	0	1	0	0	0	0	1
Clayton Road / The Alameda	0	0	0	0	3	0	0	0	0	0	0	1	0
Galindo Street / Laguna Street	0	3	0	0	2	0	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	1	1	0	1	2	0	0	1	0	0	3	0	0
Mt Diablo Street / Mesa Street	1	0	0	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	0	0	0	0	1	0	0	0	0	0	1	0	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	0	0	0	1	0	0	1	0	0	1	0	0

7.3.23 Day 1 PM Hour 2 Bike Crossing Leg C

Intersecting Roadway	HOUR 2 Leg C Turning Left: 0-15 minutes	CROSSING LEG C											
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	1	0	0	0	0	1	1	0	1	0	1	0	1
Clayton Road / Grant Street	0	0	0	0	0	0	0	1	0	0	1	0	0
Clayton Road / The Alameda	0	0	0	1	0	1	0	1	0	0	0	0	0
Galindo Street / Laguna Street	0	0	0	0	0	0	0	0	0	0	1	0	0
Meadow Lane / Monument Boulevard	0	0	0	0	4	0	2	0	0	0	2	0	0
Mt Diablo Street / Mesa Street	0	0	0	0	1	0	0	1	1	0	1	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	1	0	0	1	0	0	1	0	0
Panoramic Drive / Port Chicago Highway	0	0	1	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	0	0	0	0	1	0	0	0	0	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	4	0	0	2	0	1	0	0	0	1	0	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	0	0	0	0	1	0

7.3.24 Day 1 PM Hour 2 Bike Crossing Leg D

Intersecting Roadway	HOUR 2 Leg D Turning Left: 0-15 minutes	CROSSING LEG D											
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	1	1	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	1	1	2	0	0	2	0	0	0	1	0	0
Galindo Street / Laguna Street	0	4	1	0	2	0	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	0	2	0	0	0	0	2	0	0	0	1	0	0
Mt Diablo Street / Mesa Street	0	0	0	0	1	0	1	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	1	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	0	1	0	0	1	0	0	0	0	0	0	0	1
Willow Pass Road / Diamond Boulevard	0	0	0	0	2	0	1	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	1	0	0	0	0	0	2	0	0	1	0	0

7.3.25 Day 2 AM Hour 1 Pedestrian Crossing Leg A and Leg B

Observer Last Name	Temperature, Weather & Other Conditions	Intersecting Roadway	Pedestrian Day 2 (AM Peak) TOTAL	HOUR 1 Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	HOUR 1 Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Riggs	Overcast, windy	Babel Lane / Cowell Road	4	0	0	0	0	0	0	0	0
Williams	Overcast, windy	Clayton Road / Fry Way	194	5	15	6	8	9	21	15	14
Knox	50s Overcast	Clayton Road / Grant Street	126	2	1	0	1	3	2	5	6
Steffen	50s Overcast	Clayton Road / The Alameda	65	2	8	0	5	0	0	0	0
Chamberlain	Low 50s, overcast	Galindo Street / Laguna Street	163	0	0	0	0	1	0	0	1
Rodriguez	53 F, Sunny/Clear View	Meadow Lane / Monument Boulevard	85	0	0	1	1	5	2	4	5
Scales	Cloudy	Mt Diablo Street / Mesa Street	98	0	0	0	0	4	1	1	5
Scales	Cloudy	Mt Diablo Street / Oakland Ave	57	0	0	0	0	0	0	0	0
Gross	55 Windy Overcast	Panoramic Drive / Port Chicago Highway	56	0	0	4	1	0	0	1	0
Evangelopoulos	54 Partly Sunny	Salvio Street / Galindo Street	83	0	0	3	2	2	3	3	4
Gallardo	Low 50s, overcast, windy	Willow Pass Road / Diamond Boulevard	12	0	0	0	0	0	0	0	0
Coles	53-54 Party Cloudy	Willow Pass Road / Galindo Street	60	1	2	1	0	1	2	2	4

7.3.26 Day 2 AM Hour 1 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOUR 1 Ped Crossing Leg C: 0-15 minutes	Ped Crossing Leg C: 15-30 minutes	Ped Crossing Leg C: 30-45 minutes	Ped Crossing Leg C: 45-60 minutes	HOUR 1 Ped Crossing Leg D: 0-15 minutes	Ped Crossing Leg D: 15-30 minutes	Ped Crossing Leg D: 30-45 minutes	Ped Crossing Leg D: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	1
Clayton Road / Fry Way	4	1	6	3	0	0	0	0
Clayton Road / Grant Street	1	0	1	3	13	7	16	16
Clayton Road / The Alameda	3	0	3	1	4	4	3	2
Galindo Street / Laguna Street	32	17	23	15	7	1	3	1
Meadow Lane / Monument Boulevard	5	8	3	1	1	4	3	4
Mt Diablo Street / Mesa Street	4	10	8	13	1	2	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	6	6	2	1
Panoramic Drive / Port Chicago Highway	0	3	1	1	4	4	7	9
Salvio Street / Galindo Street	1	0	0	0	5	3	4	5
Willow Pass Road / Diamond Boulevard	2	0	2	2	0	1	1	0
Willow Pass Road / Galindo Street	0	1	1	3	2	1	1	2

7.3.27 Day 2 AM Hour 2 Pedestrian Crossing Leg A and Leg B

Intersecting Roadway	HOUR 2 Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	HOUR 2 Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	3	10	3	6	9	15	3	15
Clayton Road / Grant Street	1	0	0	2	6	6	3	4
Clayton Road / The Alameda	3	1	3	2	0	0	0	0
Galindo Street / Laguna Street	0	0	1	0	0	2	0	0
Meadow Lane / Monument Boulevard	1	0	4	7	0	2	4	2
Mt Diablo Street / Mesa Street	0	0	0	0	2	2	5	4
Mt Diablo Street / Oakland Ave	1	0	2	4	1	0	1	0
Panoramic Drive / Port Chicago Highway	0	1	0	0	0	0	0	0
Salvio Street / Galindo Street	1	1	0	3	3	7	5	4
Willow Pass Road / Diamond Boulevard	0	0	1	0	0	0	0	0
Willow Pass Road / Galindo Street	0	2	1	1	7	2	2	5

7.3.28 Day 2 AM Hour 2 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOURLY 2 Ped Crossing Leg C:			HOURLY 2 Ped Crossing Leg D:		
	0-15 minutes	15-30 minutes	30-45 minutes	0-15 minutes	15-30 minutes	30-45 minutes
Babel Lane / Cowell Road	0	0	0	0	1	1
Clayton Road / Fry Way	7	7	2	1	0	2
Clayton Road / Grant Street	0	1	1	9	6	3
Clayton Road / The Alameda	3	3	4	3	3	2
Galindo Street / Laguna Street	13	12	16	1	1	2
Meadow Lane / Monument Boulevard	2	2	2	4	3	3
Mt Diablo Street / Mesa Street	7	6	7	6	4	4
Mt Diablo Street / Oakland Ave	0	0	0	1	10	8
Panoramic Drive / Port Chicago Highway	1	2	1	2	7	5
Salvo Street / Galindo Street	0	1	5	5	3	5
Willow Pass Road / Diamond Boulevard	1	0	0	0	0	1
Willow Pass Road / Galindo Street	4	2	0	0	3	2

7.3.29 Day 2 AM Hour 1 Bike Crossing Leg A

Intersecting Roadway	Bike Day 2 (AM Peak) TOTAL	HOURLY 1	CROSSING LEG A HOURLY 1											
			Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	11	8	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	23	11	0	0	0	0	1	0	0	0	0	0	1	1
Clayton Road / Grant Street	22	13	0	1	0	0	3	0	0	3	0	0	2	0
Clayton Road / The Alameda	42	18	0	0	0	0	0	1	0	1	0	0	1	1
Galindo Street / Laguna Street	24	16	0	1	0	0	0	0	0	1	0	0	0	0
Meadow Lane / Monument Boulevard	42	19	0	0	0	0	0	1	3	0	0	1	0	0
Mt Diablo Street / Mesa Street	12	7	0	1	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	14	8	0	1	0	0	1	1	0	0	0	0	1	1
Panoramic Drive / Port Chicago Highway	13	7	0	2	0	0	2	0	0	0	0	0	0	0
Salvo Street / Galindo Street	25	15	0	0	0	0	2	0	0	1	0	0	1	0
Willow Pass Road / Diamond Boulevard	30	21	0	1	0	0	0	1	0	0	0	1	0	0
Willow Pass Road / Galindo Street	9	9	0	1	1	1	0	0	1	0	0	0	0	0

7.3.30 Day 2 AM Hour 1 Bike Crossing Leg B

Intersecting Roadway	HOURLY 1 LEG B Turning Left: 0-15 minutes	CROSSING LEG B HOURLY 1												
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes		
Babel Lane / Cowell Road	1	1	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	0	2	0	0	2	0	0	0	0	0	0	0	1	0
Clayton Road / Grant Street	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	1	0	0	1	0	0	2	0	0	0	1	0	0
Galindo Street / Laguna Street	0	1	0	0	0	1	0	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	1	1	1	0	0	0	0	0	0	0	0	1	0	0
Mt Diablo Street / Mesa Street	0	0	0	0	1	0	1	0	0	0	0	0	3	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	1	0	0	0	0	0	1	0	0	0	0	0	0
Salvo Street / Galindo Street	0	1	1	0	1	0	1	1	0	0	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	0	0	0	1	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	0	0	0	1	0	0	0	0	0	0	1	0	0

7.3.31 Day 2 AM Hour 1 Bike Crossing Leg C

Intersecting Roadway	HOOR 1 Leg C Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	0	0	1	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	0	0	0	0	0	0	0	2	0	0	1	0
Clayton Road / The Alameda	0	4	0	0	1	0	0	0	0	0	3	0
Galindo Street / Laguna Street	0	0	0	0	0	0	0	0	0	0	1	0
Meadow Lane / Monument Boulevard	0	3	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	0	0	0	0	1
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	3	0	0
Panoramic Drive / Port Chicago Highway	0	0	1	0	0	0	2	0	0	0	0	0
Salvo Street / Galindo Street	0	3	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	2	0	0	8	0	0	2	0	0	2	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	0	1	0	1	0

7.3.32 Day 2 AM Hour 1 Bike Crossing Leg D

Intersecting Roadway	HOOR 1 Leg D Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	3	1	0	0	0	0	2	0
Clayton Road / Fry Way	0	0	1	0	1	0	0	1	0	0	0	0
Clayton Road / Grant Street	0	0	1	0	0	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	2	0	0	3	0	0	0	0	0	0	0
Galindo Street / Laguna Street	0	2	1	1	4	1	0	0	1	1	0	0
Meadow Lane / Monument Boulevard	0	4	0	0	1	0	0	1	0	0	1	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	0	0	0	0	2	0	0	0	0	0	1	0
Willow Pass Road / Diamond Boulevard	0	1	0	0	1	0	0	0	0	1	1	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	0	0	0	1	0

7.3.33 Day 2 AM Hour 2 Bike Crossing Leg A

Intersecting Roadway	HOOR 2	CROSSING LEG A HOOR 2 Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	3	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	12	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	9	0	1	0	1	0	0	0	0	0	0	1	0
Clayton Road / The Alameda	24	0	0	0	0	2	0	0	0	0	1	1	0
Galindo Street / Laguna Street	8	0	0	0	0	0	0	0	0	0	0	1	0
Meadow Lane / Monument Boulevard	28	1	3	0	0	2	0	0	2	0	0	0	0
Mt Diablo Street / Mesa Street	5	0	1	0	2	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	6	0	1	0	0	0	1	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	6	0	0	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	10	0	0	0	0	1	0	0	0	0	0	0	0
Willow Pass Road / Diamond Boulevard	9	0	0	0	1	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	0	1	0	0	0	0	1	0	0	0	0	0

7.3.34 Day 2 AM Hour 2 Bike Crossing Leg B

Intersecting Roadway	HOOR 2 LEG B Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	1	0	0	0	0	0	0	0
Clayton Road / Fry Way	0	3	0	0	1	0	0	1	0	0	1	0
Clayton Road / Grant Street	0	1	0	0	0	0	0	0	0	0	0	2
Clayton Road / The Alameda	0	2	0	0	0	1	0	2	0	0	1	1
Galindo Street / Laguna Street	0	0	0	0	0	0	0	0	1	0	1	0
Meadow Lane / Monument Boulevard	1	1	0	0	1	0	0	1	0	0	1	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	1	1	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	0	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	0	0	1	0	0	0	1	1	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	1	0	0	0	0	0	0	0	0	0	1	0

7.3.35 Day 2 AM Hour 2 Bike Crossing Leg C

Intersecting Roadway	Hour 2 Leg C Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	1	0	0	0	0
Clayton Road / Fry Way	0	0	0	0	0	0	0	0	0	0	0	0
Clayton Road / Grant Street	0	0	0	0	0	0	0	0	0	0	1	0
Clayton Road / The Alameda	0	3	0	0	0	0	0	1	0	0	1	0
Galindo Street / Laguna Street	0	1	0	0	0	0	0	0	0	0	1	0
Meadow Lane / Monument Boulevard	1	2	1	0	1	0	0	1	0	1	0	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	1	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	1	0	1	0	0	2	0	0	1	0	0	0
Salvo Street / Galindo Street	0	3	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	1	0	0	3	0	0	1	0	0	1	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	1	0	0	0	0

7.3.36 Day 2 AM Hour 2 Bike Crossing Leg D

Intersecting Roadway	Hour 2 Leg D Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	0	1	0	0	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	1	0	0	0	4	0	0	0	0	0	1	0
Clayton Road / Grant Street	0	0	1	0	0	0	0	0	0	0	0	0
Clayton Road / The Alameda	0	2	0	0	2	0	0	0	0	0	3	1
Galindo Street / Laguna Street	0	2	0	0	0	0	0	0	0	0	1	0
Meadow Lane / Monument Boulevard	0	1	0	0	1	0	1	0	0	0	4	1
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	2	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	1	0	0	0	0	0	0	0	0
Salvo Street / Galindo Street	0	0	0	0	2	0	0	0	0	0	1	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	1	0	0	1	0	0	0	0
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	0	0	1	0	0

7.3.37 Day 2 PM Hour 1 Pedestrian Crossing Leg A and Leg B

Observer Last Name	Temperature, Weather & Other Conditions	Intersecting Roadway	Pedestrian Day 2 (PM Peak) TOTAL	Hour 1 Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	Hour 1 Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Riggs	Overcast, windy	Babel Lane / Cowell Road	15	0	0	0	0	0	1	0	0
Williams	Overcast, windy	Clayton Road / Fry Way	317	8	10	6	19	23	31	25	29
Knox	60s Overcast	Clayton Road / Grant Street	162	4	0	0	3	9	9	9	10
Steffen	60s Overcast	Clayton Road / The Alameda	49	2	8	1	1	0	0	0	0
Chamberlain	Mid 60s, overcast	Galindo Street / Laguna Street	147	1	0	2	0	0	1	0	0
Rodriguez	65 F, Sunny/Clear View	Meadow Lane / Monument Boulevard	208	6	7	7	5	6	8	2	2
Scales	Cloudy	Mt Diablo Street / Mesa Street	87	0	0	0	0	0	1	0	5
Scales	Cloudy	Mt Diablo Street / Oakland Ave	43	1	2	0	0	0	0	0	1
Gross	64 cloudy and windy	Panoramic Drive / Port Chicago Highway	31	0	0	0	0	0	0	0	0
Evangelopoulos	64 Overcast	Salvo Street / Galindo Street	318	5	1	8	8	11	6	22	10
Gallardo	Mid 60s, overcast, windy	Willow Pass Road / Diamond Boulevard	29	0	0	1	0	0	0	0	0
Coles	65 Overcast	Willow Pass Road / Galindo Street	172	3	2	3	4	6	8	6	5

7.3.38 Day 2 PM Hour 1 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOURLY 1			HOURLY 1				
	Ped Crossing Leg C: 0-15 minutes	Ped Crossing Leg C: 15-30 minutes	Ped Crossing Leg C: 30-45 minutes	Ped Crossing Leg C: 45-60 minutes	Ped Crossing Leg D: 0-15 minutes	Ped Crossing Leg D: 15-30 minutes	Ped Crossing Leg D: 30-45 minutes	Ped Crossing Leg D: 45-60 minutes
Babel Lane / Cowell Road	1	1	0	0	2	0	2	2
Clayton Road / Fry Way	6	3	3	6	0	0	0	0
Clayton Road / Grant Street	1	0	0	0	12	8	9	10
Clayton Road / The Alameda	0	0	1	5	1	0	1	2
Galindo Street / Laguna Street	14	15	8	20	2	4	1	11
Meadow Lane / Monument Boulevard	9	15	7	4	4	22	3	6
Mt Diablo Street / Mesa Street	9	7	8	14	3	2	2	2
Mt Diablo Street / Oakland Ave	0	0	0	0	3	3	5	3
Panoramic Drive / Port Chicago Highway	1	0	0	1	2	6	4	2
Salvio Street / Galindo Street	8	11	7	4	17	15	21	18
Willow Pass Road / Diamond Boulevard	4	1	3	1	0	0	0	3
Willow Pass Road / Galindo Street	11	5	4	6	15	10	8	14

7.3.39 Day 2 PM Hour 2 Pedestrian Crossing Leg A and Leg B

Intersecting Roadway	HOURLY 2			HOURLY 2				
	Ped Crossing Leg A: 0-15 minutes	Ped Crossing Leg A: 15-30 minutes	Ped Crossing Leg A: 30-45 minutes	Ped Crossing Leg A: 45-60 minutes	Ped Crossing Leg B: 0-15 minutes	Ped Crossing Leg B: 15-30 minutes	Ped Crossing Leg B: 30-45 minutes	Ped Crossing Leg B: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0
Clayton Road / Fry Way	11	9	3	13	21	25	22	25
Clayton Road / Grant Street	0	2	5	0	7	6	12	7
Clayton Road / The Alameda	11	0	1	4	0	0	0	0
Galindo Street / Laguna Street	0	1	0	1	0	0	0	1
Meadow Lane / Monument Boulevard	8	7	4	5	5	7	10	5
Mt Diablo Street / Mesa Street	0	0	0	0	3	1	3	1
Mt Diablo Street / Oakland Ave	2	4	1	4	1	1	2	0
Panoramic Drive / Port Chicago Highway	0	0	0	1	0	0	0	0
Salvio Street / Galindo Street	6	5	1	2	8	12	9	10
Willow Pass Road / Diamond Boulevard	0	0	1	0	0	0	0	0
Willow Pass Road / Galindo Street	2	0	0	3	12	1	2	9

7.3.40 Day 2 PM Hour 2 Pedestrian Crossing Leg C and Leg D

Intersecting Roadway	HOURLY 2			HOURLY 2				
	Ped Crossing Leg C: 0-15 minutes	Ped Crossing Leg C: 15-30 minutes	Ped Crossing Leg C: 30-45 minutes	Ped Crossing Leg C: 45-60 minutes	Ped Crossing Leg D: 0-15 minutes	Ped Crossing Leg D: 15-30 minutes	Ped Crossing Leg D: 30-45 minutes	Ped Crossing Leg D: 45-60 minutes
Babel Lane / Cowell Road	0	0	0	0	1	0	1	4
Clayton Road / Fry Way	5	5	3	6	0	0	0	0
Clayton Road / Grant Street	0	3	3	1	8	15	6	3
Clayton Road / The Alameda	2	0	2	0	3	1	1	2
Galindo Street / Laguna Street	12	20	11	5	5	10	1	1
Meadow Lane / Monument Boulevard	7	5	5	5	8	6	4	4
Mt Diablo Street / Mesa Street	8	4	9	1	0	3	1	0
Mt Diablo Street / Oakland Ave	0	0	0	0	1	7	2	0
Panoramic Drive / Port Chicago Highway	1	0	2	1	2	4	3	1
Salvio Street / Galindo Street	2	21	3	12	7	17	11	20
Willow Pass Road / Diamond Boulevard	2	4	4	0	1	3	1	0
Willow Pass Road / Galindo Street	8	8	1	2	4	7	1	2

7.3.41 Day 2 PM Hour 1 Bike Crossing Leg A

Intersecting Roadway	Bike Day 2 (PM Peak) TOTAL	HOUR 1	CROSSING LEG A HOUR 1			CROSSING LEG A HOUR 1			CROSSING LEG A HOUR 1			CROSSING LEG A HOUR 1		
			Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Babel Lane / Cowell Road	10	5	0	0	0	0	0	0	0	0	0	0	0	
Clayton Road / Fry Way	35	21	0	0	0	0	0	0	0	0	0	0	0	
Clayton Road / Grant Street	34	20	0	3	0	0	3	0	1	0	1	0	0	
Clayton Road / The Alameda	51	26	0	3	0	0	1	0	0	0	0	0	3	
Galindo Street / Laguna Street	22	8	0	0	1	0	0	0	0	0	0	0	0	
Meadow Lane / Monument Boulevard	48	28	0	1	0	0	2	0	1	0	0	0	1	
Mt Diablo Street / Mesa Street	20	16	0	0	0	4	0	1	0	0	1	0	0	
Mt Diablo Street / Oakland Ave	14	12	0	0	0	0	0	0	0	0	0	1	0	
Panoramic Drive / Port Chicago Highway	38	18	0	0	0	0	2	0	1	0	0	1	0	
Salvo Street / Galindo Street	38	18	0	0	0	0	2	0	1	0	0	1	0	
Willow Pass Road / Diamond Boulevard	22	9	0	0	0	0	0	0	0	0	0	0	0	
Willow Pass Road / Galindo Street	35	23	0	1	0	0	2	1	0	1	0	0	1	

7.3.42 Day 2 PM Hour 1 Bike Crossing Leg B

Intersecting Roadway	HOUR 1 LEG B Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Clayton Road / Fry Way	2	1	1	2	1	0	1	1	1	0	0	0
Clayton Road / Grant Street	0	0	1	0	0	1	0	0	0	0	1	0
Clayton Road / The Alameda	1	2	0	0	3	0	1	0	0	0	1	1
Galindo Street / Laguna Street	0	0	0	1	1	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	0	2	0	1	2	1	1	1	1	0	2	0
Mt Diablo Street / Mesa Street	0	0	0	0	0	1	0	0	0	0	0	0
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	1	1	0	1	1	1	1	0	0	0	0
Salvo Street / Galindo Street	0	1	1	0	1	1	1	1	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	0	0	0	0	0	0	0	0
Willow Pass Road / Galindo Street	0	0	1	0	0	1	0	0	0	0	0	0

7.3.43 Day 2 PM Hour 1 Bike Crossing Leg C

Intersecting Roadway	HOUR 1 Leg C Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Clayton Road / Fry Way	0	0	1	1	0	3	0	4	0	0	0	0
Clayton Road / Grant Street	0	2	0	0	1	0	0	3	0	0	1	0
Clayton Road / The Alameda	0	1	0	0	1	0	0	1	0	0	0	1
Galindo Street / Laguna Street	0	1	0	0	1	0	0	0	0	0	0	1
Meadow Lane / Monument Boulevard	0	2	0	1	1	0	1	0	0	0	1	0
Mt Diablo Street / Mesa Street	0	1	0	0	0	2	0	0	2	0	0	0
Mt Diablo Street / Oakland Ave	1	1	0	0	0	0	0	0	0	0	0	0
Panoramic Drive / Port Chicago Highway	0	2	1	0	1	1	0	1	0	0	0	0
Salvo Street / Galindo Street	0	2	1	0	1	1	0	1	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	1	0	0	0	0	0	2	0
Willow Pass Road / Galindo Street	0	0	0	0	6	0	0	4	0	0	1	0

7.3.44 Day 2 PM Hour 1 Bike Crossing Leg D

Intersecting Roadway	HOUR 1 Leg D Turning Left: 0-15 minutes	Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes
Clayton Road / Fry Way	0	1	0	0	0	0	1	0	0	0	1	0
Clayton Road / Grant Street	0	1	0	0	0	0	0	1	0	0	0	0
Clayton Road / The Alameda	0	1	0	0	1	0	1	2	0	0	0	0
Galindo Street / Laguna Street	0	0	1	0	1	0	0	0	0	0	0	0
Meadow Lane / Monument Boulevard	0	0	1	2	0	0	2	0	0	0	0	1
Mt Diablo Street / Mesa Street	0	1	0	0	2	0	0	0	0	0	1	0
Mt Diablo Street / Oakland Ave	0	0	0	2	0	4	1	0	1	1	0	0
Panoramic Drive / Port Chicago Highway	0	0	0	1	1	0	0	1	0	0	0	0
Salvo Street / Galindo Street	0	0	0	1	1	0	0	1	0	0	0	0
Willow Pass Road / Diamond Boulevard	0	0	0	0	2	0	0	1	0	0	1	0
Willow Pass Road / Galindo Street	0	1	0	0	1	0	2	0	0	0	0	0

7.3.45 Day 2 PM Hour 2 Bike Crossing Leg A

Intersecting Roadway	CROSSING LEG A HOUR 2 Turning Left: 0-15 minutes	HOUR 2			HOUR 2			HOUR 2			HOUR 2		
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	5	0	0	0	0	0	0	0	0	0	0	0	
Clayton Road / Fry Way	14	0	0	0	0	0	0	0	0	0	0	0	
Clayton Road / Grant Street	14	0	0	0	0	0	0	1	1	0	0	0	
Clayton Road / The Alameda	25	0	2	0	0	2	0	0	5	0	0	0	
Galindo Street / Laguna Street	14	0	0	0	0	0	0	1	1	0	0	0	
Meadow Lane / Monument Boulevard	20	0	0	0	0	2	0	1	2	0	1	0	
Mt Diablo Street / Mesa Street	4	0	0	0	0	0	0	0	0	0	0	0	
Mt Diablo Street / Oakland Ave	4	0	0	0	0	0	0	0	0	0	0	0	
Panoramic Drive / Port Chicago Highway	18	0	0	0	0	2	0	0	1	0	0	1	
Salvo Street / Galindo Street	12	0	1	0	0	0	0	0	3	0	0	1	
Willow Pass Road / Diamond Boulevard	13	0	0	0	0	0	0	0	0	0	0	0	
Willow Pass Road / Galindo Street	12	0	0	0	0	2	0	0	1	0	1	0	

7.3.46 Day 2 PM Hour 2 Bike Crossing Leg B

Intersecting Roadway	HOUR 2 LEG B Turning Left: 0-15 minutes	HOUR 2			HOUR 2			HOUR 2			HOUR 2		
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	0	3	0	0	0	0	0	1	0	0	0	0	
Clayton Road / Fry Way	2	3	0	1	1	1	1	1	0	0	1	0	
Clayton Road / Grant Street	0	0	1	0	0	0	0	1	0	0	0	1	
Clayton Road / The Alameda	0	0	1	0	1	0	1	0	1	0	1	0	
Galindo Street / Laguna Street	0	0	0	0	0	0	1	0	0	0	0	0	
Meadow Lane / Monument Boulevard	1	2	1	0	0	0	0	0	0	0	1	0	
Mt Diablo Street / Mesa Street	0	0	0	1	0	0	0	0	0	0	0	1	
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0	
Panoramic Drive / Port Chicago Highway	0	1	1	0	1	1	1	1	0	0	0	0	
Salvo Street / Galindo Street	0	1	0	0	0	0	0	0	0	0	1	0	
Willow Pass Road / Diamond Boulevard	0	0	0	0	0	0	0	0	0	0	0	0	
Willow Pass Road / Galindo Street	0	0	0	0	1	0	0	1	0	0	0	0	

7.3.47 Day 2 PM Hour 2 Bike Crossing Leg C

Intersecting Roadway	HOUR 2 Leg C Turning Left: 0-15 minutes	HOUR 2			HOUR 2			HOUR 2			HOUR 2		
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	0	0	0	0	0	0	0	0	0	0	0	0	
Clayton Road / Fry Way	0	0	0	0	0	0	0	0	2	0	0	0	
Clayton Road / Grant Street	0	1	0	0	0	0	4	0	0	1	0	0	
Clayton Road / The Alameda	0	1	0	0	0	0	0	0	0	0	4	0	
Galindo Street / Laguna Street	0	1	0	0	1	1	0	1	0	0	0	0	
Meadow Lane / Monument Boulevard	0	0	0	0	0	0	2	0	0	0	2	0	
Mt Diablo Street / Mesa Street	0	0	0	0	0	1	0	1	0	0	0	0	
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	1	0	1	0	0	
Panoramic Drive / Port Chicago Highway	0	2	1	0	1	1	0	0	1	0	0	0	
Salvo Street / Galindo Street	0	1	0	0	1	0	0	1	0	0	0	0	
Willow Pass Road / Diamond Boulevard	0	5	0	0	0	0	6	0	0	0	0	0	
Willow Pass Road / Galindo Street	0	0	1	0	0	0	0	2	1	0	0	0	

7.3.48 Day 2 PM Hour 2 Bike Crossing Leg D

Intersecting Roadway	HOUR 2 Leg D Turning Left: 0-15 minutes	HOUR 2			HOUR 2			HOUR 2			HOUR 2		
		Going Strait: 0-15 minutes	Turning Right: 0-15 minutes	Turning Left: 15-30 minutes	Going Strait: 15-30 minutes	Turning Right: 15-30 minutes	Turning Left: 30-45 minutes	Going Strait: 30-45 minutes	Turning Right: 30-45 minutes	Turning Left: 45-60 minutes	Going Strait: 45-60 minutes	Turning Right: 45-60 minutes	
Babel Lane / Cowell Road	0	0	1	0	0	0	0	0	0	0	0	0	
Clayton Road / Fry Way	0	0	0	0	1	0	0	0	1	0	0	0	
Clayton Road / Grant Street	0	0	0	0	0	0	0	0	0	0	0	0	
Clayton Road / The Alameda	0	1	0	0	2	0	1	1	0	0	1	0	
Galindo Street / Laguna Street	0	0	0	1	1	1	2	1	0	1	0	0	
Meadow Lane / Monument Boulevard	0	0	0	0	4	0	0	0	0	0	0	1	
Mt Diablo Street / Mesa Street	0	0	0	0	0	0	0	0	0	0	0	0	
Mt Diablo Street / Oakland Ave	0	0	0	0	0	0	0	0	0	0	0	0	
Panoramic Drive / Port Chicago Highway	0	0	1	0	1	0	0	1	0	0	0	0	
Salvo Street / Galindo Street	0	1	0	0	0	0	0	0	0	0	1	0	
Willow Pass Road / Diamond Boulevard	0	1	0	0	0	0	0	0	1	0	0	0	
Willow Pass Road / Galindo Street	0	0	0	0	0	0	0	1	0	0	0	0	