CITY OF SOUTH PASADENA
MOBILITY AND TRANSPORTATION INFRASTRUCTURE COMMISSION
REGULAR MEETING AGENDA

TUESDAY AUGUST 20, 2024 at 6:30 p.m.
CITY COUNCIL CHAMBERS
1424 MISSION STREET, SOUTH PASADENA, CA 91030

South Pasadena Commission Statement of Civility

As your appointed governing board, we will treat each other, members of the public, and city employees with patience, civility and courtesy as a model of the same behavior we wish to reflect in South Pasadena for the conduct of all city business and community participation. The decisions made today will be for the benefit of the South Pasadena community and not for personal gain.

NOTICE ON PUBLIC PARTICIPATION & ACCESSIBILITY

The South Pasadena Mobility and Transportation Infrastructure Commission Meeting will be conducted in-person from the Council Chambers, Amedee O. "Dick" Richards, Jr., located at 1424 Mission Street, South Pasadena.

The meeting will be available:

- In Person – City Council Chambers, 1424 Mission Street, South Pasadena, CA 91030
- Via Zoom – **Webinar ID: 837 1462 5859**

To maximize public safety while still maintaining transparency and public access, members of the public can observe the meeting via Zoom in one of the three methods below.

1. Go to the Zoom website, https://zoom.us/join and enter the Zoom Meeting information; **or**
2. Click on the following unique Zoom meeting link: https://us06web.zoom.us/j/83714625859
3. You may listen to the meeting by calling: +1-669-900-6833 and entering the Zoom Meeting ID (837-1462-5859)

CALL TO ORDER:	Chair Hughes
ROLL CALL:	Chair Hughes Commissioner Fisher Commissioner Dunlap Commissioner Hammond
CITY COUNCIL LIAISON:	Mayor Evelyn Zneimer
STAFF PRESENT:	Ted Gerber, Public Works Director ("PWD") and, Danielle Garcia, Management Analyst ("PWMA")
PLEDGE OF ALLEGIANCE:	Commissioner Dunlap

PUBLIC COMMENT AND SUGGESTIONS ***(****Public Comments are limited to 3 minutes****)*** The MTIC welcomes public input. If you would like to comment on this agenda item, members of the public may participate by means of one of the following options:

Option 1: Participants will be able to "raise their hand" using the Zoom icon during the meeting, and they will have their microphone un-muted during the comment portion of the agenda to speak for up to 3 minutes; or

Option 2: Email public comment(s) to: mticpubliccomments@southpasadenaca.gov. **Public Comments received in writing will not be read aloud at the meeting but will be part of the meeting record.** Written Public Comments will be uploaded online for public viewing under Additional Documents. There is no word limit on emailed Public Comment(s). `

Please make sure to indicate:
1) your name (optional)
2) what agenda item you are submitting public comment on, and/or
3) Submit by no later than 12:00 pm., on Thursday, June 13, 2024.

NOTE: Pursuant to State law, the Commission may not discuss or take action on issues not on the meeting agenda, except that members of the Commission or staff may briefly respond to statements made or questions posed by persons exercising public testimony rights (Government Code Section 54954.2). Staff may be asked to follow up on such items.

PUBLIC COMMENT

1. PUBLIC COMMENT – GENERAL

PRESENTATION

2. MARENGO AVENUE SAFETY ASSESSMENT PRESENTATION

3. PROJECT STATUS UPDATE

ACTION/DISCUSSION

4. APPROVAL OF MINUTES OF SPECIAL MTIC MEETING ON JUNE 13, 2024

Recommendation

It is recommended that the Commission review and consider approval of the June 13, 2024 Special MTIC Meeting Minutes.

COMMUNICATIONS

5. CITY COUNCIL LIAISON COMMUNICATIONS

6. COMMISSIONER COMMUNICATIONS

7. STAFF LIAISON COMMUNICATIONS

ADJOURNMENT

FOR YOUR INFORMATION

FUTURE MOBILITY AND TRANSPORTATION INFRASTRUCTURE COMMISSION MEETINGS

September 17, 2024	Council Chamber	6:30 P.M.
October 15, 2024	Council Chamber	6:30 P.M.
November 19, 2024	Council Chamber	6:30 P.M.

PUBLIC ACCESS TO AGENDA DOCUMENTS AND BROADCASTING OF MEETINGS

Commission Meeting agenda packets are available online at the City website: https://www.southpasadenaca.gov/government/boards-commissions/mobility-and-transportation-infrastructure-commission

ACCOMMODATIONS

The City of South Pasadena wishes to make all of its public meetings accessible to the public. If special assistance is needed to participate in this meeting, please contact the City Clerk's Division at (626) 403-7230. Upon request, this agenda will be made available in appropriate alternative formats to persons with disabilities. Notification at least 48 hours prior to the meeting will assist staff in assuring that reasonable arrangements can be made to provide accessibility to the meeting (28 CFR 35.102-35.104 ADA Title II).

I declare under penalty of perjury that I posted this notice of agenda on the bulletin board in the courtyard of City Hall at 1414 Mission Street, South Pasadena, CA 91030, and on the City website as required by law.

08/14/2024 /s/

Date Phillip Tran, Public Works Management Analyst

ITEM 2

Marengo Avenue Safety Assessment

Mobility and Transportation Infrastructure Commission Agenda Report

ITEM NO. 2

DATE: August 20, 2024

FROM: H. Ted Gerber, Director of Public Works

SUBJECT **Marengo Avenue Safety Assessment**

Recommendation

It is recommended that the Mobility and Transportation Infrastructure Commission (MTIC):

1. Receive and file an update on the Marengo Avenue Safety Assessment; and
2. Provide recommendations and advisement of the Marengo Avenue Safety Assessment for City Staff's next steps related to street improvements;

Background

The City Council and the Mobility and Transportation Infrastructure Commission (MTIC) have received many public comments and concerns related to vehicular traffic, speeding, and drivers ignoring traffic signage along Marengo Avenue. The City's Public Works and Public Safety staff have engaged with the residents along Marengo Avenue and had developed a scope of work with the assistance of a traffic engineering consultant, to study and assess the traffic conditions along the street. The scope was developed after hearing residents' concerns and conferring with the MTIC during a regular commission meeting. Staff were authorized to proceed with a traffic study safety assessment along the entirety of Marengo Avenue and funding for the assessment was approved by Los Angeles County Metro through the Measure R Local Return Program.

Discussion/Analysis

The study included a review of collisions along Marengo Avenue for the past 10 years, an assessment of the existing traffic and roadway conditions, an evaluation of traffic volumes and speeds, and analysis of motorist's stop compliance at intersections along the corridor. The attached study report provides recommended traffic safety mitigation measures to address resulting concerns.

Twenty-four-hour traffic counts were conducted for Marengo Avenue on two consecutive weekdays. Based on the traffic counts (average of the two days), the majority of street segments each had a higher northbound traffic volume in the morning while the southbound approach had a higher traffic volume in the evening. However, the segment between Monterey Road and Oxley Street had a traffic volume with three peaks through the day, one in the morning and two in the afternoon.

Based on the collision analysis for the past ten years, there were a total of 89 reported collisions with a higher number of reported collisions occurring in the past two years 2022 and 2023. Of the total 89 number of collisions, 23 occurred at Huntington Drive and 21 occurred at Alhambra Road. The majority of these collisions were broadside (29) and rear-end (17). There were seven collisions involving a pedestrian or bicyclist.

Overall, the majority of recorded speeds remained in the 25 to 29 mph range. The 85th percentile speeds were 31 mph or less for both the northbound and southbound movements. The southerly area, south of Huntington Drive, had higher speeds than the northerly areas. Speeds over 35 mph occurred approximately 7% of the time in this area and were noted to occur throughout the day, which could be attributed to longer segments with fewer stop control intersections.

The study suggested that motorists are aware of the stop control along Marengo Avenue since they are slowing down, however, some motorists on Marengo Avenue approaching a minor all-way stop control intersection tend not to come to a complete stop when there is no traffic on the side street. From the data and observations in the field for the school peak periods, motorists near the school areas often come to a complete stop for all approaches, even where crossing guards were not present.

The report includes recommendations that could reduce collisions, calm traffic, improve pedestrian and student safety, increase driver visibility, improve stop compliance, and reduce speeds. The recommendations will be discussed with the Commission during presentation of this item. Generally, staff have recommended to MTIC and City Council that short-term improvements could be facilitated utilizing local return funding this 2024-2025 Fiscal Year, and roadway maintenance improvements, such as striping, could be facilitated during the planned 2025 Marengo Avenue maintenance project, which is partially funded with the California State SB1 Road Maintenance and Rehabilitation Account. Reconstructive efforts to incorporate additional safety features, if any are recommended, would require additional transportation safety improvement funding.

Attachment
Draft Final Marengo Avenue Safety Assessment

City of South Pasadena

Marengo Avenue Safety Assessment

June 28, 2024

211 Imperial Highway, Suite 208, Fullerton, CA 92835 || (714) 992-4592 || aga@agaengineersinc.com

DRAFT

June 28, 2024

Mr. Ted Gerber
Public Works Director
City of South Pasadena
1414 Mission Street
South Pasadena, CA 91030

RE: Marengo Avenue Safety Assessment

Dear Mr. Gerber:

Pursuant to our previous discussions and comments from the City of South Pasadena, AGA Engineers, Inc. (AGA) is pleased to present to you the following traffic safety review along the Marengo Avenue corridor from Mission Street to Alhambra Road. The purpose of this study was to review collisions along Marengo Avenue for the past 10 years, assessing the existing traffic and roadway conditions, evaluating the traffic volumes and speeds, and analyzing the stop compliance of motorists at some of the stop controlled intersections along the corridor and provide recommended traffic safety mitigation measures to alleviate any concerns found from the study.

The associated tasks for this project study are as follows.

1. Conduct Traffic Counts
2. Collision Analysis
    a. Including a Conceptual Plan for Alignment of North/South Left Turns at Marengo Ave/Huntington Dr
3. Field Review of Corridor
4. Speed Analysis
5. Stop Compliance Analysis
6. Marengo Avenue/Alhambra Road, Pedestrian Crossing Assessment

Respectfully submitted,

AGA ENGINEERS, INC.

Greg Wong, P.E.
Vice President

AGA Engineers, Inc.
211 Imperial Highway, Suite 208, Fullerton, CA 92835
(714) 992-4592 Email: aga@agaengineersinc.com

DRAFT

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Marengo Avenue Safety Assessment – Study Area and Tasks

AGA Engineers, Inc. (AGA) conducted a comprehensive traffic review along Marengo Avenue from Mission Street to Alhambra Road, in the City of South Pasadena. The review included assessing collisions along Marengo Avenue for the past 10 years, assessing the existing traffic and roadway conditions, evaluating the traffic volumes and speeds, and analyzing the stop compliance of motorists at some of the stop controlled intersections along the corridor. The following is a summary of the study area and review of the tasks completed.

Study Area

Marengo Avenue is a two-lane local residential street that runs north and south between Mission Street to Alhambra Road. The intersection of Marengo Avenue and Alhambra Road is shared with the City of Alhambra to the south. The speed limit for this area is 25 mph, except around the school area. There are reduced speed limits signs (When Children are Present) of 15 mph from Monterey Road to Oak Street. Two schools are located between Rollin Street and Bank Street; South Pasadena Middle School and Marengo Elementary School. The main entrance for South Pasadena Middle School is off Fair Oaks Avenue. Marengo Elementary School is located on the eastside of Marengo Avenue, between Rolling Street and Bank Street. There is no available parking lot for the school and all pickup and drop off must be conducted on Marengo Avenue. South Pasadena Middle School is located off of Fair Oaks Avenue but motorists and pedestrians access the school from Marengo Avenue. There are crossing guards stationed at Mission Street, Monterey Road, Banks Street, Rollin Street, Oak Street and Huntington Drive. Details of the crossing guards are discussed in Section 3 - Field Review. There are Class II bike lanes and centerline striping along Marengo Avenue along with on-street parking. Of the intersections located within the study area, one is a signalized intersection (Huntington Drive) and eight are all-way stops (see **Figure 1**). The all-way stop control intersections are Alhambra Road, Maple Street, Spruce Street, Laurel Street, Oak Street, Bank Street, Monterey Road and Mission Street. All other minor streets are required to stop for traffic on Marengo Avenue. It should be noted that there are no stop signs or stop legends on the side streets of Oxley Alley (alley) and Virginia Place.

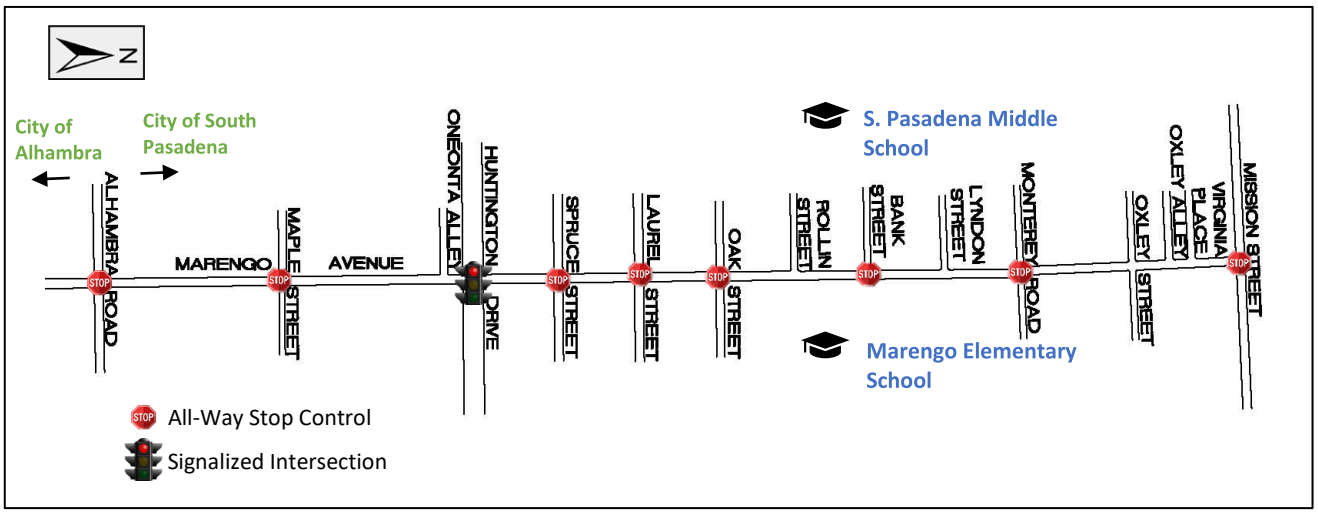


Figure 1. Study Area

Based on discussions with City staff, the following tasks and observations were conducted for this study.

List of Tasks

1. Conduct Traffic Counts
2. Collision Analysis
    a. Conceptual/Template Plan of a Traffic Island Diverter: Removed
    b. Replaced with: Conceptual Plan for Alignment of North/South Left Turns at Marengo Ave/Huntington Dr and included it in the Collision Analysis
3. Field Review of Corridor
4. Speed Analysis
5. Stop Compliance Analysis
6. Marengo Avenue/Alhambra Road, Pedestrian Crossing Assessment

1. Conduct Traffic Counts

24-hour traffic counts along Marengo Avenue were conducted in 2023 on Tuesday October 17th and Wednesday, October 18th and on Tuesday, November 28th and Wednesday, November 29th. The data collected was then averaged for the two days to create the traffic volumes. The counts were conducted along the following segments and have been submitted to the City.

- Marengo Avenue: Between Alhambra Road and Maple Street
- Marengo Avenue: Between Maple Street and Huntington Drive
- Marengo Avenue: Between Spruce Street and Laurel Street
- Marengo Avenue: Between Lyndon Street and Monterey Road
- Marengo Avenue: Between Monterey Road and Oxley Street

Figure 1-1 shows the northbound and southbound traffic volumes along Marengo Avenue for all five street segments. Based on the figure, the traffic volume counts were highest between Alhambra Road to Huntington Drive. The traffic volumes dropped significantly north of Huntington Drive. The northbound and southbound traffic volumes are similar with the exception of the area north of Alhambra Road. The southbound traffic volumes were consistently higher than the northbound traffic volumes for this area. Details of each studied segment are as follows.

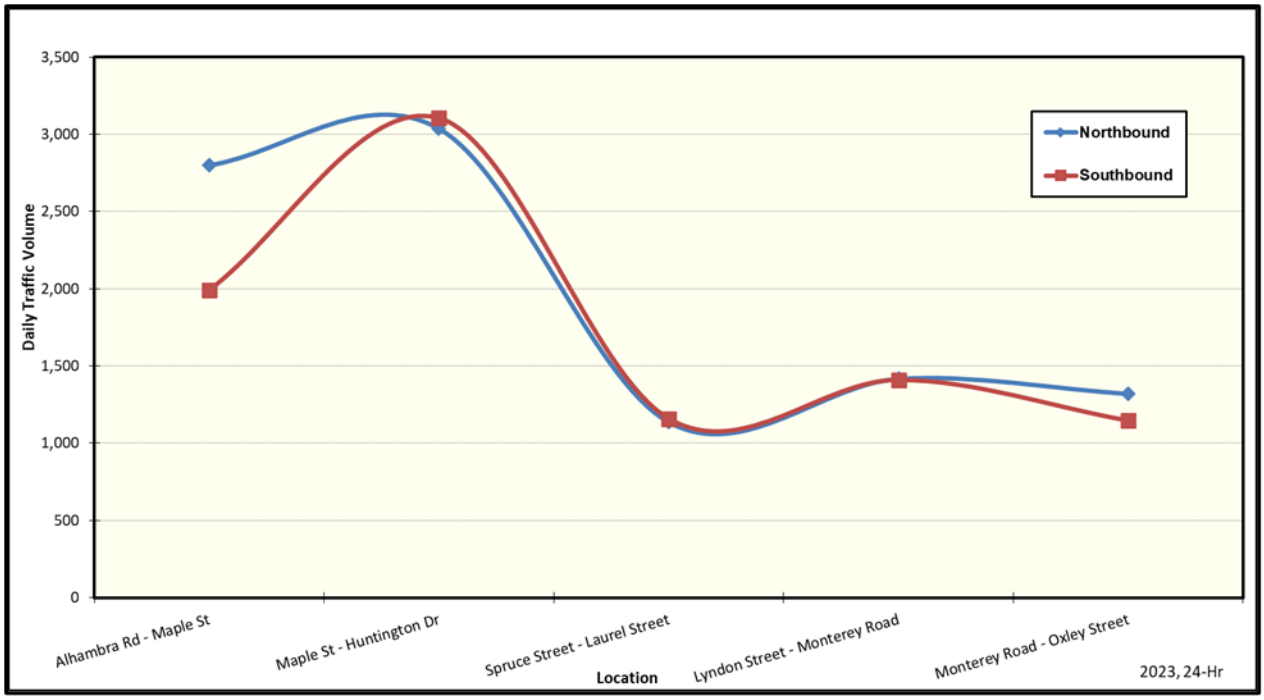


Figure 1-1. Marengo Avenue 24-Hour Traffic Volumes (2-Day Average)

- Marengo Avenue: Between Alhambra Road and Maple Street

  Figure 1-2 below shows the 24-hour traffic volumes for both the northbound and southbound approaches throughout the day for this segment. The northbound approach demand is highest in the morning with its peak at 7:30 AM of 153 vehicles. While the southbound approach demand is highest in the afternoon with its peak at 5:30 PM of 169 vehicles. The number of vehicles during the midday period is significantly lower with each direction having similar traffic volumes.

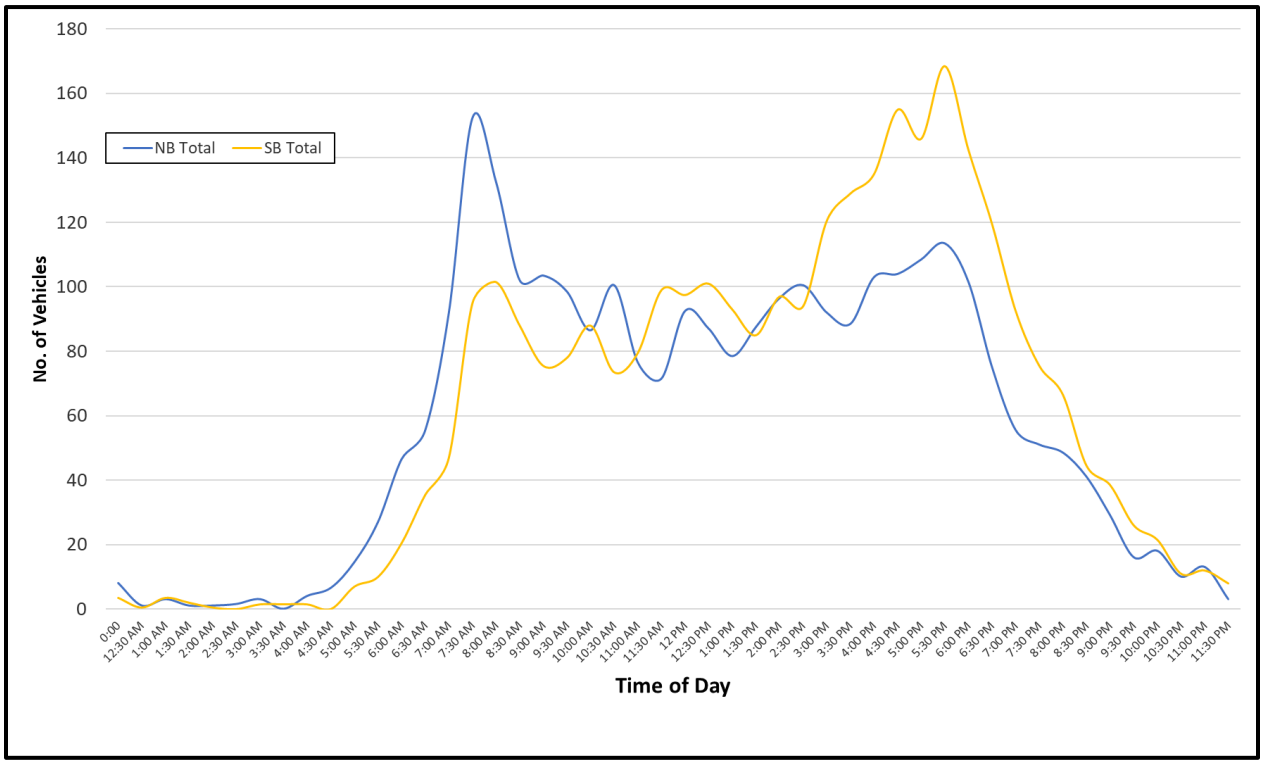


Figure 1-2. Marengo Avenue, Alhambra Rd to Maple St – 24 Hour Traffic Volumes

- Marengo Avenue: Between Maple Street and Huntington Drive

  Figure 1-3. below shows the 24-hour traffic volumes for both the northbound and southbound approaches throughout the day for this segment. The northbound approach demand is highest in the morning with its peak at 7:30 AM of 176 vehicles. While the southbound approach demand is highest in the afternoon with its peak at 5:30 PM of 173 vehicles. Like the prior segment north of Alhambra Road, the number of vehicles during the midday period is significantly lower with each direction having similar traffic volumes.

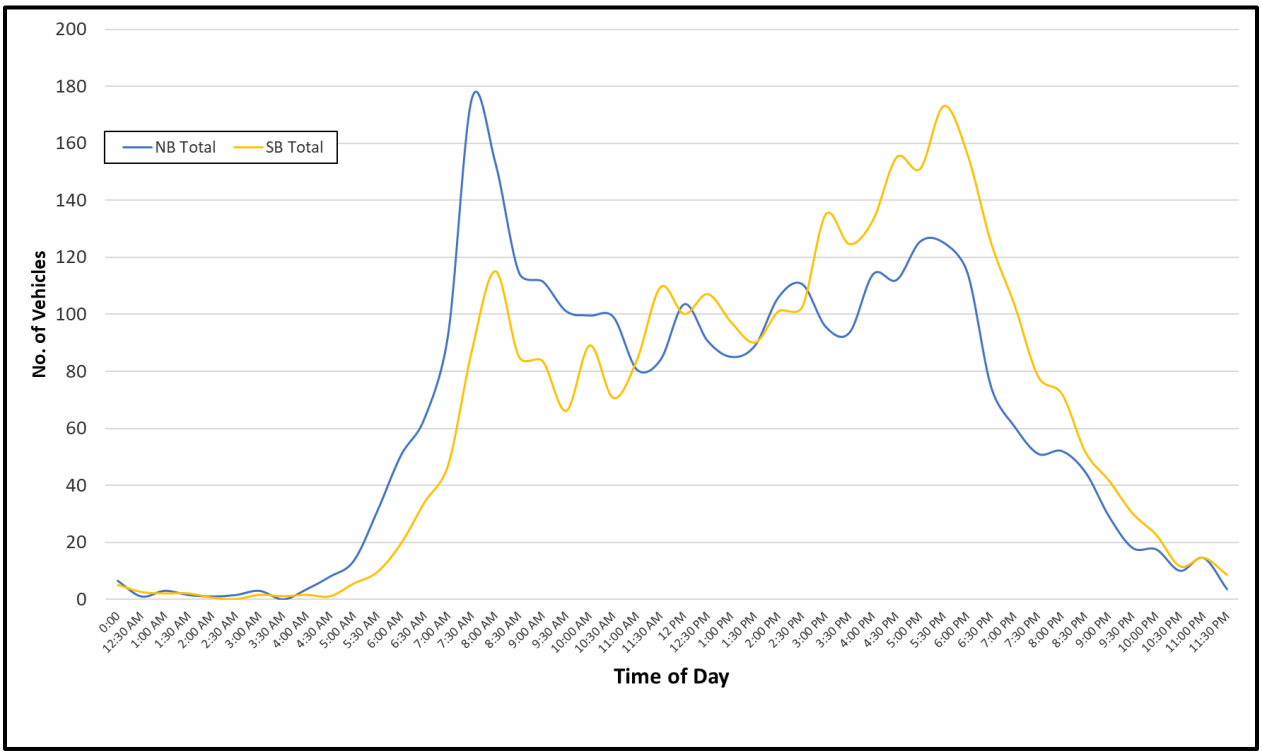


Figure 1-3. Marengo Avenue, Huntington Dr. to Maple St. – 24 Hour Traffic Volumes

- Marengo Avenue: Between Spruce Street and Laurel Street
    - **Figure 1-4.** below shows the 24-hour traffic volumes for both the northbound and southbound approaches throughout the day for this segment. The northbound traffic volumes in the morning are significantly greater than the southbound traffic volumes. The northbound approach then has a substantial decrease during midday then slowly increases in the afternoon. The southbound approach has a steady increase throughout the day with the peak demand at 6:00 PM of 96 vehicles. While the northbound and southbound approaches have very significant increases in traffic demand through different periods of the day, their number of vehicles are much lower than other segments on Marengo Avenue to the south.

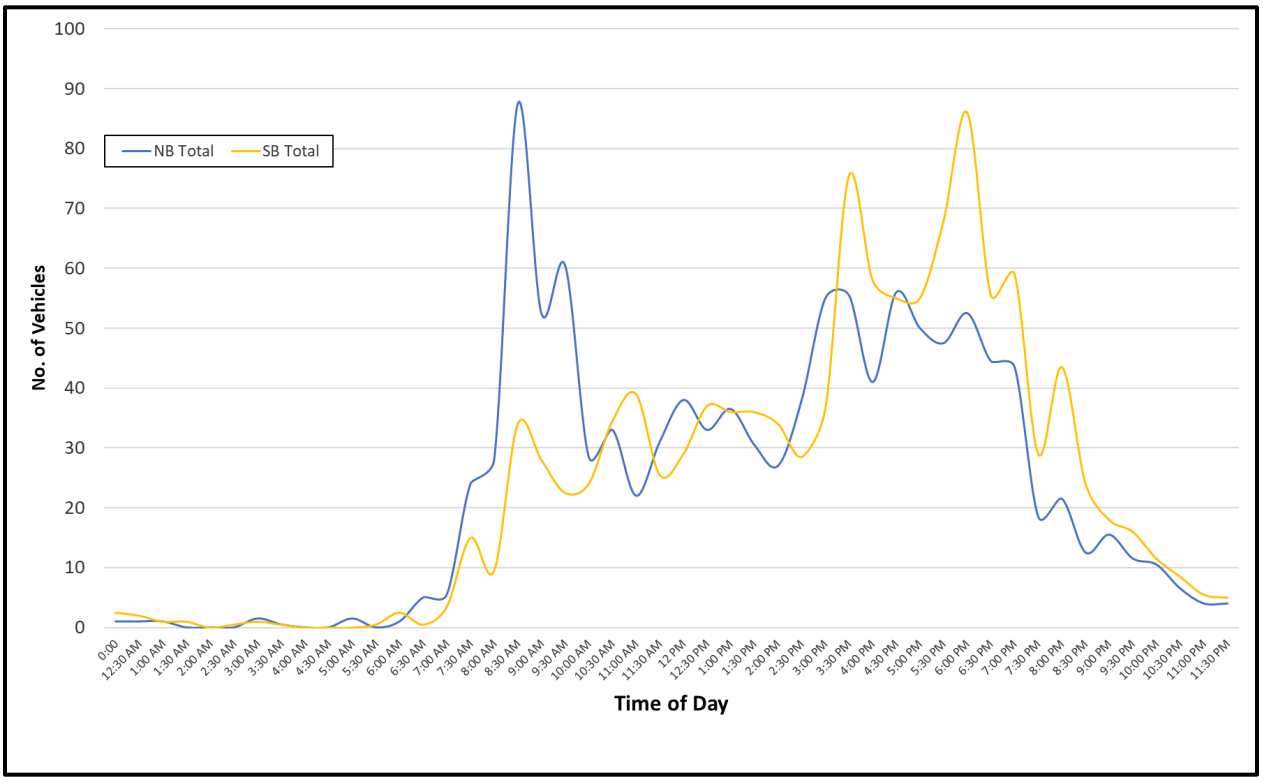


Figure 1-4. Marengo Avenue, South of Laurel Street - 24 Hour Traffic Volumes

- Marengo Avenue: Between Lyndon Street and Monterey Road
    - **Figure 1-5.** below shows the 24-hour traffic volumes for both the northbound and southbound approaches throughout the day for this segment. The northbound and southbound approaches have similar traffic volume patterns with their peak being in the morning, then decreasing in the midday, to then increase again in the afternoon. The northbound approach peaks significantly in the morning. This could be attributed to both school and commuter traffic. The southbound approach demand is also highest in the morning however peaks again in the evening.

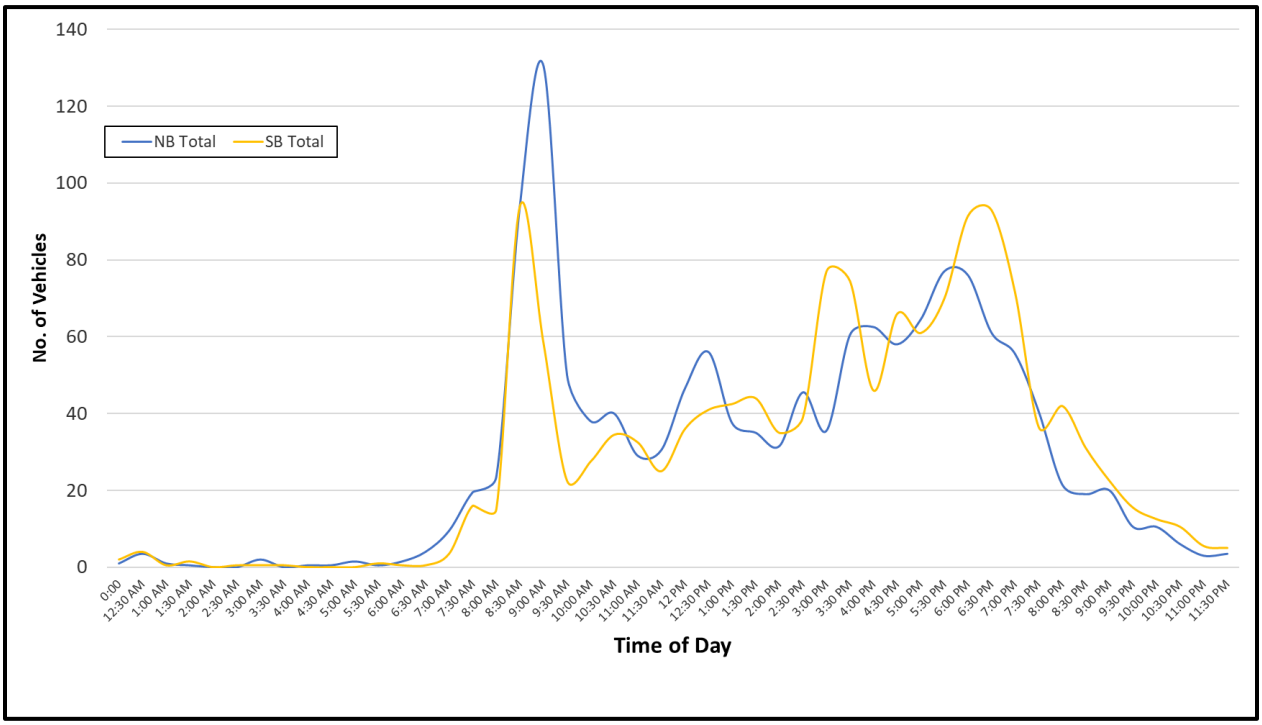


Figure 1-5. Marengo Avenue, North of Lyndon Street - 24 Hour Traffic Volumes

- Marengo Avenue: Between Monterey Road and Oxley Street
    - **Figure 1-6.** below shows the 24-hour traffic volumes for both the northbound and southbound approaches throughout the day for this segment. The northbound and southbound approaches have similar traffic volume patterns. Their traffic volume patterns are exceedingly different than the other segments on Marengo Avenue. The northbound and southbound have three peak times, one in the morning, one around 3:00 PM and another one around 5:30 PM.

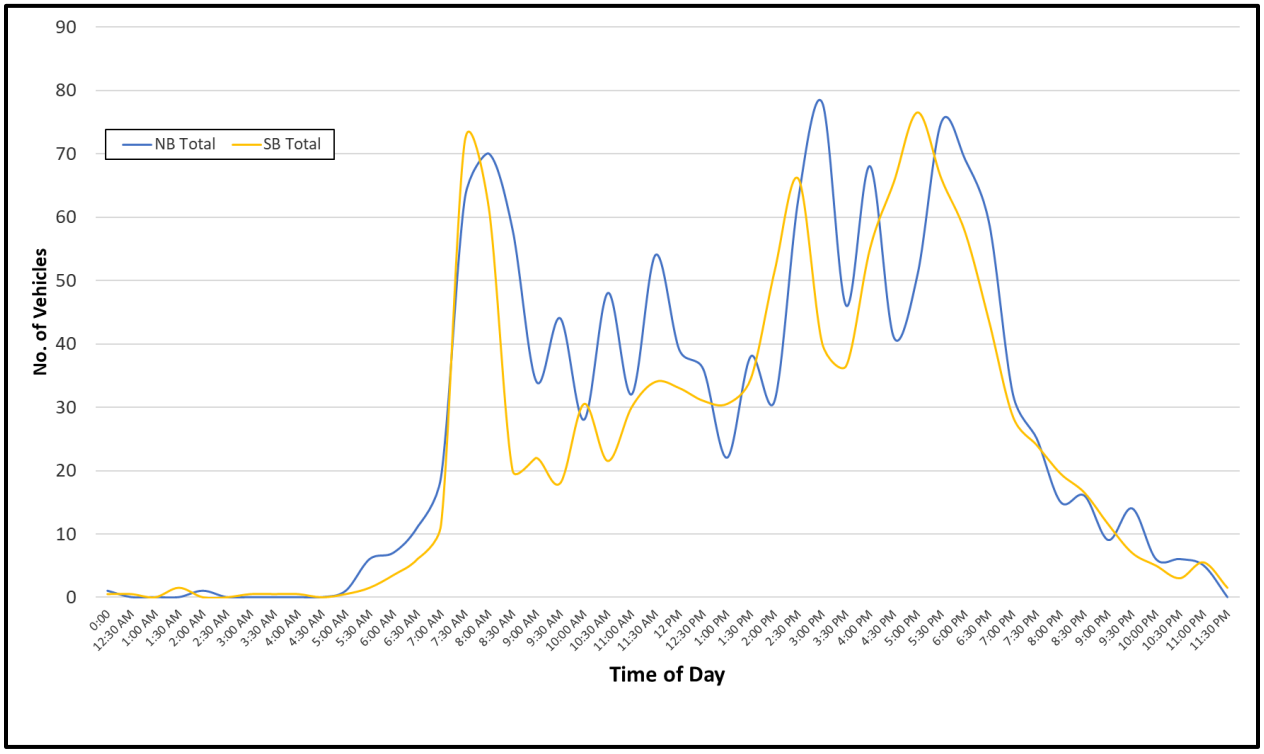


Figure 1-6. Marengo Avenue, South of Oxley Street - 24 Hour Traffic Volumes

Summary

24-hour traffic counts were conducted for Marengo Avenue on two consecutive weekdays. Based on the 24-hour traffic counts (average of the two days), the traffic volumes were highest in the segment between Maple Street and Huntington Drive. After Huntington Drive, the traffic volumes decreased significantly. The street segments between Maple Street to Huntington Drive, Maple Street to Alhambra Road, Lyndon Street to Monterey Road and Spruce Street to Laurel Street all had similar traffic volume patterns. Each segment's northbound approach had a higher traffic volume in the morning while the southbound approach had a higher traffic volume in the evening. The segment between Monterey Road and Oxley Street had a different traffic pattern with the traffic volume having three peaks through the day, one in the morning and two in the afternoon.

2. Collision Analysis

The collision analysis covered the periods from 2013 through 2023. The use of a multi-year collision data allows for a more effective evaluation. As collisions occur randomly throughout a given year, using multi-year safety data will smooth outlier years of "high" or "low" crash rates. Multi-year collision data also helps to identify local roads with a history of roadway crashes. Compiled data recognizes roadway crash types and other common characteristics as well. AGA engineers utilized the *Statewide* ***Integrated Traffic Records System (SWITRS)*** and evaluated the number of collisions, the locations of the collisions, types of collisions and primary collision factors. Additional collision data was provided by the South Pasadena Police Department for Years 2022 and 2023. Special attention was focused on collisions involving pedestrians and bicyclists. The SWITRS data evaluated involves the reported collisions. There could be additional collisions in the study area that have not been reported.

1. Collisions by year

A year-by-year analysis shows that collisions were on a steady downward trend with a significant decrease between 2017 - 2021. After analyzing the additional data provide by the Police Department, collision increased significantly in 2022 – 2023. **Figure 2-1** summarizes the collision breakdown between the years 2013 through 2023. DUI involved collisions were identified .

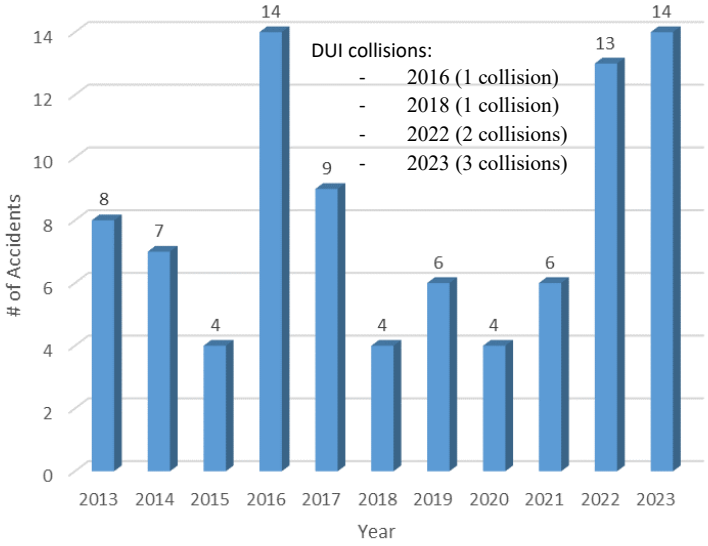


Figure 2-1. Collision by Year (2013– 2023)

Details for each collision were assessed and organized by year for the ten-year period. **Table 2-1** shows examples for the yearly collisions from 2021 – 2023 on Marengo Avenue. Collision type and primary collision factor were determined from the compiled data. **Appendix A** contains all data tables, starting from year 2013.

2021 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
1/26/2021	10:03 PM	at Huntington Dr	None	Broadside	Unknown, SBT-EBT	1 Vehicle	PDO
5/13/2021	6:52 PM	Alhambra Rd - 14' W/o Marengo Ave	None	Broadside	R/W Auto-Ped, WBT-SBT	1 Pedestrian	Yes
7/20/2021	9:37 PM	2' N/o Alhambra Rd	None	Auto/Ped	R/W Auto-Ped, NBL-SBT	1 Pedestrian	Yes
8/24/2021	8:09 AM	at Oxley St	None	Broadside	R/W Auto, WBT-NBT	2 Vehicle	Yes
9/22/2021	12:29 PM	Alhambra Rd - 42' E/o Marengo Ave	None	Rear-End	Unsafe Speed, WBT	1 Vehicle	Yes
9/24/2021	5:25 PM	at Huntington Dr	None	Broadside	Sig, WBT-SBT	1 Vehicle	Yes

2022 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
3/18/2022	6:52 PM	413' N/o Alhambra Rd	None	Rear End	MIDBLOCK - Improper Turn, NBT	2 Vehicle	Yes
4/1/2022	10:51 AM	1211 Marengo Ave	N/A	N/A	Unknown, MIDBLOCK	N/A	No
4/11/2022*	6:48 PM	at Monterey Rd	N/A	N/A	Unknown	N/A	No
5/2/2022*	3:34 PM	at Monterey Rd	N/A	N/A	Unknown	N/A	No
5/13/2022*	11:56 AM	at Oxley St	N/A	N/A	Unsafe Speed	N/A	No
5/13/2022*	12:24 PM	at Oxley St	N/A	N/A	Unknown	N/A	No
6/14/2022	3:10 PM	at Oxley St	None	Broadside	R/W Auto, EBT-NBT	1 Vehicle	Yes
7/2/2022	11:17 PM	at Mission St	HBD-UI	Hit Object	Drvr Alc/Drg	None	PDO
7/22/2022	2:03 PM	146' N/o Alhambra Rd	None	Broadside	Unsafe Speed, Too Close, WBT-SBT	1 Vehicle	PDO
7/27/2022*	8:25 PM	at Maple St	N/A	N/A	R/W, Auto-Ped, Fail to Yield to Ped	N/A	Yes
9/25/2022	7:54 PM	at Huntington Dr	HBD-UI	Broadside	Sig, EBT-SBT	1 Vehicle	PDO
12/19/2022	4:43 PM	at Alhambra Rd	None	Broadside	R/W Auto, WBT-EBT	1 Vehicle	PDO
12/21/2022*	1:28 PM	1500 Marengo Ave	N/A	N/A	Unknown, N/A, MIDBLOCK	N/A	No

2023 (January - September) Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
1/25/2023*	3:56 PM	Marengo Elementary School	N/A	N/A	Unknown, Hit & Run, assume near Rollin S	N/A	N/A
3/15/2023*	3:15 PM	at Alhambra Rd	N/A	N/A	Unknown	N/A	Yes
3/18/2023*	5:02 AM	at Huntington Dr	N/A	N/A	Unknown	N/A	Yes
4/3/2023	10:16 AM	at Huntington Dr	HBD-UI	Rear End	Too Close, NBR-NBR	1 Vehicle	Yes
4/16/2023*	12:35 PM	at Bank St	N/A	N/A	Unknown	N/A	No
5/31/2023*	5:28 PM	at Oxley St	N/A	N/A	Unknown	N/A	No
7/13/2023	12:27 PM	35' N/o Bank St	None	Other	Improper Turn, SBT	None	Yes
8/3/2023*	12:19 PM	at Mission St	N/A	N/A	Unknown	N/A	No
8/23/2023*	5:08 PM	at Huntington Dr	N/A	N/A	Unknown	N/A	No
8/29/2023*	7:50 PM	at Huntington Dr	N/A	N/A	Unknown	N/A	N/A
9/26/2023*	9:19 PM	at Alhambra Rd	HBD-UI	N/A	TC Hit & Run	N/A	N/A
10/9/2023*	8:05 AM	2007 Marengo Ave	N/A	N/A	Unknown, Hit & Run, just s/o Maple St	N/A	N/A
10/9/2023*	10:26 PM	1903 Marengo Ave	HBD-UI	N/A	DUI, just s/o Huntington Dr	N/A	Yes
11/4/2023*	4:37 PM	at Mission St	N/A	N/A	Unknown, Hit & Run	N/A	N/A

* Data from Police Department, no further information provided.
PCF – Primary Collision Factor, N/A – Not available, PDO – Property Damage Only, HBD-UI – Had Been Drinking-Under Influence, R/W-Right of Way
NBT – Northbound Through, NBR – Northbound Right, NBL – Northbound Left

Table 2-1. Collisions on Marengo Avenue (2021 – 2023)

2. Collision Types and Severity

For the ten-year period from 2013 through 2023, there were 89 reported collisions. Of these, the predominant collision types were broadside collisions (29) and rear-end collisions (17). There were seven collisions that involved pedestrians. The breakdown for all collision types is shown in **Figure 2-2.** It is also noted that of the 22 collisions labeled "other", 12 were collisions provided by the Police Department with no further information provided to identify the collision type.

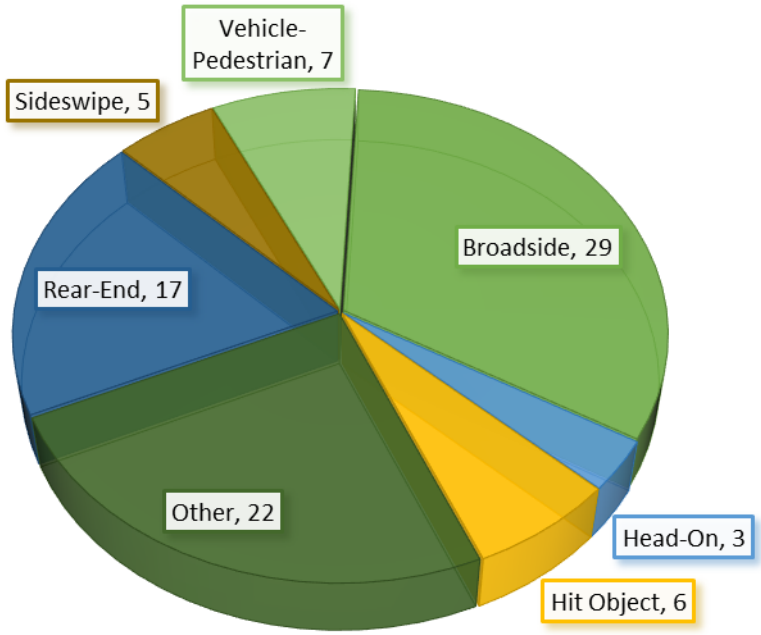


Figure 2-2. Collision Types (2013 – 2023)

3. Primary Collision Factors

Figure 2-3 summarizes the collision factors identified as the major cause of the collision. The top four primary collision factors include:

- Unsafe speed (17)
- Automobile right of way violations (12)
- Driving under the influence (7)
- Traffic signals and signs (11)

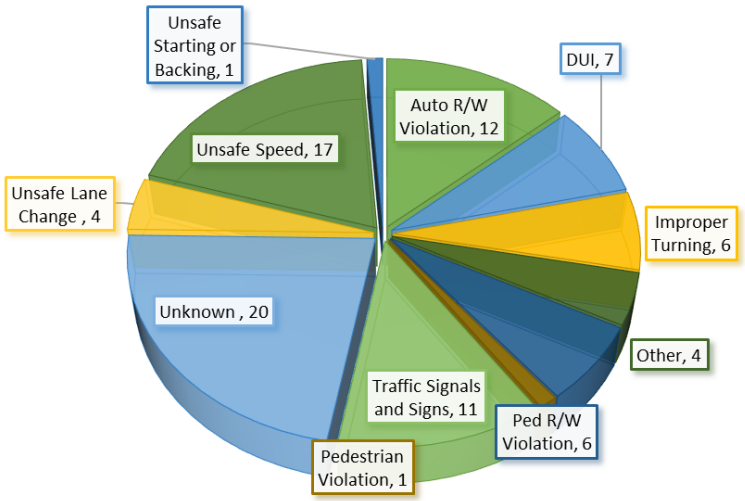


Figure 2-3. Primary Collision Factors (2013– 2023)

4. Number of Collisions by Intersection

The locations of each collision were assessed to determine if there is an area(s) or intersection(s) where the collisions predominantly occur. **Figure 2-4** shows the number of collisions identified at or near each intersection along Marengo Avenue. Based on the assessment, the top two intersections with the most collisions identified were Huntington Drive (23 collisions) and Alhambra Road (21 collisions)**.** This is expected since those two intersections pertain to the main crossing arterials along Marengo Avenue.

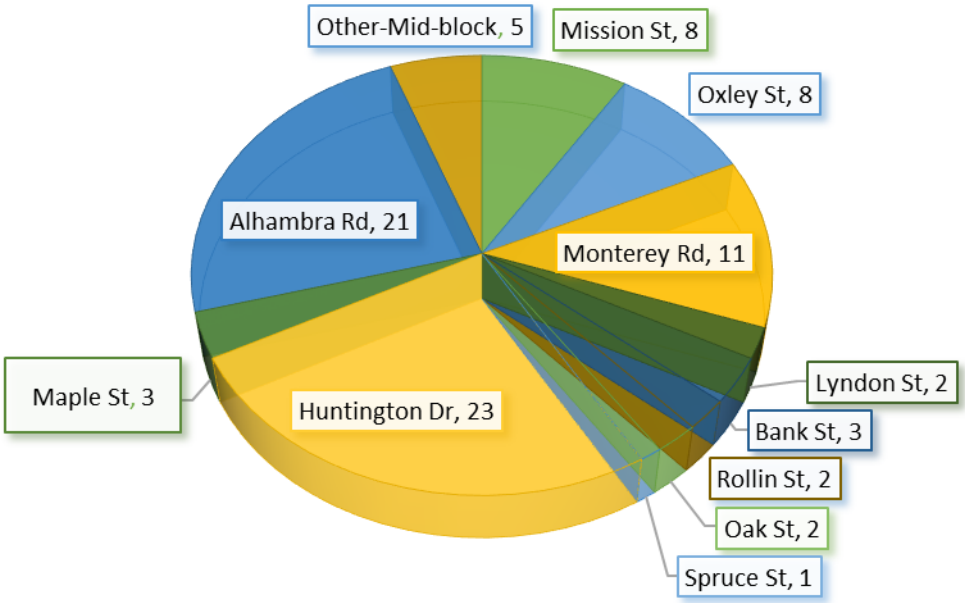


Figure 2-4. No. of Collisions by Intersections (2013– 2023)

Marengo Avenue/Huntington Drive

Of the 23 collisions at Marengo Avenue and Huntington Drive, there were eight broadside collisions, six rear-end collisions and four vehicle-pedestrian collisions. **Table 2-2** shows all collisions identified at the intersection of Marengo Avenue/Huntington Road. The collisions occurred throughout the day with no specific pattern. The broadside collisions could be attributed to motorists being inattentive, impatient, aggressive and more prone to running the red light and/or north/south left turn motorists not yielding for oncoming traffic. Recommendations for this intersection to alleviate future collisions are provided later in this section.

Date	Time	Location on Marengo Ave/Huntington Dr	Sobriety	Collision Type	PCF	Other Party	Injury
8/30/2013	7:56 PM	48' N/o Huntington Dr	None	Auto/Ped	Ped Violation, EBT-NBT	1 Vehicle	Yes
8/7/2014	10:39 PM	33' E/o Marengo Ave	None	Rear-End	Unsafe Speed WB	1 Vehicle	PDO
8/30/2014	12:47 PM	48' W/o Marengo Ave	None	Rear-End	Lane Change, WB	1 Vehicle	PDO
9/6/2014	6:45 PM	at Huntington Dr	None	Broadside	Lane Change, EB	1 Vehicle	Yes
9/23/2014	9:02 AM	135' E/o Marengo Ave	None	Rear-End	Unsafe Speed WB	1 Vehicle	Yes
12/22/2016	5:38 PM	at Huntington Dr	None	Auto/Ped	Sig, EBT-NBT	2 Pedestrians	Yes
9/22/2017	10:38 AM	48' S/o Huntington Dr	None	Rear-End	Unsafe Speed, WBT	1 Vehicle	Yes
12/24/2017	1:18 PM	at Huntington Dr	None	Broadside	Sig, EBT-SBT,NBT	3 Vehicles	Yes
3/2/2018	7:30 PM	at Huntington Dr	None	Broadside	EBT-SBT	1 Vehicle	Yes
12/19/2018	8:00 AM	15' E/o Marengo Ave	None	Auto/Ped	R/W Ped, SBL-NBT	1 Pedestrian	Yes
9/10/2019	2:16 PM	34' N/o Huntington Dr	IMP Unk	Rear-End	Unsafe Speed, SBT-SB	1 Vehicle	PDO
10/23/2019	10:48 AM	12' W/o Marengo Ave	None	Auto/Ped	Not Stated, EBR-NBT	1 Bicycle	Yes
11/27/2019	7:17 PM	35' W/o Marengo Ave	IMP Unk	Sideswipe	Lane Change, EBT-EB	1 Vehicle	PDO
12/1/2019	2:56 PM	at Huntington Dr	None	Broadside	WBT-SBT	1 Vehicle	PDO
5/14/2020	7:14 AM	at Huntington Dr	None	Broadside	EBT-NBT	1 Vehicle	Yes
1/26/2021	10:03 PM	at Huntington Dr	None	Broadside	Unknown, SBT-EBT	1 Vehicle	PDO
9/24/2021	5:25 PM	at Huntington Dr	None	Broadside	WBT-SBT	1 Vehicle	Yes
9/25/2022	7:54 PM	at Huntington Dr	HBD-UI	Broadside	EBT-SBT	1 Vehicle	PDO
3/18/2023*	5:02 AM	at Huntington Dr	HBD-UI	N/A	Unknown	N/A	Yes
4/3/2023	10:16 AM	at Huntington Dr	None	Rear-End	Too Close, NBR-NBR	1 Vehicle	Yes
8/23/2023*	5:08 PM	at Huntington Dr	N/A	N/A	Unknown	N/A	No
8/29/2023*	7:50 PM	at Huntington Dr	N/A	N/A	Unknown	N/A	N/A
10/9/2023*	10:26 PM	1903 Marengo Ave	HBD-UI	N/A	DUI, just s/o Huntington Dr	N/A	Yes

* Data from Police Department, no further information provided.
PCF – Primary Collision Factor, N/A – Not available, PDO – Property Damage Only, HBD-UI – Had Been Drinking-Under Influence, IMP-Unk-Impairment Unknown, R/W-Right of Way
NBT – Northbound Through, NBR – Northbound Right, NBL – Northbound Left

Table 2-2. Collisions on Marengo Avenue/Huntington Road (2013 – 2023)

Marengo Avenue/Alhambra Road

Of the 21 collisions at Marengo Avenue/Alhambra Road, there were eight broadside collisions, four rear-end collisions and two vehicle-pedestrian collisions. Since this intersection is all-way stop control, the broadside collisions could be attributed to motorists not adhering to vehicle right-of-way and/or are not stopping at the intersection. **Table 2-3** shows all the collisions identified at the intersection of Marengo Avenue/Alhambra Road. Recommendations for this intersection to alleviate future collisions are provided in Section 6 of this report.

Date	Time	Location on Marengo Ave/Alhambra Rd	Sobriety	Collision Type	PCF	Other Party	Injury
8/27/2013	3:47 PM	70' W/o Alhambra Rd	None	Hit Object	Unsafe Speed SB	None	PDO
10/28/2013	10:00 PM	at Alhambra Rd	None	Broadside	Stop Control, WBT-NBT	2 Vehicles	PDO
4/2/2016	1:19 AM	at Alhambra Rd	HBD-IU	Head-On	Drvr Alc	None	PDO
6/12/2016	8:50 PM	36' S/o Alhambra Rd	None	Sideswipe	Not Stated	2 Vehicles	PDO
8/12/2016	6:01 PM	at Alhambra Rd	None	Overturned	Stop Control, EBT-SBT	1 Vehicle	Yes
8/17/2016	4:02 PM	at Alhambra Rd	None	Broadside	Stop Control, SBT-WBT	1 Vehicle	PDO
9/17/2016	4:44 PM	at Alhambra Rd	None	Broadside	Stop Control, WBT-SBT	1 Vehicle	PDO
10/25/2016	11:29 PM	at Alhambra Rd	None	Broadside	Not Stated	1 Vehicle	PDO
9/15/2017	2:57 PM	39' W/o Alhambra Rd	None	Rear End	Too Close	1 Vehicle	Yes
10/29/2017	2:05 PM	17' N/o Alhambra Rd	None	Rear End	Unsafe Speed, WBT	1 Vehicle	Yes
4/29/2018	12:30 AM	21' E/o Alhambra Rd	HBD-IU	Hit Object	Drvr Alc	None	PDO
11/20/2019	5:30 PM	at Alhambra Rd	None	Broadside	Stop Control, NBT-EBT	1 Vehicle	PDO
11/27/2019	12:49 PM	105' E/o Alhambra Rd	None	Hit Object	Other	1 Vehicle	PDO
8/29/2020	5:43 PM	10' W/o Alhambra Rd	None	Rear-End	Unsafe Speed, EBT	1 Vehicle	PDO
5/13/2021	6:52 PM	14' W/o Alhambra Rd	None	Broadside	R/W Ped, WBT-SBT	1 Pedestrian	Yes
7/20/2021	9:37 PM	2' N/o Alhambra Rd	None	Auto/Ped	R/W Auto-Ped, NBL-SBT	1 Pedestrian	Yes
9/22/2021	12:29 PM	42' E/o Alhambra Rd	None	Rear-End	Unsafe Speed, WBT	1 Vehicle	Yes
7/22/2022	2:03 PM	146' N/o Alhambra Rd	None	Broadside	Too Close, WBT-SBT	1 Vehicle	PDO
12/19/2022	4:43 PM	at Alhambra Rd	None	Broadside	R/W Auto, WBT-EBT	1 Vehicle	PDO
3/15/2023*	3:15 PM	at Alhambra Rd	N/A	N/A	Unknown	N/A	Yes
9/26/2023*	9:19 PM	at Alhambra Rd	HBD-UI	N/A	Unknown, Hit & Run	N/A	N/A

* Data from Police Department, no further information provided.
PCF – Primary Collision Factor, N/A – Not available, PDO – Property Damage Only, HBD-UI – Had Been Drinking-Under Influence, R/W-Right of Way
NBT – Northbound Through, NBR – Northbound Right, NBL – Northbound Left

Table 2-3. Collisions on Marengo Avenue/Alhambra Road (2013 –2023)

Marengo Avenue/Monterey Road

City staff also requested to show the collisions for the intersection of Marengo Avenue and Monterey Road. Although this intersection had the third highest number of collisions of 11, it is necessary to note that this was over the ten-year period that was studied. Only year 2017 with three collisions had more than two collisions per year. There were five broadside collisions in the ten year period studied. From the available records, the broadside collisions occurred from 2013 to 2020 and were throughout the day with no specific time-of-day pattern. From our field review of this intersection, all vehicles from all stop bar approaches are clearly visible. Similar to the intersection of Marengo Avenue and Alhambra Road, the broadside collisions could be attributed to motorists being inattentive, impatient and aggressive, and therefore not adhering to vehicle right-of-way and/or are not stopping at the intersection. Since the last recorded broadside collision was in 2020, this intersection should be monitored and discussed with the police department for any concerns. **Table 2-4** shows all the collisions identified at the intersection of Marengo Avenue/Monterey Road.

Date	Time	Location on Marengo Ave/Monterey Rd	Sobriety	Collision Type	PCF	Other Party	Injury
1/30/2013	7:42 PM	at Monterey Rd	None	Broadside	R/W Auto, EBT-SB	1 Vehicle	Yes
6/16/2014	6:00 PM	Monterey Rd - 19' E/o Marengo Ave	None	Hit Object	Unsafe Speed EB	None	PDO
6/12/2015	5:48 PM	at Monterey Rd	None	Broadside	R/W Auto, EBT-SBT	1 Vehicle	PDO
7/26/2016	6:08 PM	Monterey Rd - 96' W/o Marengo Ave	None	Head-On	Lane Change, WBT-EBT	1 Vehicle	Yes
8/10/2016	5:55 PM	Monterey Rd - 54' W/o Marengo Ave	IMP Unk	Rear End	Other, Too Close, EBT-Stopped	1 Vehicle	Yes
4/8/2017	1:44 PM	at Monterey Rd	IMP-Unk	Rear End	Unsafe Speed, WBT	1 Vehicle	PDO
7/31/2017	12:53 PM	at Monterey Rd	None	Broadside	R/W Auto, WBT-NBT	1 Vehicle	Yes
10/23/2017	8:25 AM	50' N/o Monterey Rd	None	Broadside	R/W Auto, EB(U-Turn)-SBT	1 Vehicle	Yes
10/7/2020	2:53 PM	at Monterey Rd	None	Broadside	Unknown, Not Stated, NBT-WBT	1 Vehicle	PDO
4/11/2022*	6:48 PM	at Monterey Rd	N/A	N/A	Unknown	N/A	No
5/2/2022*	3:34 PM	at Monterey Rd	N/A	N/A	Unknown	N/A	No

* Data from Police Department, no further information provided.
PCF – Primary Collision Factor, N/A – Not available, PDO – Property Damage Only, IMP Unk – Impairment Unknow, R/W-Right of Way
NBT – Northbound Through, NBR – Northbound Right, NBL – Northbound Left

Table 2-4. Collisions on Marengo Avenue/Monterey Road (2013 –2023)

5. Pedestrians/Bicyclists Collisions

Collisions between vehicles and pedestrians/bicyclists remained minimal throughout the ten-year assessment, with a total of seven pedestrian/bicyclists collisions. **Figure 2-5** summarizes the collision breakdown involving vehicles and peds/bikes. Four out of the seven collisions shown occurred at Huntington Drive.

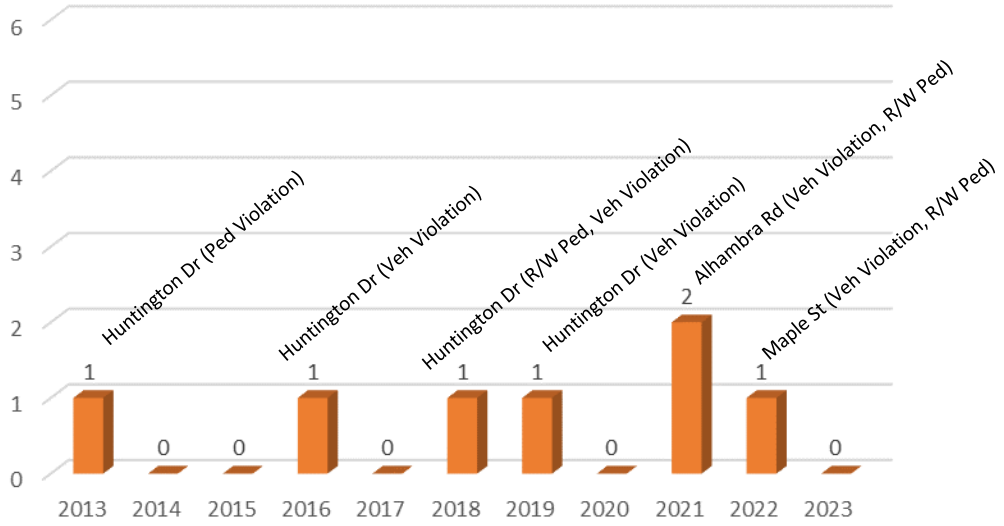


Figure 2-5. Ped/Bike Involved Collision by Year (2013– 2023)

6. Unsafe Speed Collisions

As discussed earlier in this section, unsafe speed accounted for 17 collisions during the analysis years. **Figure 2-6** shows a steady downward trend in the number of collisions caused by unsafe speeds. There have been no reported unsafe speed collisions from year 2022 and up to date. **Figure 2-7** identifies where the unsafe speed collisions occurred. There was no direct pattern on where these collisions occurred.

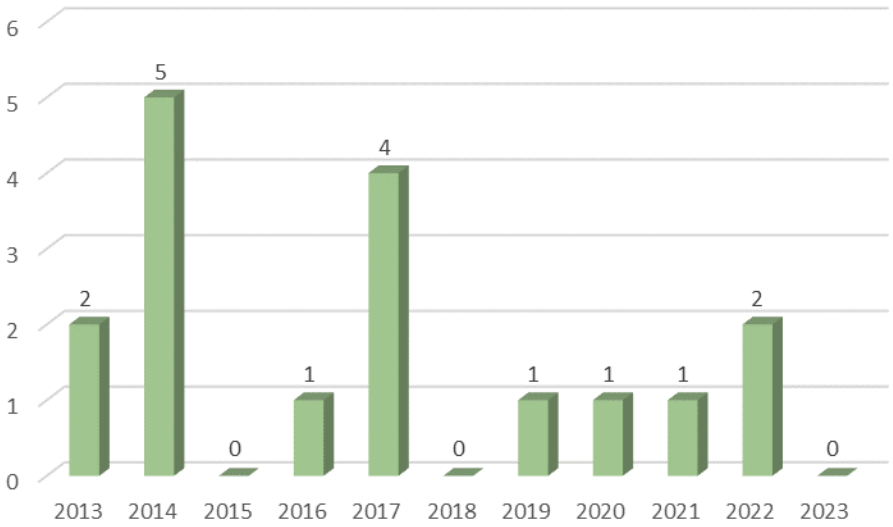


Figure 2-6. Collisions due to Unsafe Speeds Year (2013-2023)

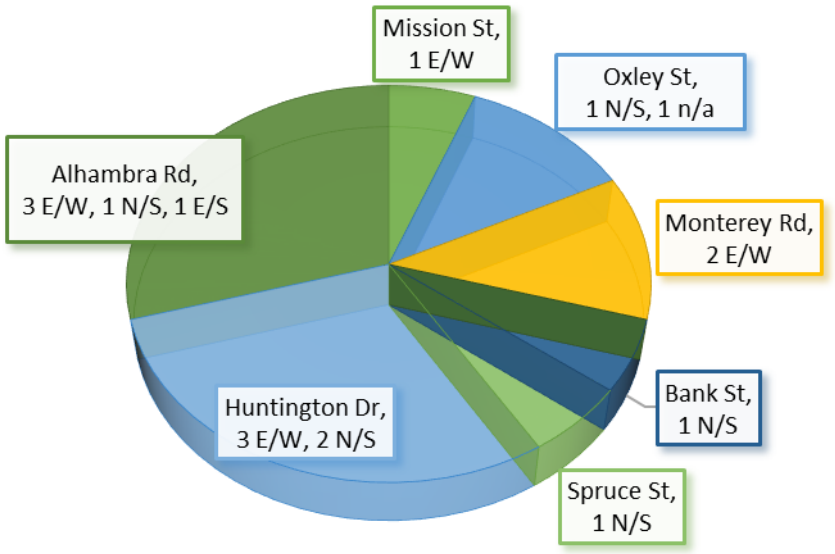


Figure 2-7. Locations (15) of Unsafe Speeds (2013-2023)

Marengo Avenue/ Huntington Drive Recommendations

The intersection of Marengo Avenue/Huntington Drive is a signalized intersection and had the highest number of collisions along Marengo Avenue. The higher number of collisions at Huntington Drive could be attributed to higher traffic volumes at the intersection. In Southern California, traffic volumes have significantly increased since the pandemic in 2020. The majority of collision types involved broadside collisions (8) and rear end collisions (6). The speed limit on Huntington Drive is 40 mph and therefore motorists on Huntington Drive could be driving speeds higher than 40 mph. Therefore, broadside collisions involving east/west and north/south vehicles could have a higher chance of injury than other intersections along Marengo Avenue. As stated in the overall collisions, four pedestrian collisions were recorded during the ten year period. Although the number of collisions is relatively low over the ten year period, below are some proactive improvements to reduce or minimize the chances of additional collisions that could be implemented now or programmed later for the intersection of Marengo Avenue at Huntington Drive. It should be noted that the City is planning on proposed raised crosswalks at this intersection which should enhance the visibility of pedestrians to motorists.

- Upgrade existing near and far side eight inch vehicle head indications for the north/south approaches on Marengo Avenue to 12 inch vehicle head indications. The larger vehicle heads will improve the visibility of the north/south traffic signal indications for the approaching vehicles on Marengo Avenue. There are a set of two inch vehicle heads (set back-to-back) for the north/south movements located on the southeast and northwest corners of the intersection.

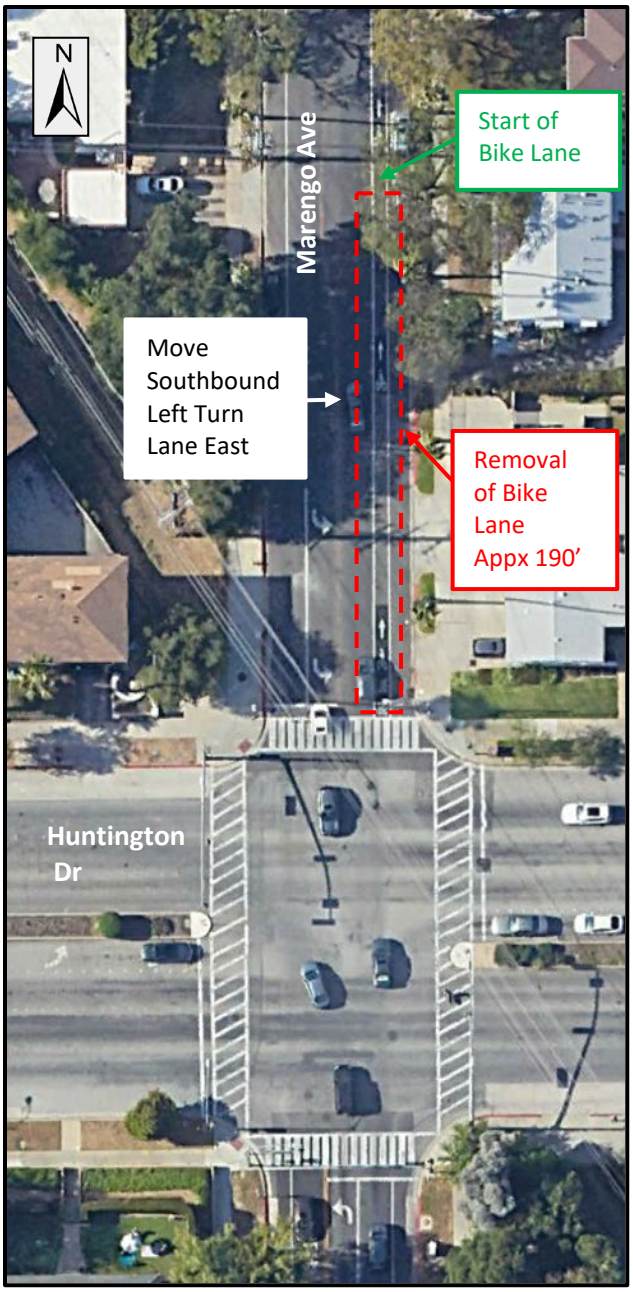
Southwest Corner – Eight Inch Vehicle Heads for North/South

- Implement *Leading Pedestrian Interval (LPI)* signal timing. The LPI signal timing parameter will begin the Walk time for a pedestrian and hold the associated vehicle indication red for a specified amount of time (could be 3-5 seconds). This will allow the pedestrian to begin walking prior to the vehicle green indication and provide better visibility of the pedestrian to motorists. The traffic signal controller will need to be assessed to see if the LPI timing parameter can be implemented.

- Install *Accessible Pedestrian Signal (APS)* push buttons to provide audible tones and messages for pedestrians who are impaired or have low vision.

- Red Light Running: Install radar or hybrid video/radar vehicle detection for Huntington Drive vehicle traffic. The detection units along with the intersection traffic controller could be programmed to increase the all-red signal timing and therefore alleviate potential broadside collisions due to red light running. The traffic signal equipment (traffic signal controller and available traffic signal conduit fill) would need to be verified for the installation of these units.

- North/South Left Turn Alignment: It was noticed from our field observations that the north/south left turns are not directly aligned and have a slight negative offset. This was discussed in detail in our field observations. The left turns could be aligned via restriping. The southbound left turn lane would need to be moved to the east to provide the proper alignment with the northbound left turn. In order to achieve this, the beginning of the northbound bicycle lane after the intersection (north leg) would need to removed in order to accommodate the north/south left turn alignment. The bicycle lane would then begin approximately 190 feet north of the intersection. A preliminary signing and striping plan was developed for this improvement. This plan was utilized to determine the length that the bike lane should be shortened. The plan is provided in **Appendix B**.



Marengo Avenue at Huntington Drive – Southbound Left Turn Alignment

Summary

Based on the collision analysis for the past ten years, there were a total of 89 reported collisions with a higher number of reported collisions occurring in the past two years 2022 and 2023. Of the total 89 number of collisions, 23 occurred at Huntington Drive and 21 occurred at Alhambra Road. The majority of these collisions were broadside (29) and rear-end (17). There were seven collisions involving a pedestrian or bicyclist. Four of the pedestrian/bicycle involved collisions occurred at Huntington Drive and two occurred at Alhambra Road. The higher collisions at these two intersections are mainly due to the higher amount of traffic volumes from Huntington Drive and Alhambra Road. Recommendations for the intersection of Marengo Avenue/Huntington Drive were provided in this section and recommendations for the intersection of Marengo Avenue/Alhambra Road were assessed in Section 6 of this study. For ongoing monitoring of collisions, the City should coordinate with the police department monthly or bi-monthly, regarding recent collisions or other concerns. It is also recommended that the City should evaluate this corridor and the study intersections with Citywide studies to determine where they correspond with the overall high collision locations in the City.

3. Field Review of Corridor

In late October 2023, AGA conducted a field review along Marengo Avenue to observe the traffic patterns along the corridor during a typical weekday. Special attention was given during the peak school periods (arrival and dismissal time periods). From the observations taken, there was heavy vehicular and pedestrian demand during the morning peak hour. During the late afternoon period, typical school traffic (vehicular and pedestrian) was observed within a peak period of approximately 15-20 minutes. During the evening peak period, there was less pedestrian demand and some commuter traffic, but overall, there was moderate demand for vehicular traffic. Outside of these time periods, there was very low vehicular and pedestrian demand. The following are detailed observations along with suggestions and recommendations that could be programmed to enhance traffic circulation and safety depending on funding and budget availability:

Traffic Calming Measures

The City has installed multiple traffic calming measures and pedestrian signage along the corridor. There are Class II bike lanes with adjacent parking to narrow the traveled lanes along Marengo Avenue. Posted school speed limit signs of 15 mph along with In-Pedestrian Crossing signs in the center of the street on a few crosswalks are also installed along the corridor. On Oak Street, there are delineators along the side of the street that reduces the street width for approaching vehicles. Oak Street is wide enough to accommodate both through and right turn vehicles. With the installation of the delineators, the approach is reduced to a single lane capacity. The narrow approach limits the number of vehicles entering the intersection at one time which alleviates vehicle-to-pedestrian conflicts. Ladder style crosswalks are also installed for crossings on Marengo Avenue which provide better visibility of the crossings. Botts dots were also noticed which are used to raise the attention of motoriststs that they are approaching a stop control and pedestrian crossing.

Typical In-Pedestrian Crossing Signs on Crosswalks

Delineators on Oak Street

Crossing Guards and School Crossings

During the school peak hours, crossing guards were stationed at the following locations: Mission Street, Monterey Road, Bank Street, Rollin Street, Oak Street and Huntington Drive. All locations had one crossing guard, with the exception of Huntington Drive – two crossing guards. Overall, the crossing guards controlled the cross traffic and managed the pedestrians across the intersections.

Marengo Avenue/Monterey Road

For the intersection of Marengo Avenue/Monterey Road, there is heavy vehicular traffic along all four approaches of the intersection during the morning period. There are ladder crosswalks along the north and south approaches on Marengo Avenue at this intersection, which is utilized by students and parents going to and from South Pasadena Middle School and Marengo Elementary School. As there is only one crossing guard at this intersection, the crossing guard must move around the intersection managing both vehicles and pedestrians for all four movements. Typically, a crossing guard manages the adjacent crosswalks and vehicular approaches. It was observed that the crossing guard had to manage approaching traffic from opposite corners of the intersection. In order to alleviate the number of movements that the crossing guard controls at this intersection, either an additional crossing guard could be utilized or one of the north/south crosswalks could be removed, similar to other crossings along the corridor. There are in-road warning lights installed for the westbound approach (east leg) at this intersection which assist in warning oncoming westbound motorists of pedestrians crossing.

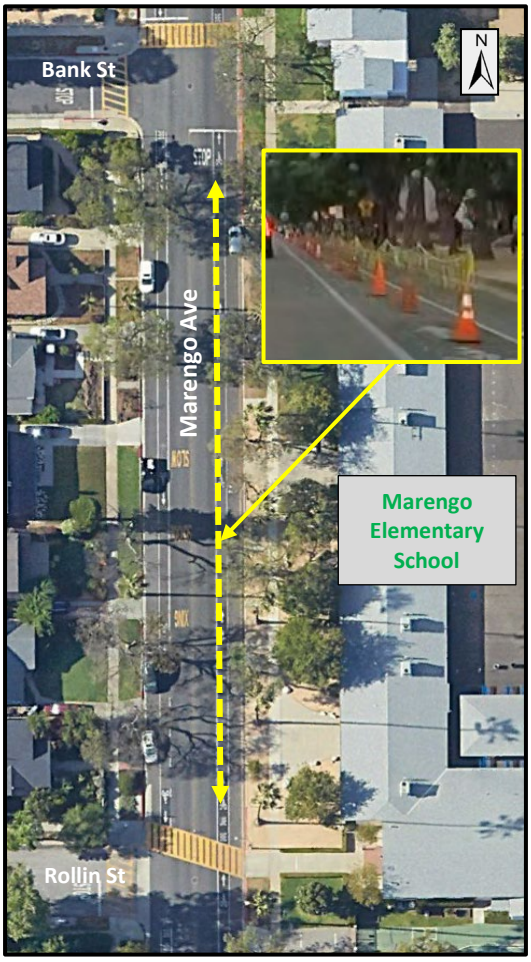
At Marengo Avenue/Oak Street, there are two ladder crosswalks on Marengo Avenue and very heavy vehicular and pedestrian demand, similar to Monterey Road. However, the majority of pedestrians cross the north crosswalk and east crosswalk. Therefore, the crossing guard at this intersection did not have to consistently need to control all four movements. There are in-roadway warning lights installed at Oak Street for the westbound approach (east leg). It was observed that some of the lights were not functioning properly. All in-roadway warning light systems at both Monterey Road and Oak Street are recommended to be removed.

Marengo Avenue/Rollin Street –
One Crosswalk on Marengo Avenue

As mentioned, the crosswalks on Marengo Avenue are ladder style crosswalks. Although not all approaches have crosswalks, the approaches without crosswalks do not have signs that restrict crossing Marengo Avenue. Therefore, it is legal to cross Marengo Avenue at these approaches. However, it was observed that the students going to and from the school areas, utilized the approaches with the crosswalks and did not utilize the approaches without crosswalks. It was observed that a few adults crossing Marengo Avenue did cross the approaches without crosswalks.

Marengo Elementary School Loading and Unloading Area

During the school's arrival morning time period, cones are placed in the bike lane on the east side of Marengo Avenue in the area that fronts the school (see figure to the right). This area is designated for unloading of the students and is signed with 15mph school zone speed limits. From observations, parents and school staff monitor the area and assist students exiting the vehicles. The temporary traffic control works well and motorists seem to understand the operation. This temporary traffic control set up has been observed to work well since vehicles are not stopped for a long period of time. During the removal of the cones in the morning period, it was observed that one person responsible for removing the cones would walk along the bike lane, close to the northbound travelled lane on Marengo Avenue. They are constantly bending down and not aware of the oncoming northbound traffic. It is recommended that they position themselves to be right of the bike lane, away from the travel lane. It is also recommended that the school review this procedure to ensure the safety of all personnel involved in this type of operation. During the afternoon dismissal time period, cones are not placed in this area and motorists arrive early and park in the area to pick up the students. This area can be quickly full of vehicles and it was noticed that there were a few motorists that would double park on Marengo Avenue and block the northbound travel lane. This would cause northbound vehicles to queue and have the northbound vehicles pass the double parked vehicle by driving onto the southbound lane. To minimize potential traffic conflicts, it is recommended that the school provide the students with observant/educational flyers on how the traffic circulation works during arrival and dismissal and not have vehicles double park on Marengo Avenue. Including, expanding on traffic safety features and circulation during the school peak traffic time that occurred approximately 15-20 minutes for each arrival and dismissal time periods.



Marengo Elementary School – Morning Drop Off Area Zone

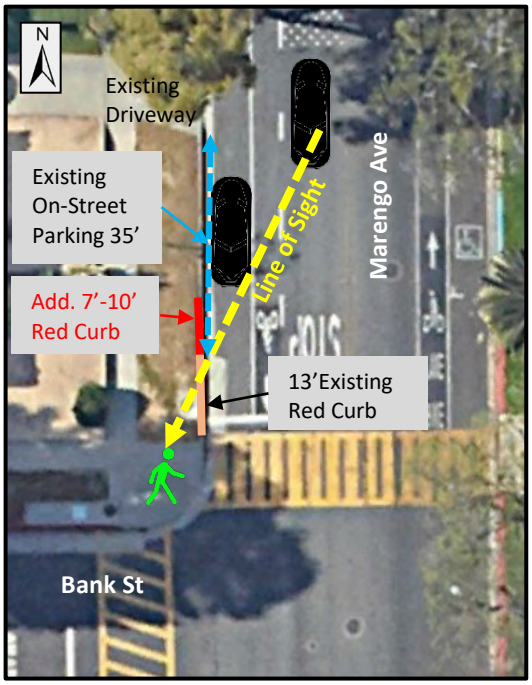
Marengo Avenue/Bank Street – Additional Red Curb on Northwest Corner

There is a very heavy school pedestrian demand at the intersection of Marengo Avenue at Bank Street for both the morning and afternoon school time periods. There is an existing crossing guard that directs traffic for both the north and west crosswalks. The crossing guard typically stands on the northwest corner to control both vehicular and pedestrian traffic. There is approximately 13 feet of existing red curb on the west side of Marengo Avenue, just north of the crosswalk and vehicles park up to the red curb. The red

curb provides spacing from a parked vehicle and the north crosswalk, which allows visibility of pedestrians step off the curb. The remaining area north of the red curb is available on-street parking.

The State of California recently passed California Assembly Bill 413 that prohibits the stopping or parking of a vehicle 20 feet from the approach side of any unmarked or marked crosswalk or 15 feet of any crosswalk with a curb extension. This includes areas with and without red curb. For the southbound approach at this intersection, motorists may not be aware of the new law, and park just outside of the existing red curb which is less than the required 20 feet. Therefore, it is recommended to increase the red curb to a minimum of 20 feet.

It was also observed that the available on-street parking on Marengo Avenue at this corner is more than adequate to accommodate one vehicle but not long enough to accommodate two vehicles. There is approximately 35 feet of available on-street parking on the west side of Marengo Avenue, just north of Bank Street. The typical on-street parking stall is 25 feet in length and therefore the on-street parking area is too short for two vehicles to park. Since the on-street parking length is more than adequate to accommodate one vehicle, the on-street parking can be reduced 7-10 feet with additional red curb. By providing the additional red curb, the visibility of the crossing guard and pedestrians on this corner for southbound approaching vehicles can be improved. The increase in red curb would provide a better line of sight for a southbound vehicle (see figure to the right). Southbound approaching vehicles would be able to see the crossing guard and pedestrians at the northwest corner sooner.



Potential Additional Red Curb on Marengo Avenue at Bank Street

Marengo Avenue at Huntington Drive – North/South Left Turn Alignment

The typical geometry of signalized intersections can present several challenges. Visibility of oncoming vehicles is important for drivers to identify acceptable gaps. The geometry at some intersections actually creates a negative offset, as shown in the adjacent figure, which further reduces sight distance for left-turning vehicles. Typical intersection alignments have opposing left turn lanes directly across from one another and immediately adjacent to the through lanes, as shown by the intersection without an offset in (b). Thus, a left-turning vehicle in the opposite left-turn lane can obstruct the view of oncoming vehicles. Sight distance for left-turning vehicles can be improved by shifting the left turn lanes to the left to create a positive offset, as shown in (c).

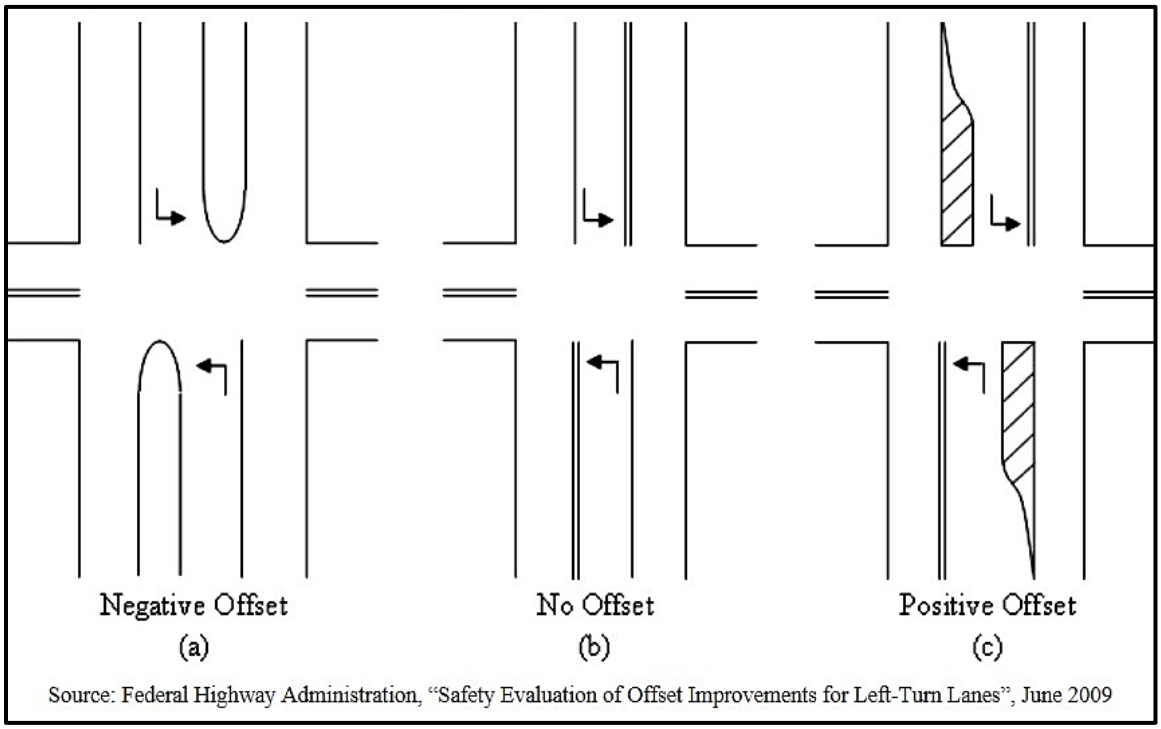
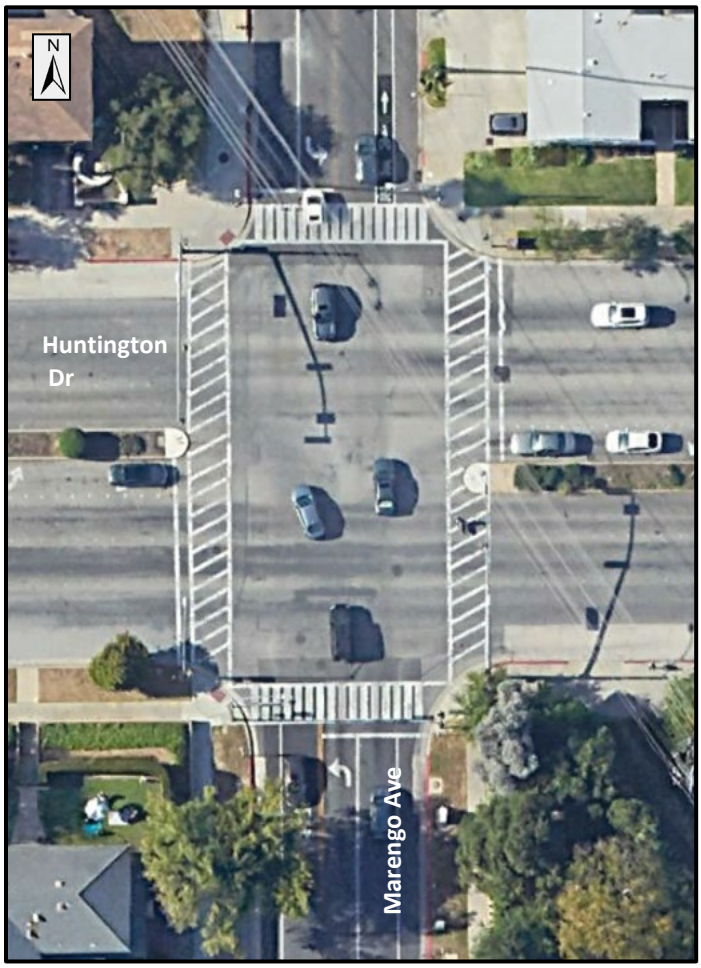


Illustration of Left Turn Offsets

When initial offsets are negative, a variation of the offset improvement strategy can be applied by increasing the lateral separation between the left turn and adjacent through lane (i.e., modifying the left turn lane from a negative to less negative offset). Hence, the offset is still negative, but the sight distance to oncoming vehicles is slightly improved. It was observed from the field review that there is a slight negative offset for the north/south left turns at the intersection of Marengo Avenue/ Huntington Drive. In order to improve the alignment of the left turns, north/south approaches could be restriped to improve the alignment. However, the restriping could affect parking or the departing bike lanes. The east/west left turns at this intersection have a significant negative offset, however, the left turns have protected only signal phasing and do not require any modifications to the alignment.



Marengo Avenue at Huntington Drive

<u>Other Noted Items Observed:</u>

- All stop signs have the standard dimension of 30".
    - Faded stop sign for the northbound approach at Maple Street.
    - All-Way STOP control locations with supplemental number of ways plaque ("4-WAY") should update the plaque to ALL WAY plaque (R1-3p). If there is no supplemental plaque at an all-way stop control intersection, the ALL WAY plaque should be installed with the STOP sign. Locations along Marengo that require the ALL WAY plaque are as follows:

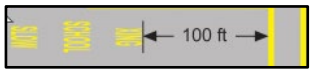
        - Alhambra Road – Needs plaque
        - Maple Street – Update plaque
        - Spruce Street – Update plaque
        - Laurel Avenue – Update plaque
        - Oak Street – Update plaque
        - Bank Street – Update plaque
        - Monterey Road – Update plaque

- School Signage: School signs and/or pavement legends need to be updated or checked along Marengo Avenue and the cross streets. Below are a few examples of school signs and pavement legends.

Crosswalk Signs

Existing SW24-2(CA)

Verify School Pavement Legend
Verify Location from Crosswalk



Advance School Sign
Verify Location

SW24-1(CA)

- Existing sidewalks on both sides of the street – No recommendations.

- Existing centerline and edgeline striping – No recommendations.

- Curb ramps should be assessed for ADA compliance.

- The existing crosswalks have different patterns throughout the corridor. While consistency is not a requirement, it is recommended the City utilize a consistent crosswalk pattern for this corridor, especially in the school areas. There are ladder style crosswalks along Marengo Avenue. The City could utilize the ladder style pattern along the corridor for all crosswalks. There are stop bars that are offset from the crosswalks on Marengo Avenue to provide a gap between the vehicles and pedestrians. Some intersections do not have crosswalks and it is legal to cross at these approaches as long as there are no signs showing not to cross the street. In order to assess if additional crosswalks need to be placed along the corridor, the City should work with the school district and police department in the development of a Suggested Routes to School Plan. Not only will this plan provide the suggested routes to and from the schools, but it will also provide education to both parents and students on the drop off and pickup routines for each school and a better understanding of the rules of the road.

Marengo Avenue at Oak Street Crosswalks

- Emergency poles are also located at the following intersections on Marengo Avenue at Mission Street and Marengo Avenue at Oak Street.

- Trees should be maintained to prevent any impacts to street lighting at the following intersections.
    - Bank Street, East Side of Marengo Avenue
    - Laurel St, Northwest Corner
    - Spruce Street, Northwest Corner
    - Maple St, Northeast corner

- High density of trees along the street. Could impact any proposed solar powered equipment such as speed feedback signs.

- Very light traffic conditions outside of school arrival and dismissal time periods. Heavier vehicular traffic along Alhambra Road and Huntington Drive during the peak periods, but nothing out of the ordinary for these arterials.

- Speeding and pedestrian conflicts did not seem to be an issue during the field review.

4. Speed Analysis

Based on discussion with City staff, speed analyses were conducted at five different locations throughout the study area on Marengo Avenue. This includes south of Oxley Street, south of Monterey Road, south of Laurel Street, Maple Street to Huntington Drive and Alhambra Road to Maple Street. The data was recorded at each location for two days during a typical week (non-holiday). Speed surveys utilizing pneumatic tube counters were taken on Tuesday, October 17, 2023 through Wednesday, October 18, 2023 and Tuesday, November 28, 2023 through Wednesday, November 29, 2023. The posted speed limit on Marengo Avenue is 25 mph and 15 mph for the school zone near Marengo Elementary School.

The surveys analyzed by speed increments, starting with speeds less than or equal to 25 mph, increasing every 5 mph until reaching 50 mph or more. The 85th percentile (speed at or below which 85 percent of drivers travel) and average recorded speeds from the analysis are shown on **Figure 4-1.** Whereas the 85th percentile speed (mph) as defined by Federal Highways is the speed at or below which 85 percent of drivers travel on a road segment. Drivers travelling above the 85th percentile speed are considered to be exceeding the safe and reasonable speed for road and traffic conditions.

In general, the average speeds were between 23-29 mph and the 85th percentile speeds were between 26-31 mph, which is typical for a residential arterial. There were predominantly slower speeds during the peak traffic hours (AM and PM) due to commuter and school traffic. The areas north of Huntington Drive had slower speeds overall mainly due to the higher density of stop control intersections along with heavier vehicular and pedestrian traffic from the side streets.

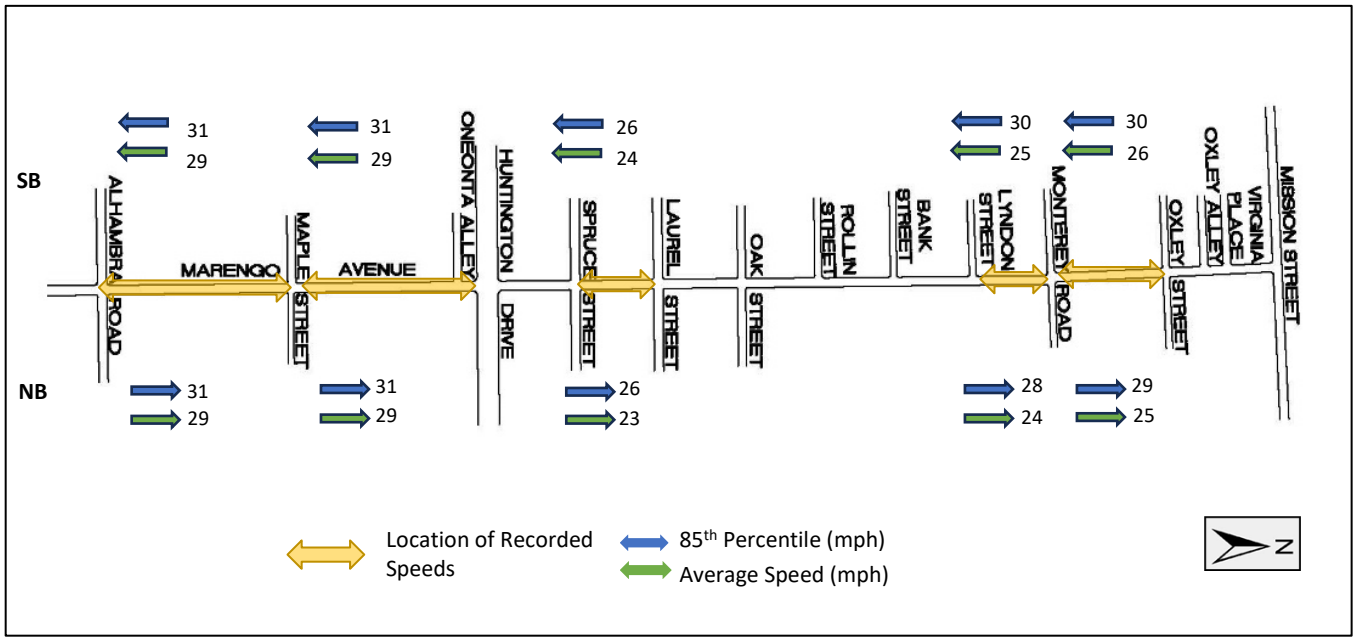


Figure 4-1. Recorded Speeds on Marengo Avenue (2-Day Average)

AGA evaluated both the average and 85th percentile speeds for each section, which is typical when evaluating speeds along a corridor. Just recently, California Governor Gavin Newsom passed Assembly Bill 645 (AB 645) that will establish a speed safety system pilot program. This program will consist of the implementation of speed cameras, on a trial basis, in a few cities around the state to reduce speeds. The program is being tested for the cities of Los Angeles, Glendale, Long Beach, San Francisco, San Jose, and Oakland. Streets with high injury or death rates along with school zones and street racing corridors will be eligible for the camera system. The program will use a threshold of 10 mph above the speed limit to assess fines for speeding. Therefore, speeds of 35 mph or greater were also evaluated for this study. The program is expected to last for five years and at that time, if the project is successful, other cities/agencies would be able to implement the speed camera program. The following is a summary of each study area.

- Maple Street to Alhambra Road –
    - The average speed in this area is 29 mph and the 85th percentile speed is 31 mph. Since this area has a longer distance between stop controlled intersections than the other surveyed areas, the speeds are seen to be higher in this area. Speeds above 35 mph accounted for 9% of southbound movements and 6% of northbound movements. The higher speeds were consistent and occurred throughout the day. **Figures 4-2A and 4-2B** show the recorded speeds and in increments of thirty minutes for the northbound and southbound movements, respectively.

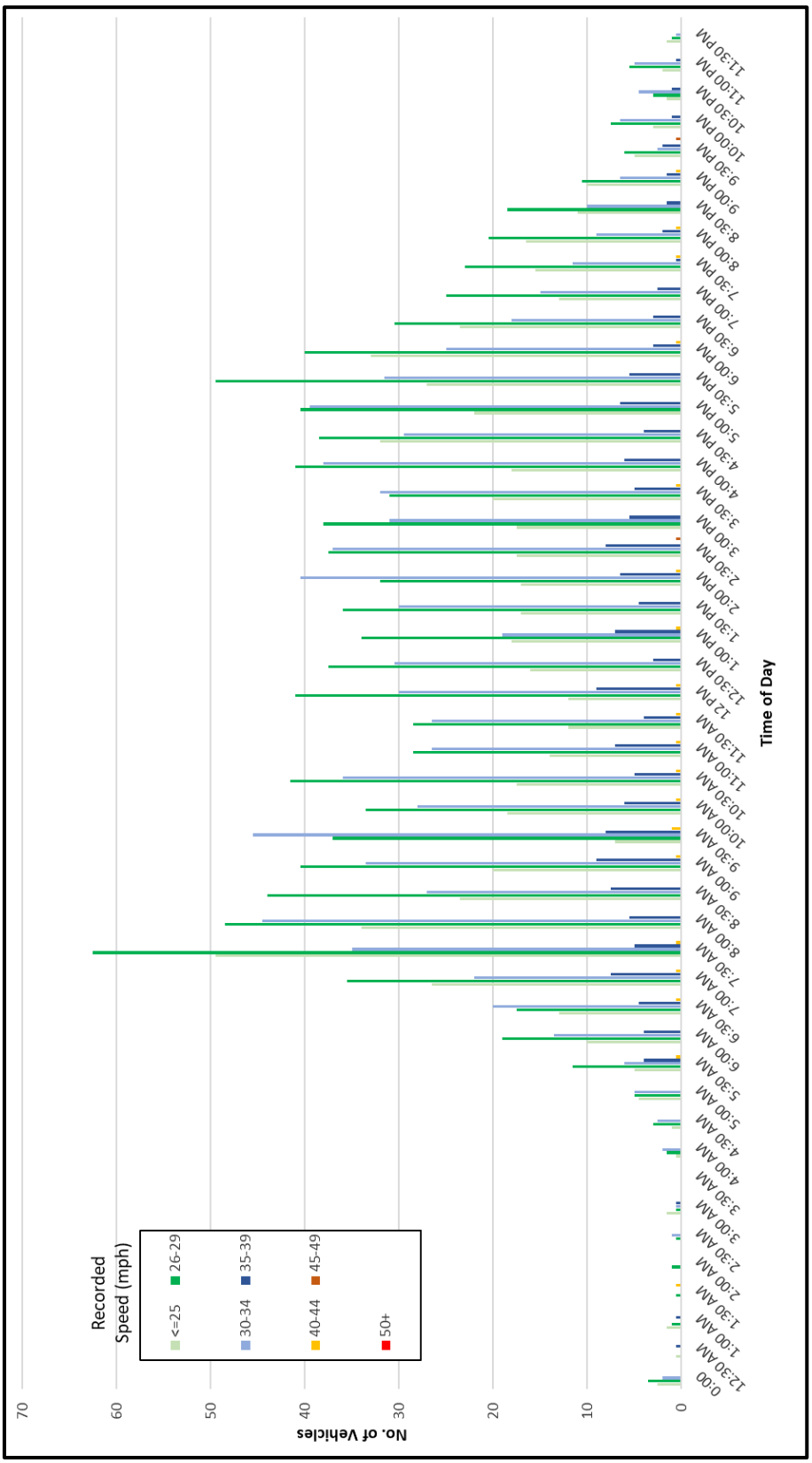


Figure 4-2A. Speed Analysis on Marengo Avenue, Maple Street to Alhambra Road - Northbound

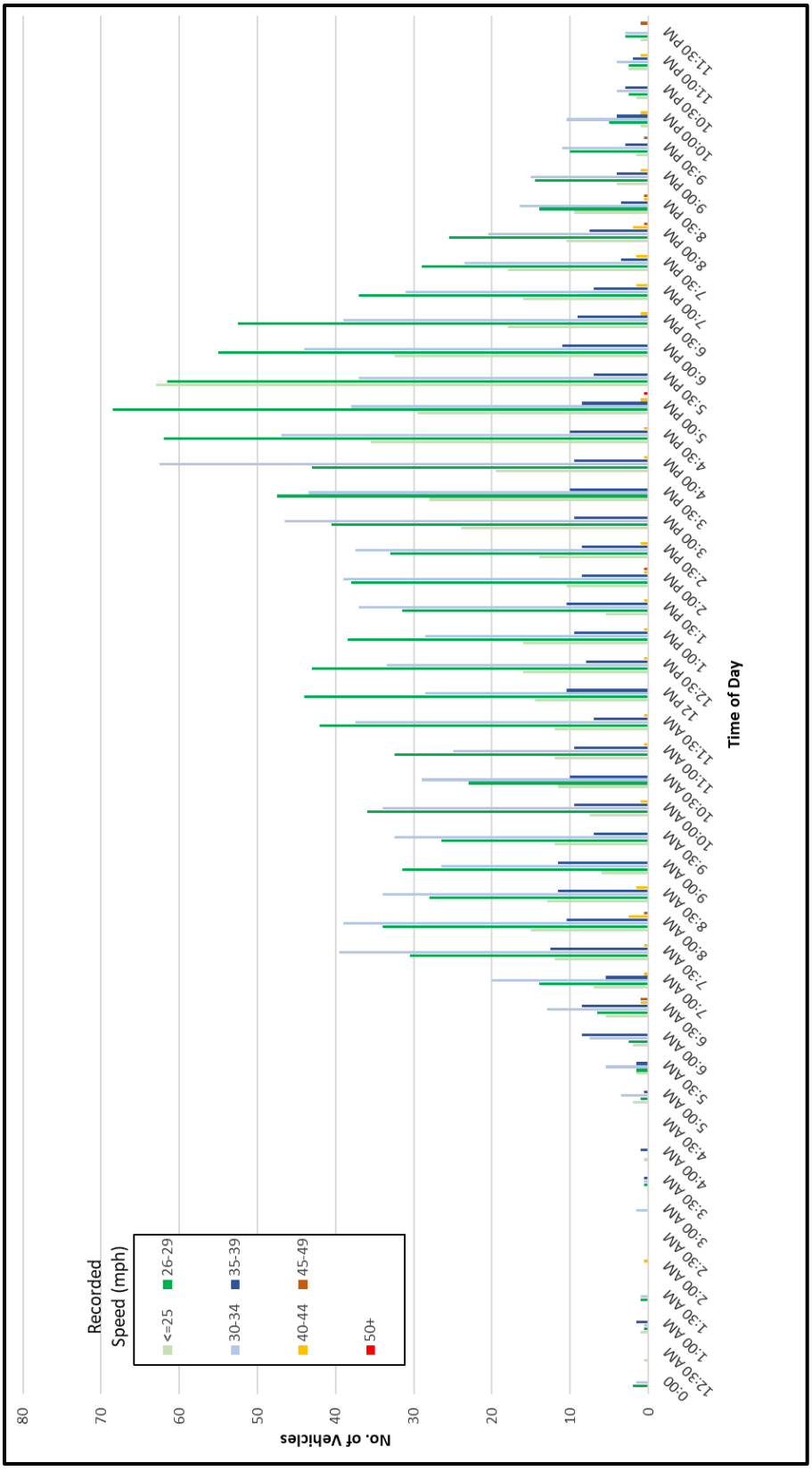


Figure 4-2B. Speed Analysis on Marengo Avenue, Maple Street to Alhambra Road - Southbound

- Huntington Drive to Maple Street –
    - Similar to the data recordings between Maple Street and Alhambra Road, the average speed in this area is 29 mph and the 85th percentile speed is 31 mph. Approximately 40% of the data showed speeds within the 26-29 mph range for both movements. Speeds 35 mph or greater occurred 7% of the time for both movements. The recorded speeds for this segment are shown below in **Figures 4-3A and 4-3B.**

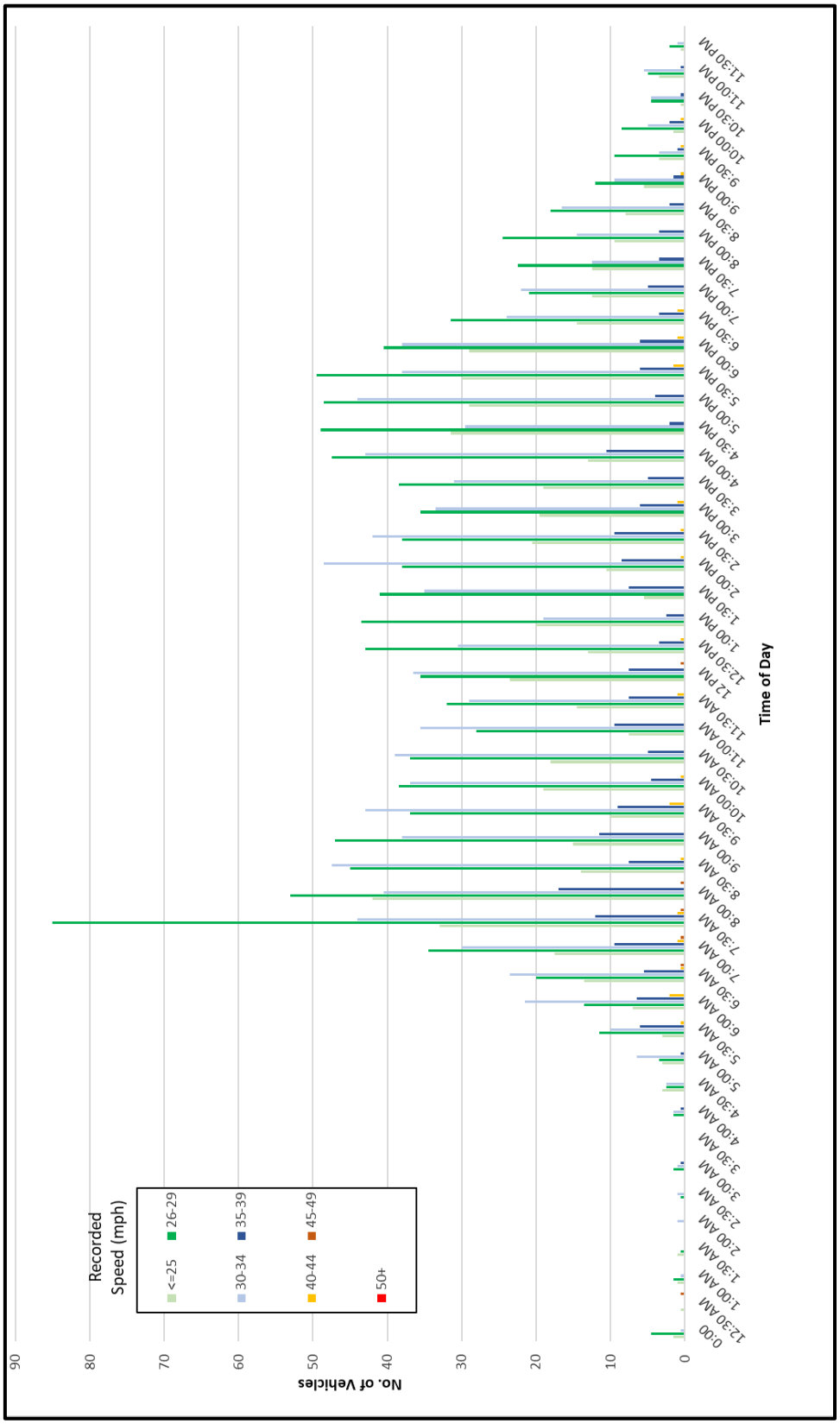


Figure 4-3A. Speed Analysis on Marengo Avenue, Huntington Drive to Maple Street - Northbound

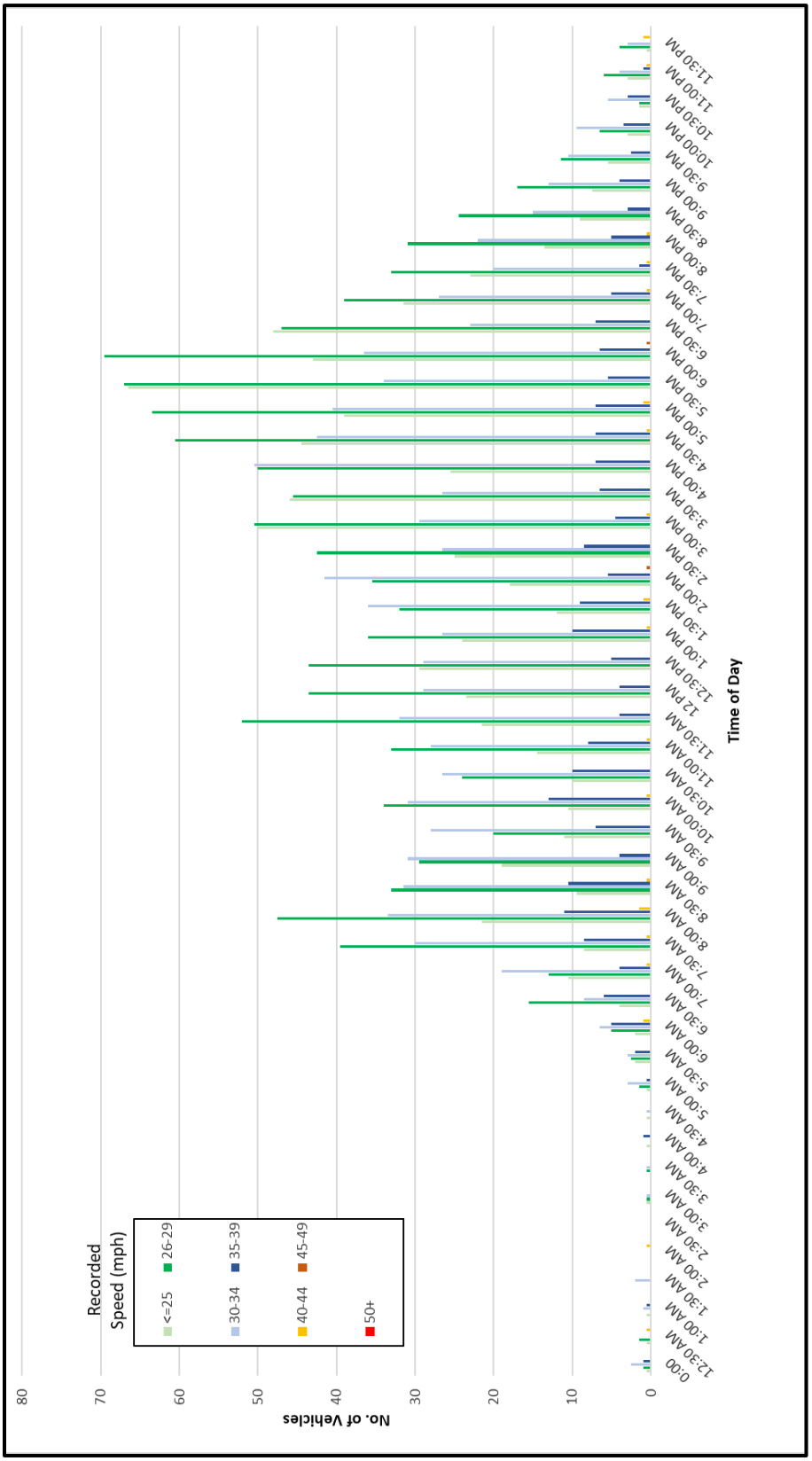


Figure 4-3B. Speed Analysis on Marengo Avenue, Huntington Drive to Maple Street – Southbound

- South of Laurel Street –
    - The average speed in this area is approximately 24 mph and the 85th percentile speed is 26 mph. Speeds of 25 mph or less occurred approximately 72% of the time for both movements. This area surveyed is a much shorter stretch that consists of all-way stop control intersections. Therefore, it is expected for speeds to decrease compared to the previous areas analyzed. Speeds 35 mph or greater accounted for less than 1% of the data. **Figures 4-4A and 4-4B** show the speeds for each direction.

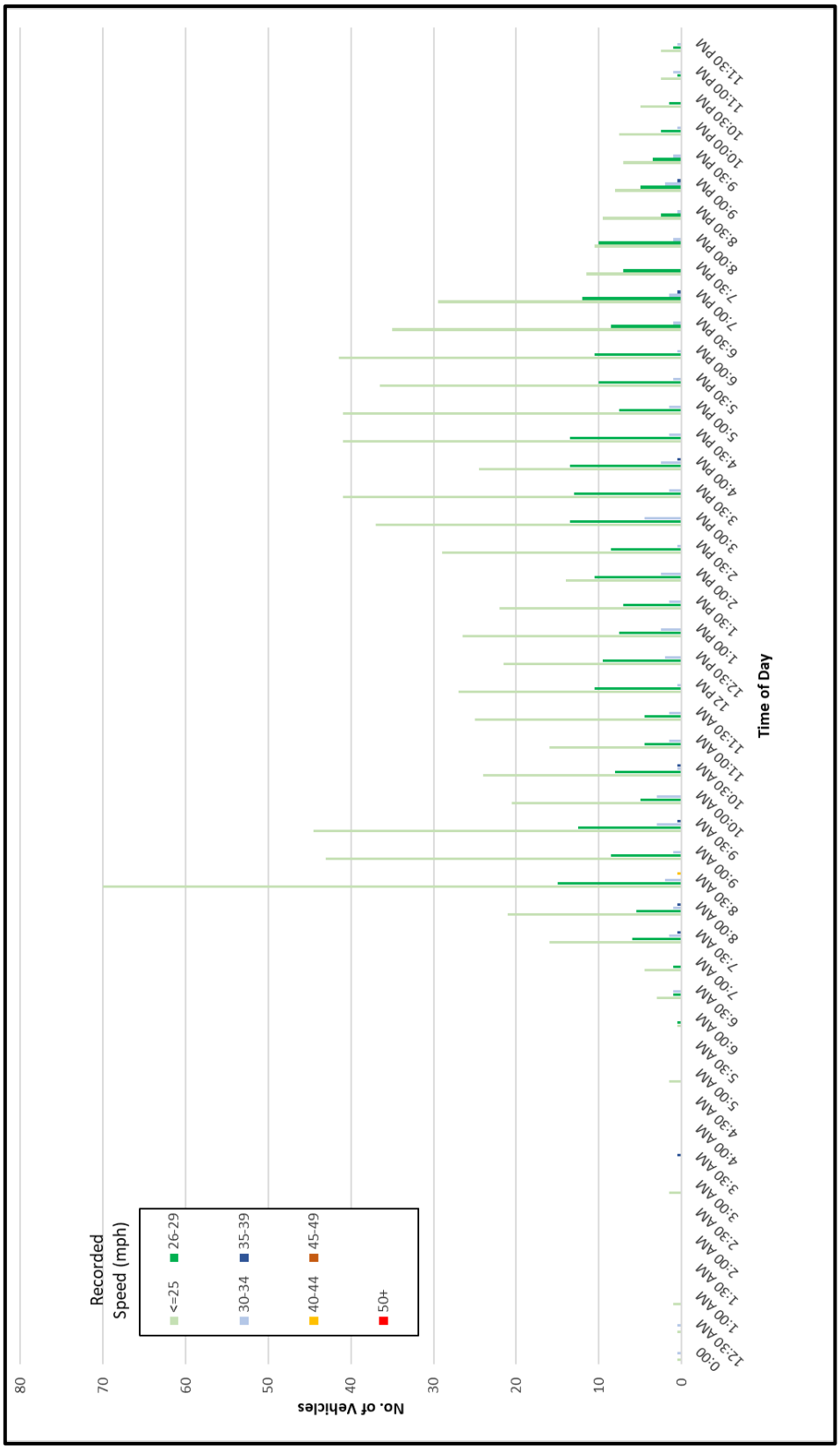


Figure 4-4A. Speed Analysis on Marengo Avenue, south of Laurel Street - Northbound

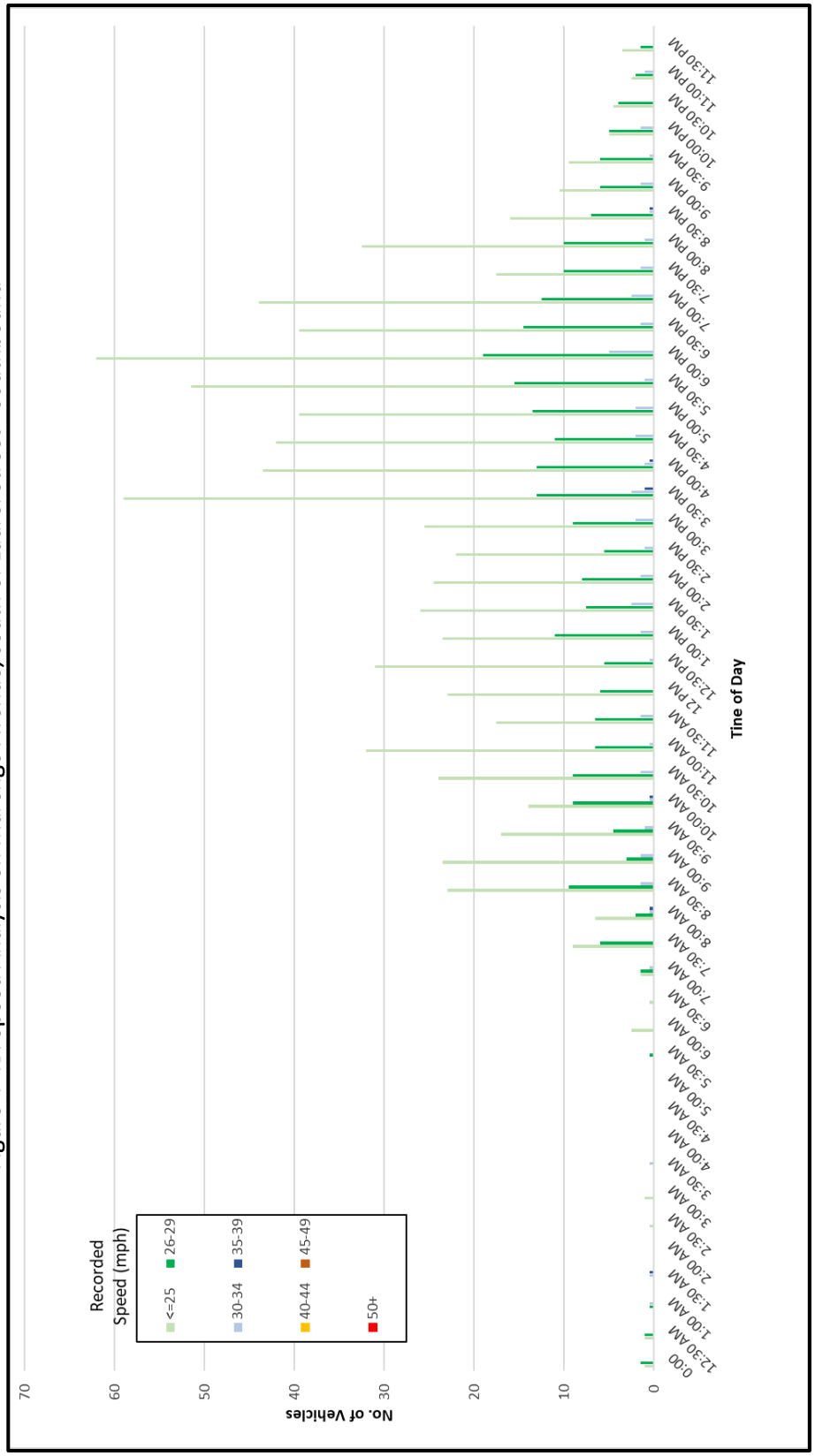


Figure 4-4B. Speed Analysis on Marengo Avenue, south of Laurel Street - Southbound

- North of Lyndon Street –
    - The average speed in this area is approximately 25 mph and the 85th percentile speed is approximately 29 mph. For speeds of 25 mph or less, the data for southbound and northbound show 50% and 59%, respectively. Since this area is close to the school area, the speeds are much lower during the AM and PM school peak period. Speeds 35mph or greater account for 1-2% of the recorded data and occurred mainly outside of the school peak periods. **Figures 4-5A and 4-5B** also show recorded speeds of 25 mph or less to be more evident than higher speeds.

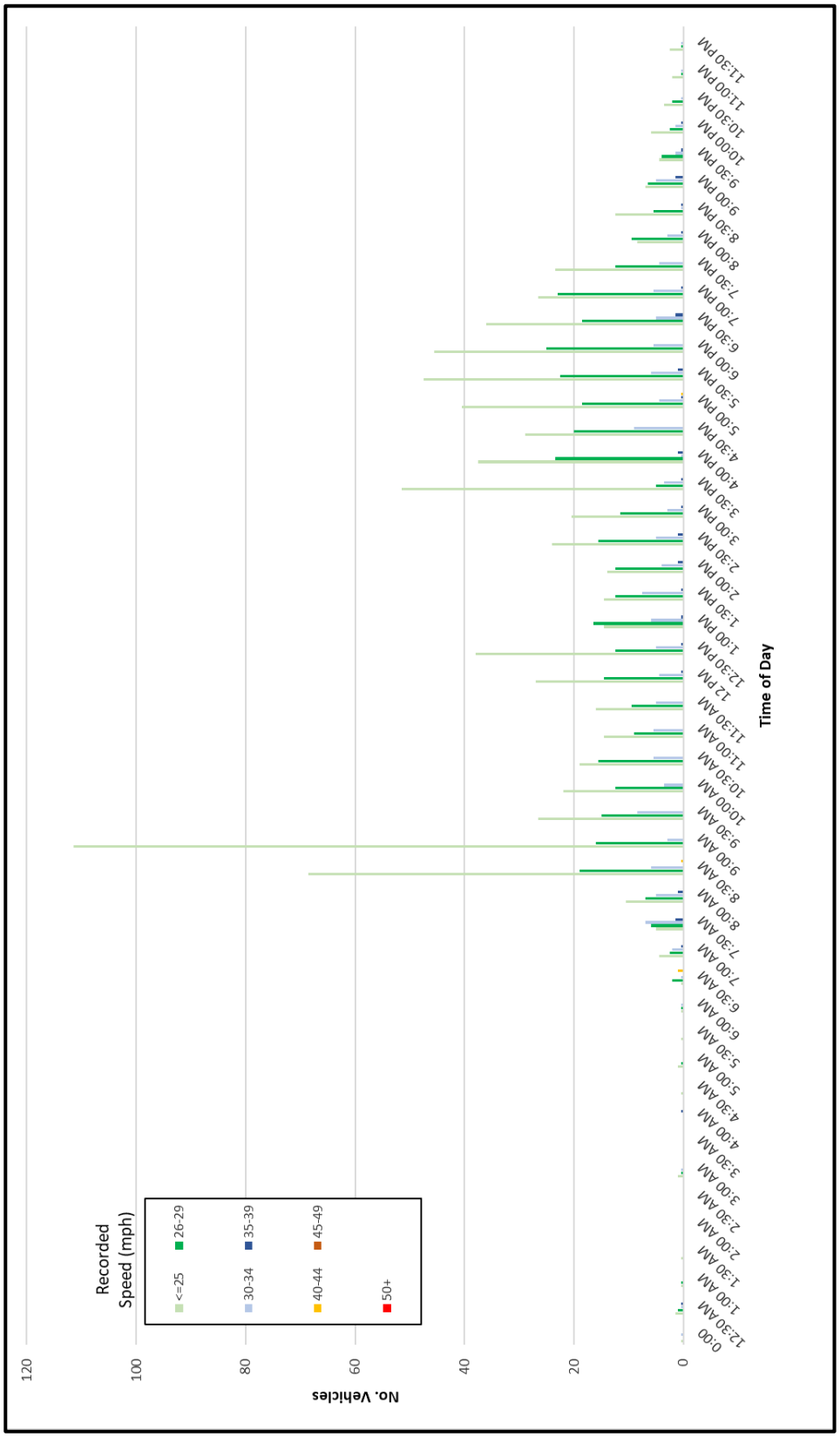


Figure 4-5A. Speed Analysis on Marengo Avenue, north of Lyndon Street - Northbound

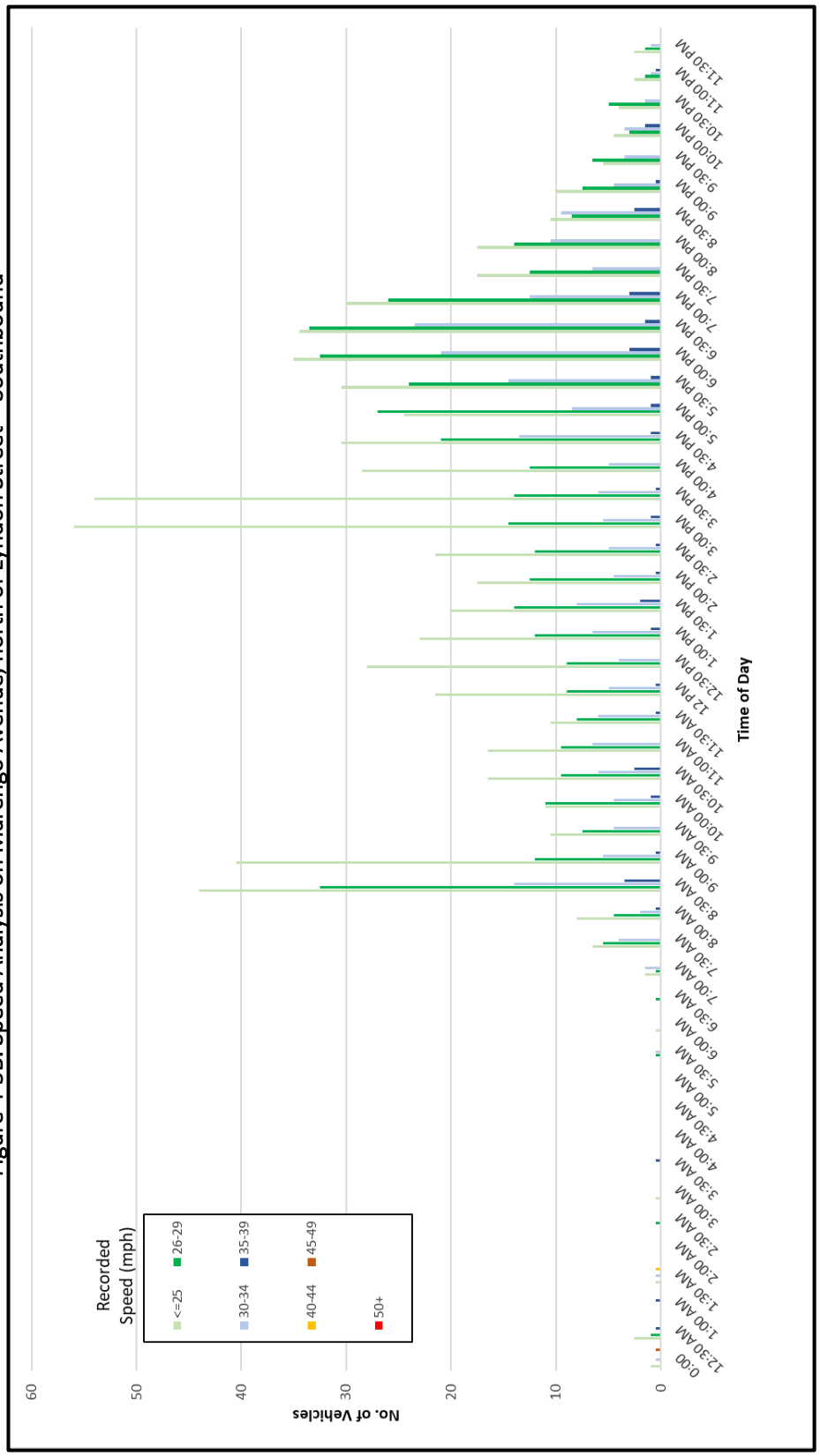


Figure 4-5B. Speed Analysis on Marengo Avenue, north of Lyndon Street – Southbound

- South of Oxley Street –
    - The data showed a slight increase in recorded speeds since it is slightly away from the school area. The average speed in this area is approximately 26 mph and the 85th percentile speed is approximately 30 mph. For speeds of 25 mph or less, the data for southbound and northbound show 49% and 42%, respectively. Speeds 35mph or greater account for 3% for both northbound and southbound movements. **Figures 4-6A and 4-6B** show the data for both movements.

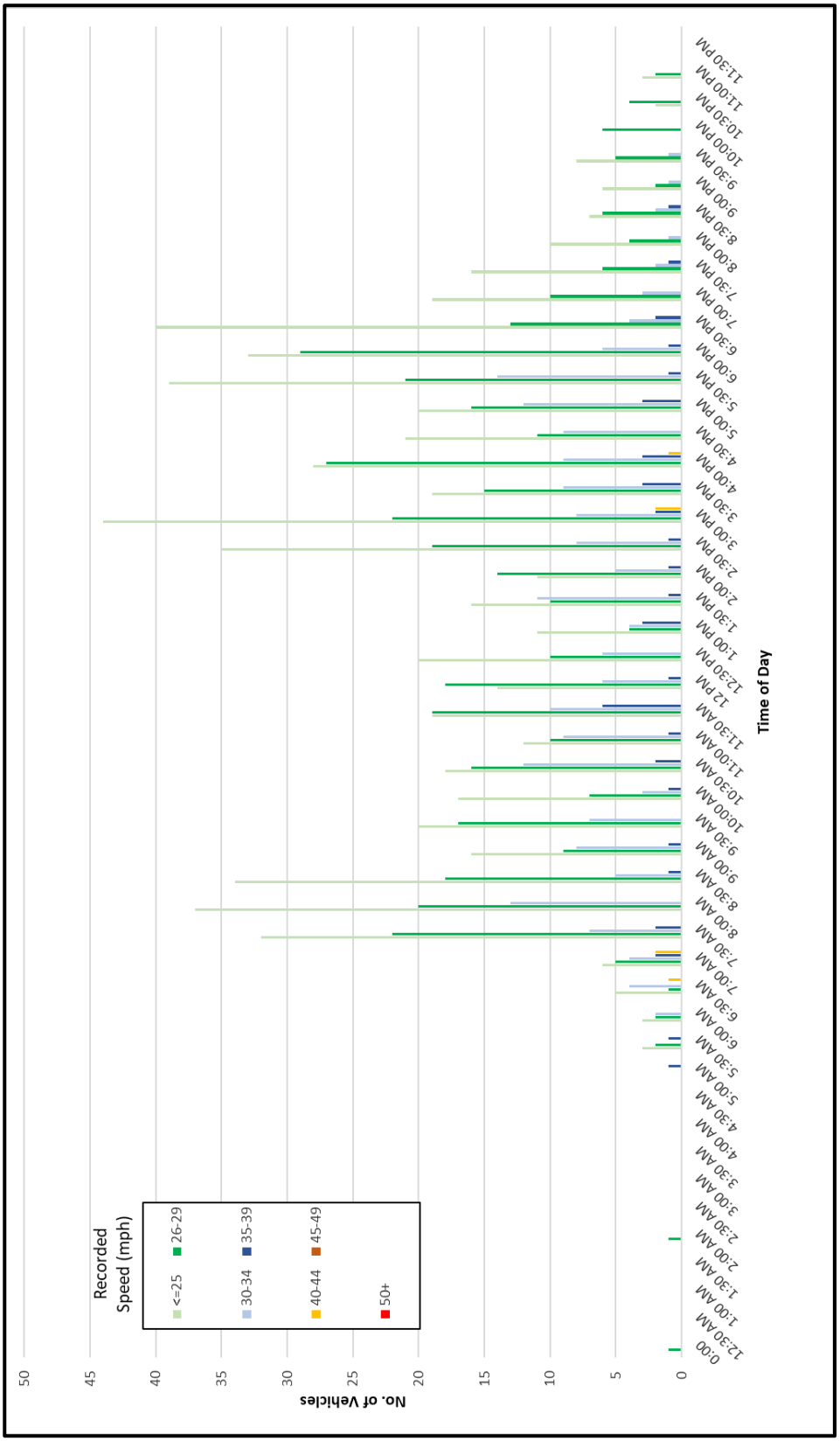


Figure 4-6A. Speed Analysis on Marengo Avenue, south of Oxley Street - Northbound

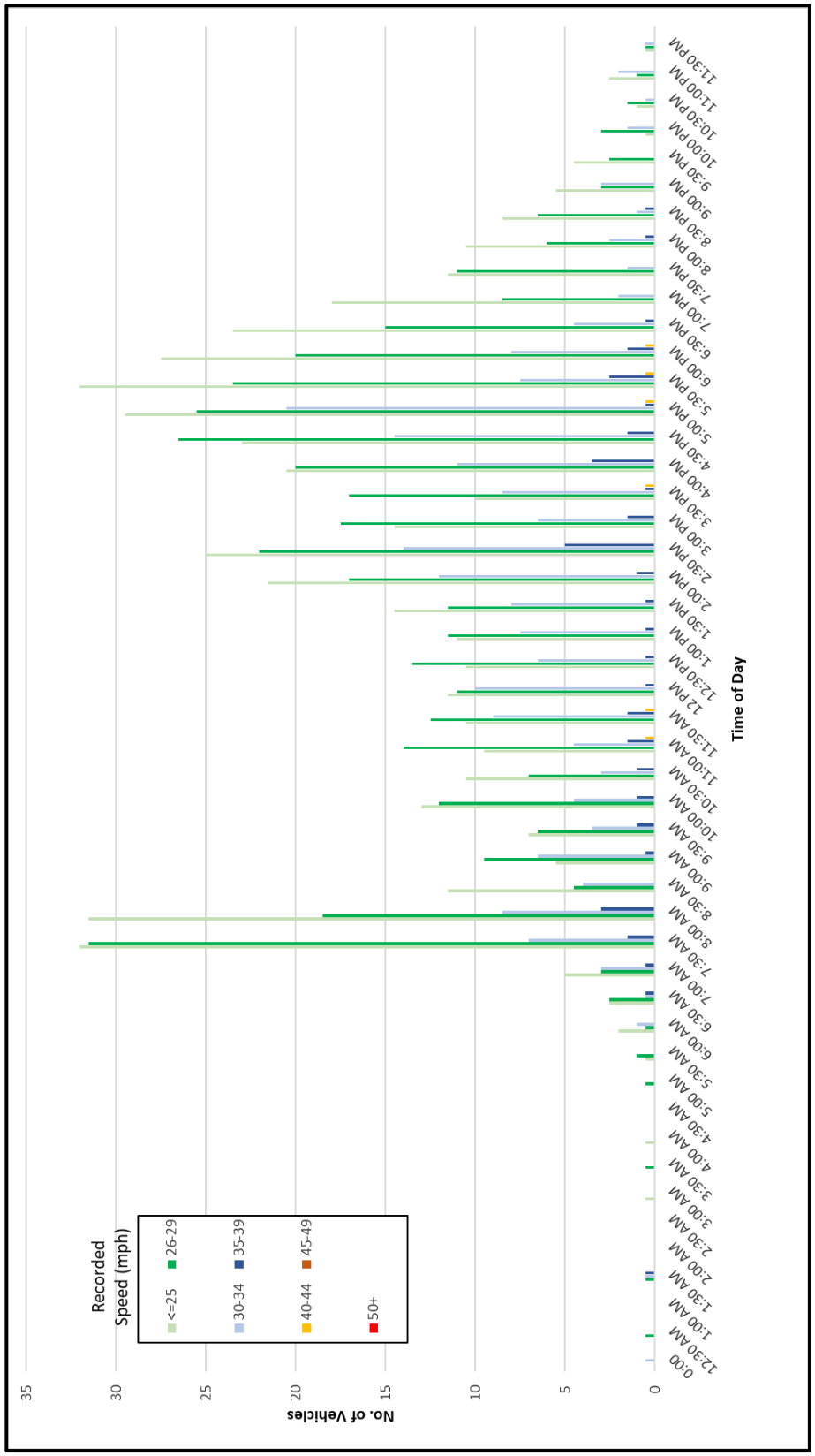


Figure 4-6B. Speed Analysis on Marengo Avenue, south of Oxley Street - Southbound

Summary

Overall, the majority of recorded speeds remained in the 25 to 29 mph range. The 85th percentile speeds were 31 mph or less for both the northbound and southbound movements. The southerly area, south of Huntington Drive, had higher speeds than the northerly areas. Speeds over 35 mph occurred approximately 7% of the time in this area and were noted to occur throughout the day. This could be attributed to longer segments with fewer stop control intersections. Speed feedback signs could be installed at the locations south of Huntington Drive. Not only will the signs provide feedback (SLOW DOWN) to the motorists that are speeding, but the signs can collect the data and provide City staff and the police department on information on when the speeding is occurring. Enforcement is the most effective solution in reduce speeding. Speeds in the school areas were significantly lower during the school time periods. The City has implemented many traffic calming measures throughout the corridor as stated in the Field Review section. If speeding becomes more prevalent, additional measures can be utilized. It should be noted that per the California Manual Uniform of Traffic Control Devices (CA MUTCD), stop signs are not to be used for speeding.

Potential Traffic Calming Measures

Traffic Calming Measure	Advantage	Disadvantage
Speed Feedback Signs - Police Department - Portable Solar Mountable Unit	- Reduces vehicle speeds - Improve vehicle and pedestrian safety - Inexpensive to install	- Effective for one direction only - The high number of dense tree canopy's may make it difficult to employ solar powered units
Speed humps *Per City Speed Hump Street Eligible Map, Marengo Avenue is not eligible for speed humps* (City to review policy)	- Reduces vehicle speeds - Allows bicyclists to travel utilizing cutouts - Relatively inexpensive to install	- Increase in noise and wear on vehicles - Motorcycles will need to adjust travel path to bypass speed hump - Designs may affect aesthetics - Emergency services usually do not favorable speed humps - Marengo Avenue is an alternate route for emergency vehicles
Raised crosswalks	- Enhances pedestrian visibility - May still reduce vehicle speeds - Typically inexpensive to install, although it depends on the intersection and street	- Increase in noise and wear on vehicles - May affect on-street parking - May impact street drainage - May impact emergency service times
Traverse rumble strips	- Low-cost to install, remove, or modify - May reduce vehicle speeds - Low impact to emergency vehicles - Inexpensive to install	- Increase in noise - May need maintenance regularly - Speed reduction effect may decrease as time passes

Traffic Calming Measure	Advantage	Disadvantage
Bulbouts	- Reduces crossing distances - Encourages vehicles to slow down - Can improve aesthetics and landscaping	- Bicyclists may need to merge with traffic near intersection - May cause emergency vehicles to slow down - Has not been proven to significantly reduce travel speeds - Depending on the intersection/street, this is typically expensive to install.

As stated earlier, California's Governor has passed an Assembly Bill 645 (AB 645) that will establish a speed safety system pilot program. The cities under this bill are Cities of Los Angeles, San Jose, Oakland, Glendale, Long Beach, and San Francisco. The cities mentioned will issue warning notices for the first 60 days of the program. Afterwards, tickets will be issued to drivers going over 11 mph over the speed limit. These cameras will be installed in prioritized areas that are near schools or high-injury intersections in order to reduce speeds and fatalities. This pilot program will last five years, and if successful, it will be expanded throughout the state. This bill will also require the participating cities to submit a report on the financial system's impact on the city. Agencies will then be permitted to install speed cameras throughout their cities, where areas of concern arise. Speed cameras are portable, therefore, making them easy to relocate.

5. Stop Compliance Analysis

Based on discussions with City staff, seven intersections that were all way stops were chosen to evaluate the stop compliance of motorists. The locations were chosen due to the different characteristics around their location. Some locations are near schools and have crossing guards; some are closely spaced with other stop control intersections; some have heavy vehicular and pedestrian movements and some locations are situated further away from other stop control intersections on Marengo Avenue. All locations are all-way stop controlled. The stop compliance analysis surveys (via video recordings) were conducted on Tuesday, October 03, 2023 and showed when vehicles completely stopped, rolling stop, or did not stop at all. The surveys were taken for both the northbound and southbound approaches at each location for a typical weekday (24-hour period). The data was then analyzed to determine the percentages of motorist compliance and was also evaluated hourly throughout the day. This helped to identify any problems in certain areas or to determine any particular patterns. **Figure 5-1** summarizes the average percentage of vehicles that completely stopped, rolling stops, and did not stop at all at each intersection. The percentage of rolling stops was higher at locations with low side street vehicular and pedestrian demand. This is typically the case, as motorists tend not to come to a complete stop at minor intersections with low side street traffic demand. Overall, the percentage of motorists not stopping at all was low. Details of the stop compliance assessment for each location on Marengo Avenue are as follows:

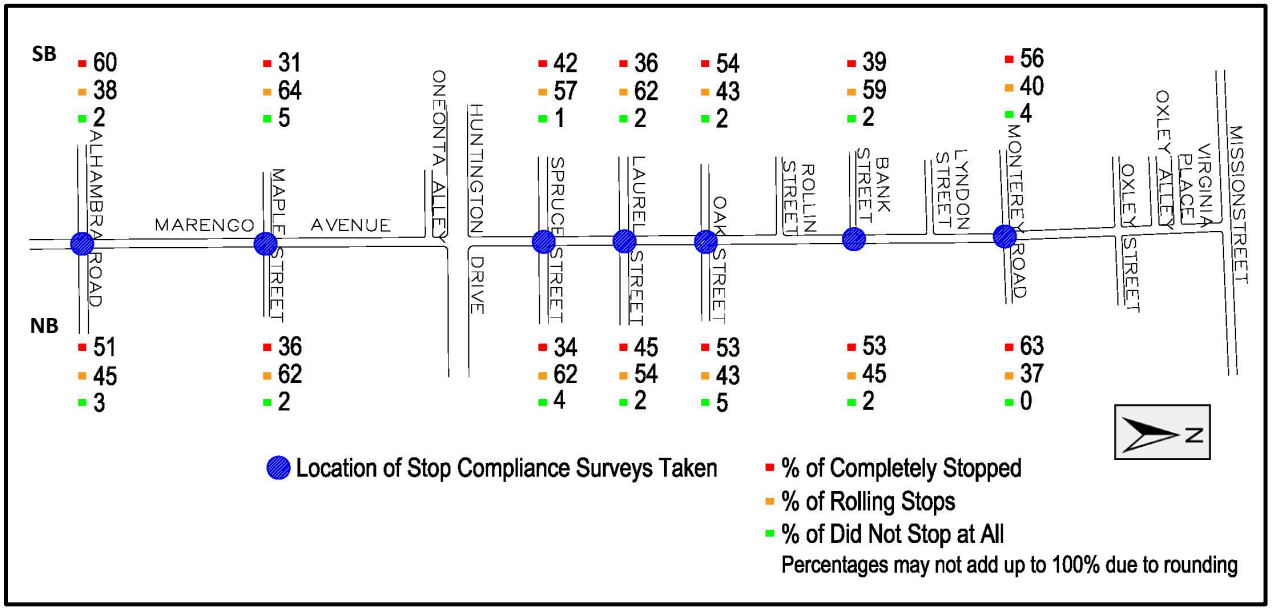


Figure 5-1. Stop Compliance on Marengo Avenue

- Marengo Avenue at Alhambra Road –
    - **Figures 5-2A** and **5-2B** below show the stop compliance data for both the northbound and south approaches throughout the day for this intersection. The percentage of vehicles making complete stops ranged from 50-60%. The percentage of rolling stops was approximately 40-45% for both movements and the percentage of vehicles not stopping at all was 2-3%. Most vehicles do come to a complete stop for the north/south movements. This could be due to the heavy vehicular traffic demand on Alhambra Road, especially in the evening peak hour. As noted on the collision assessment, recommendations for this intersection include installing a Stop Ahead sign for the westbound approach and/or flashing stop signs. A detailed assessment of this intersection is provided in Section 6.

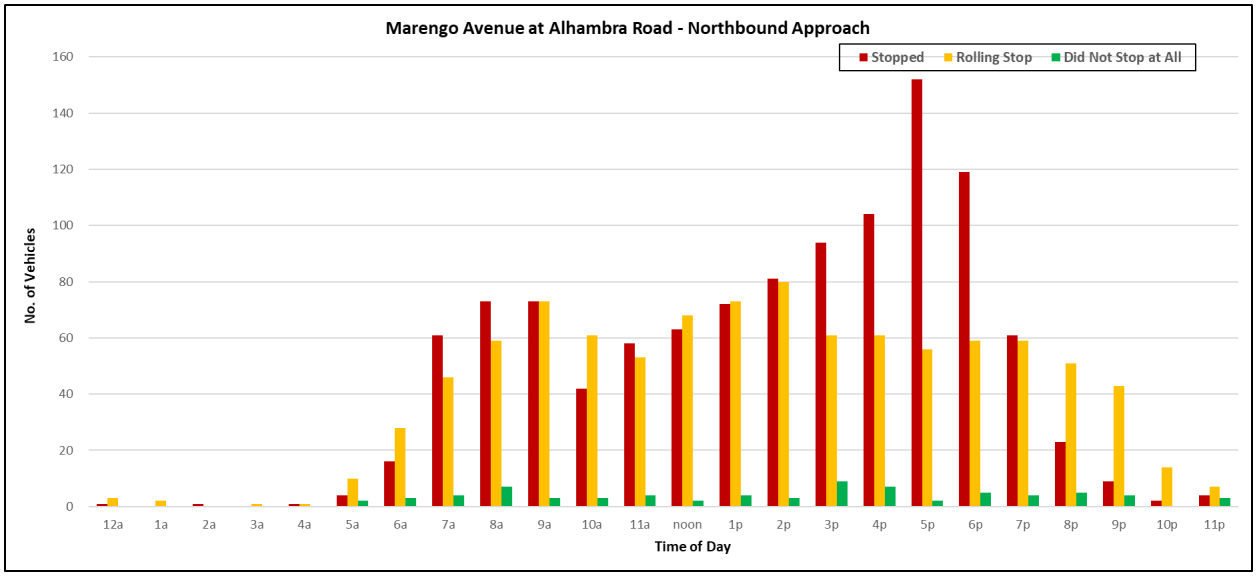


Figure 5-2A. Stop Compliance on Marengo Ave at Alhambra Rd – Northbound

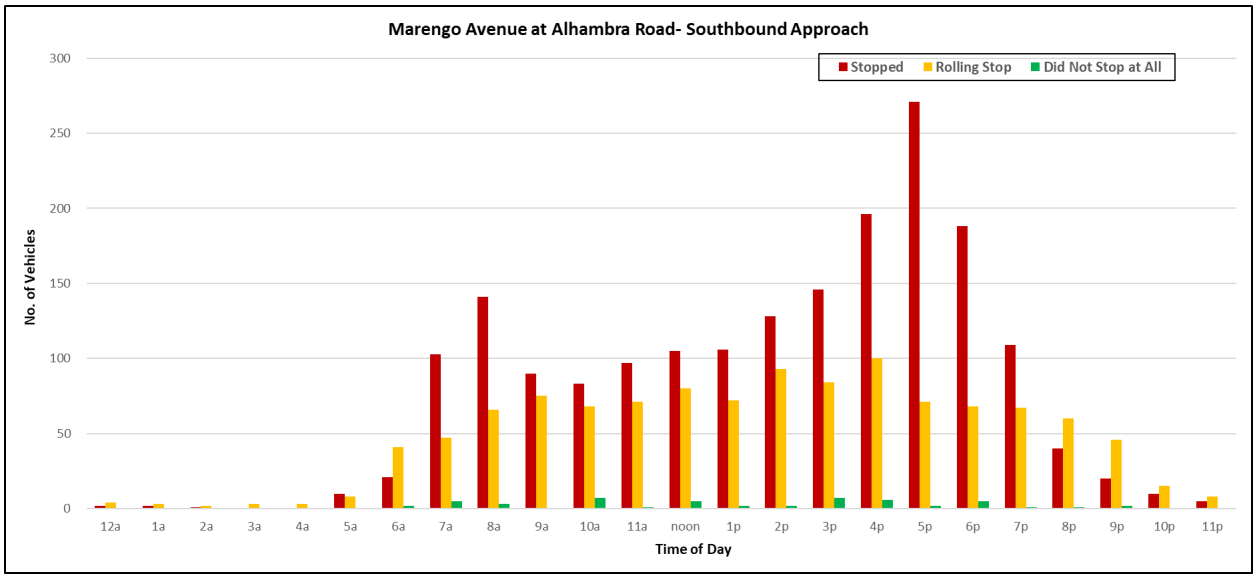


Figure 5-2B. Stop Compliance on Marengo Avenue at Alhambra Road – Southbound

- Marengo Avenue at Maple Street –
    - **Figures 5-3A** and **5-3B** below show the stop compliance data for both the northbound and south approaches throughout the day for this intersection. The percentage of rolling stops is approximately 60-65%, double the number of vehicles making complete stops. The range for vehicles that did not stop at all was 2-5%. The higher number of rolling stops is consistent throughout the day for both movements. The high number of rolling stops could be attributed to the low vehicular demand along Maple Street and motorists on Marengo Avenue not wanting to stop with no conflicting side street traffic. From the field observations, there is a faded stop sign for the northbound approach.

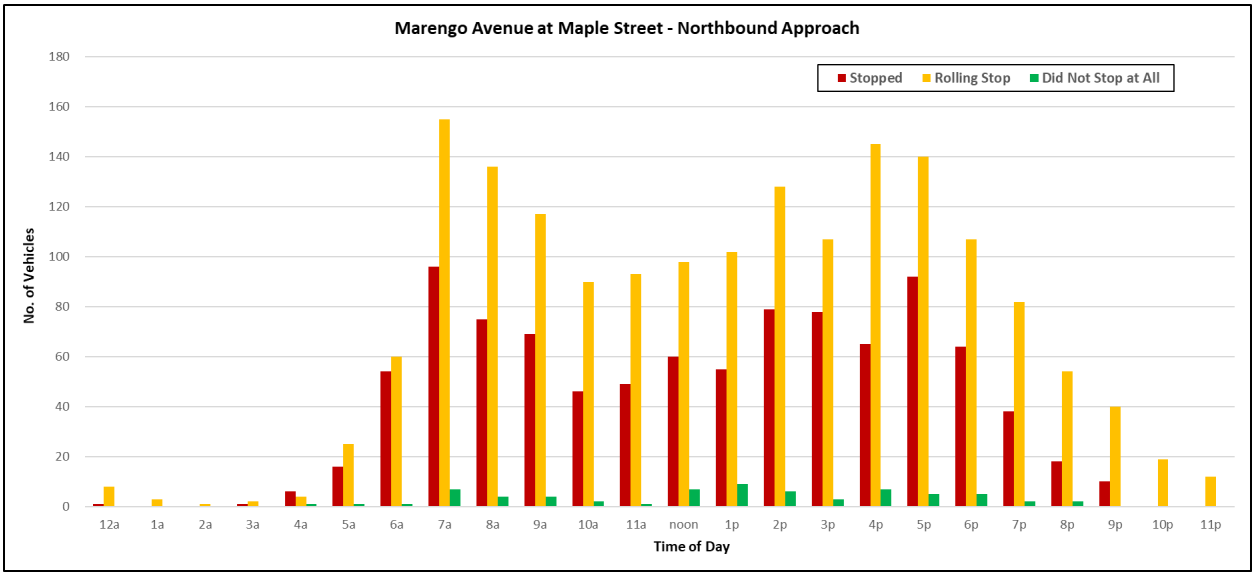


Figure 5-3A. Stop Compliance on Marengo Ave at Maple Street – Northbound

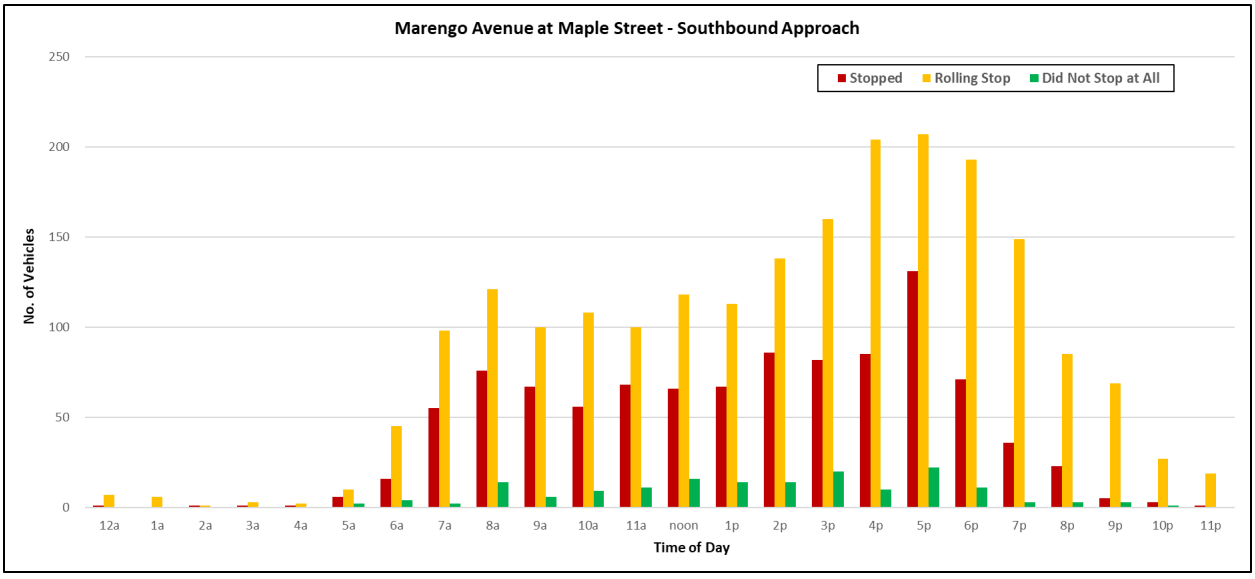


Figure 5-3B. Stop Compliance on Marengo Ave at Maple Street – Southbound

- Marengo Avenue at Spruce Street –
    - **Figures 5-4A** and **5-4B** below show the stop compliance data for both the northbound and south approaches throughout the day for this intersection. Both movements had a higher percentage of vehicles making rolling stops (57-62%) than complete stops (34-42%). During the morning peak period, the northbound approach had a significantly higher number of vehicles with rolling stops (68%) than complete stops (28%). This could be attributed to low vehicular demand on Spruce Street and motorists leaving a major intersection (Huntington Drive) to go to the schools to the north. The data also showed that 4% of northbound motorists did not stop at all, compared to 1% for southbound motorists.

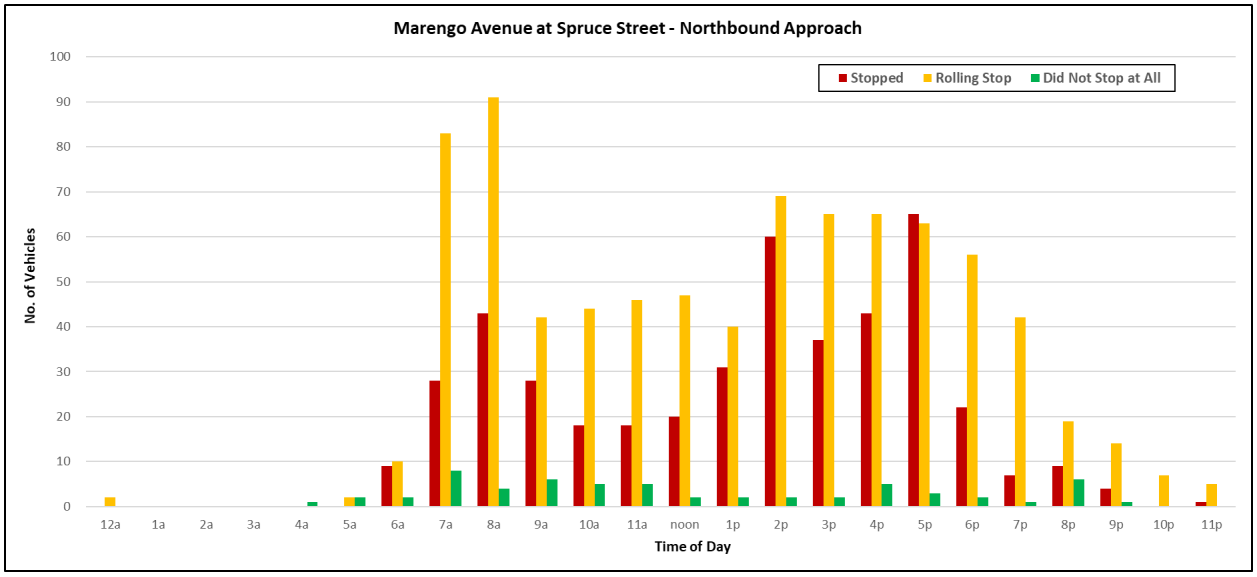


Figure 5-4A. Stop Compliance on Marengo Ave at Spruce Street – Northbound

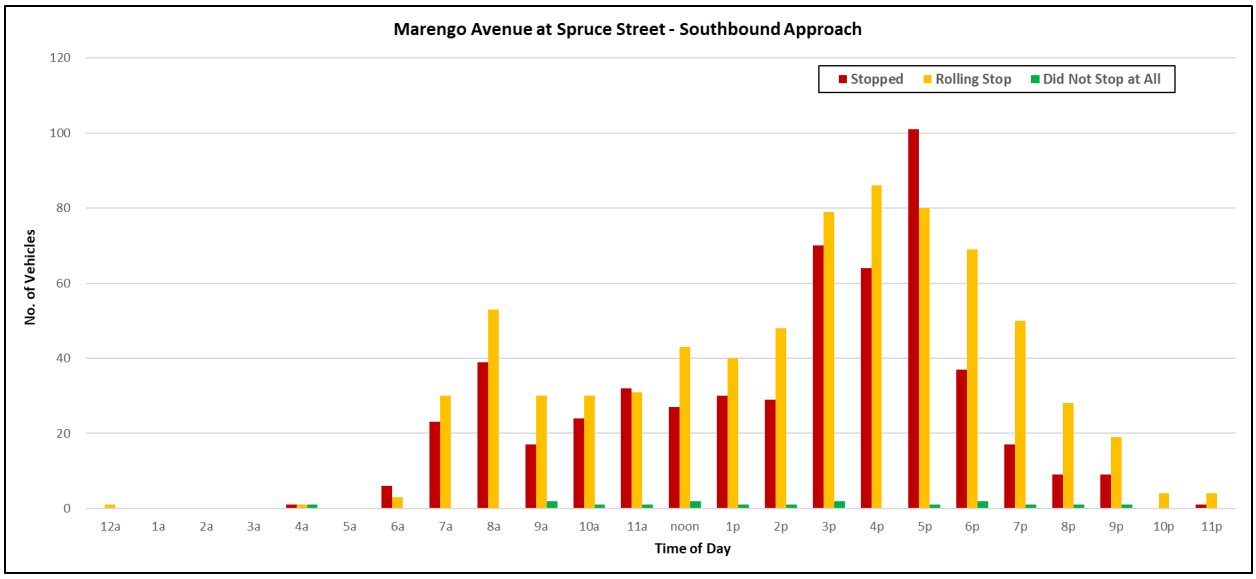


Figure 5-4B. Stop Compliance on Marengo Ave at Spruce Street – Southbound

- Marengo Avenue at Laurel Street –
    - **Figures 5-5A** and **5-5B** below show the stop compliance data for both the northbound and south approaches throughout the day for this intersection. For the southbound movement, the percentage of motorists making complete stops was 36% and the percentage of rolling stops was 62%. The northbound movement had a narrower range with 45% of complete stops and 54% of rolling stops. The percentage for the vehicles that did not stop at all was 2% for both movements. During the morning period, the higher percentage of motorists making complete stops for the northbound movement could be attributed to heavier traffic demand going to the schools, whereas the southbound motorists are leaving the school area.

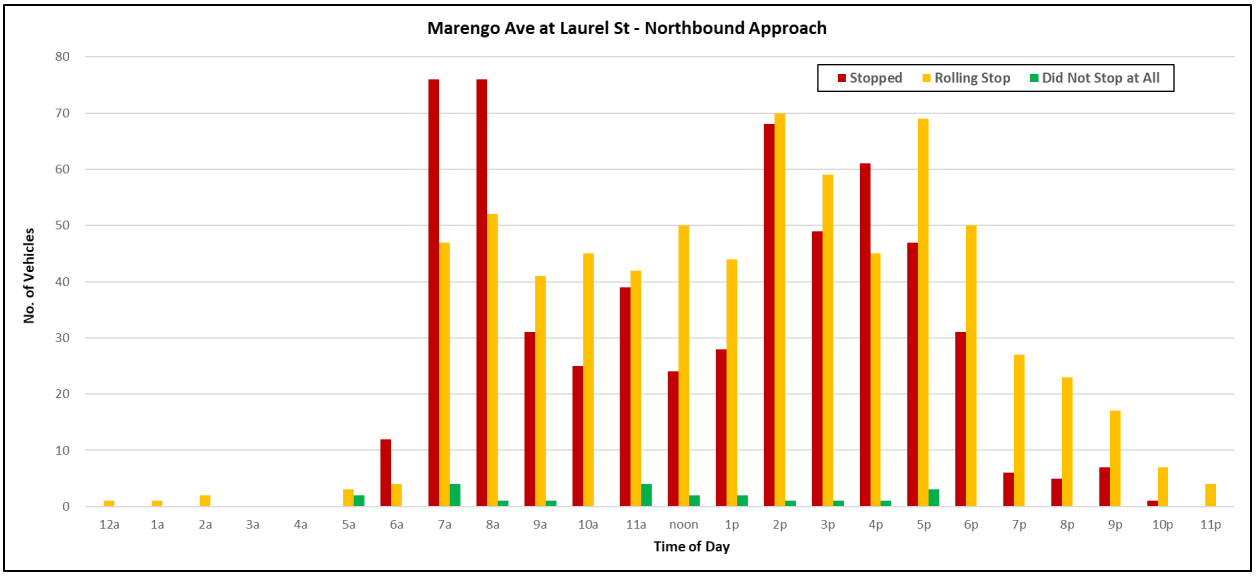


Figure 5-5A. Stop Compliance on Marengo Ave at Laurel Street – Northbound

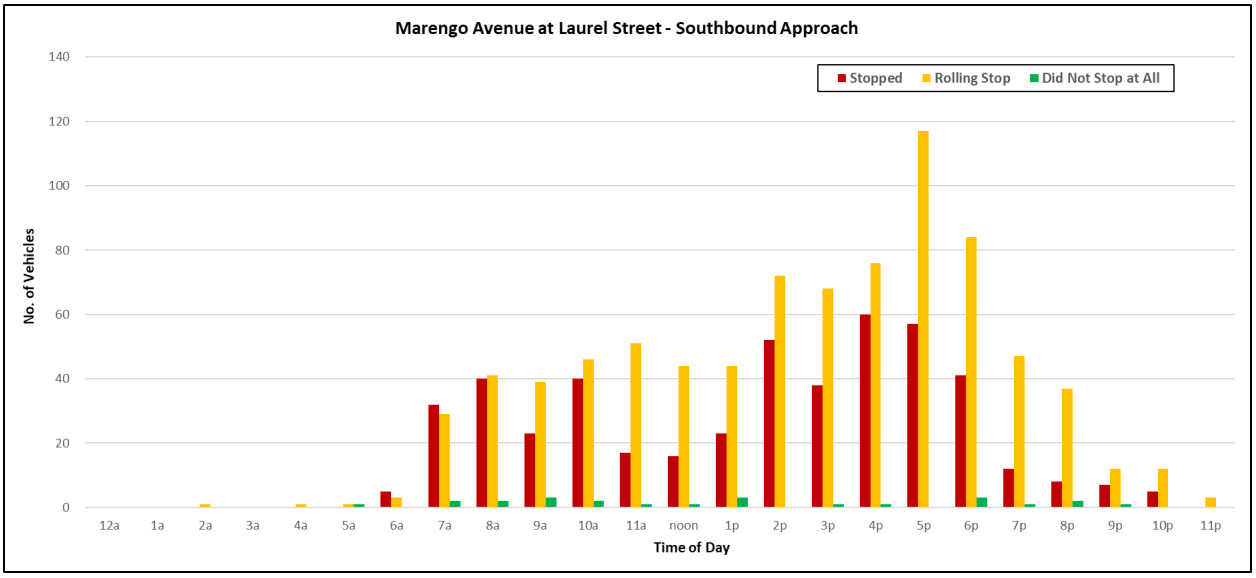


Figure 5-5B. Stop Compliance on Marengo Ave at Laurel Street – Southbound

- Marengo Avenue at Oak Street –
  - **Figures 5-6A** and **5-6B** show the stop compliance data for both the northbound and south approaches throughout the day for this intersection. Both movements had approximately the same range of vehicles making complete stops, which was approximately 54%. The percentage of vehicles making rolling stops was 43% for both movements. There is very heavy vehicular and pedestrian demand for all movements due to South Pasadena Middle School and Marengo Elementary School at this intersection with a crossing guard present during school arrival and dismissal time periods. Based on the data and field observations, motorists do come to a complete stop during the school peak periods and comply with the right-of-way for pedestrians/students. As shown below, the number of rolling stops increases during the PM period for both movements, outside of the peak school hours.

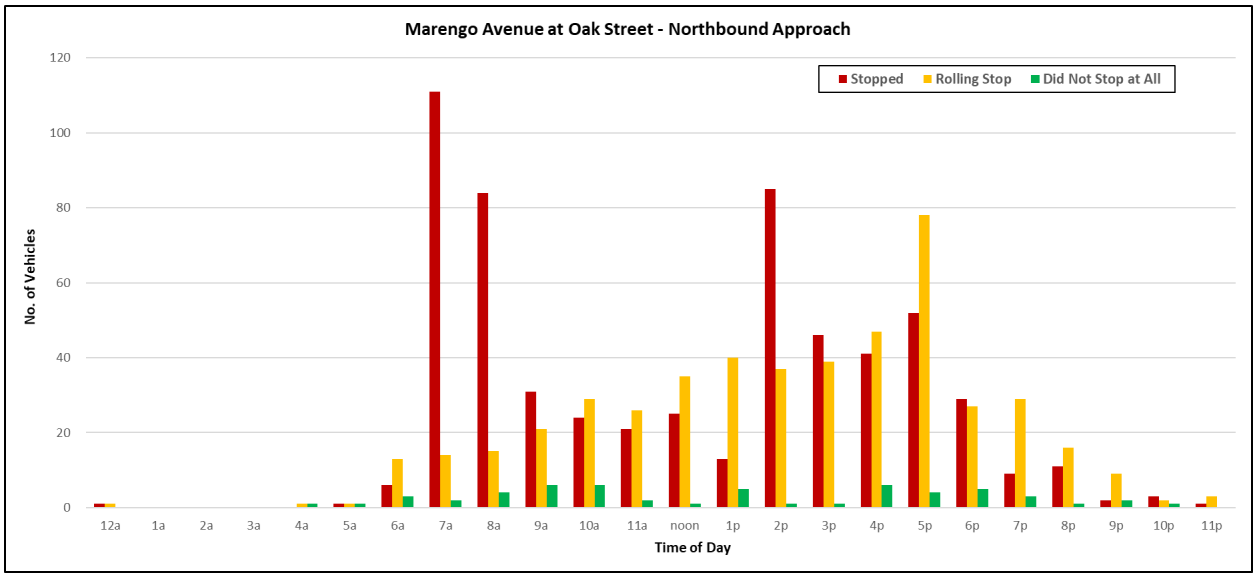


Figure 5-6A. Stop Compliance on Marengo Ave at Oak Street – Northbound

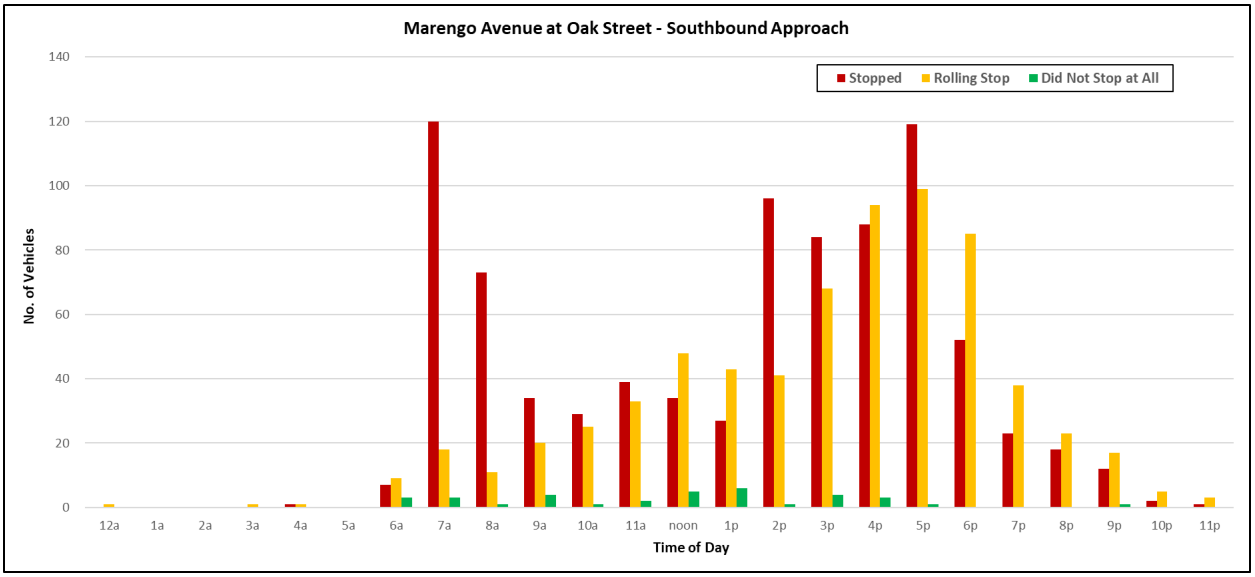


Figure 5-6B. Stop Compliance on Marengo Ave at Oak Street – Southbound

- Marengo Avenue at Bank Street –
    - **Figures 5-7A** and **5-7B** show the stop compliance data for both the northbound and south approaches throughout the day for this intersection. The northbound movement had 53% of motorists coming to a complete stop and 45% rolling stops. Whereas the southbound movement had 39% of motorists coming to a complete stop and 59 % rolling stops. During the school peak periods, motorists did come to a complete stop more often for both approaches. This intersection is located at Marengo Elementary School and there is a crossing guard present during school arrival and dismissal time periods with very heavy pedestrian demand crossing Marengo Avenue. Based on field observations and discussion with the crossing guard, motorists do come to a complete stop at this intersection and obey instructions from the crossing guard. During the PM peak period, there is a significantly higher number of rolling stops for the southbound movement, however the complete stops are more prevalent for the northbound movement.

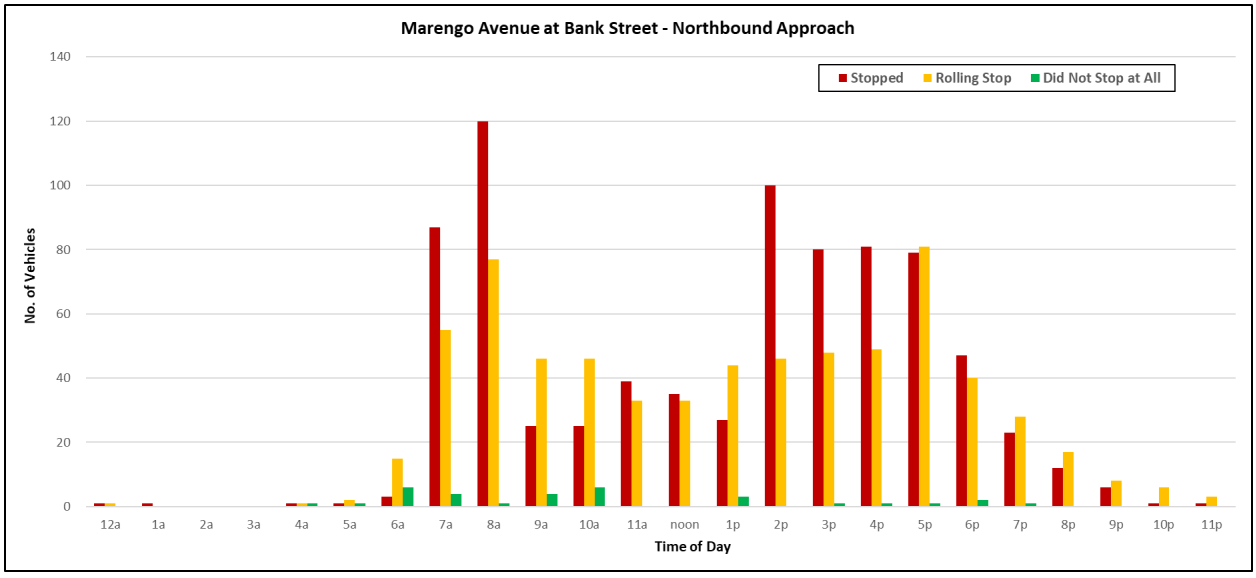


Figure 5-7A. Stop Compliance on Marengo Ave at Bank Street – Northbound

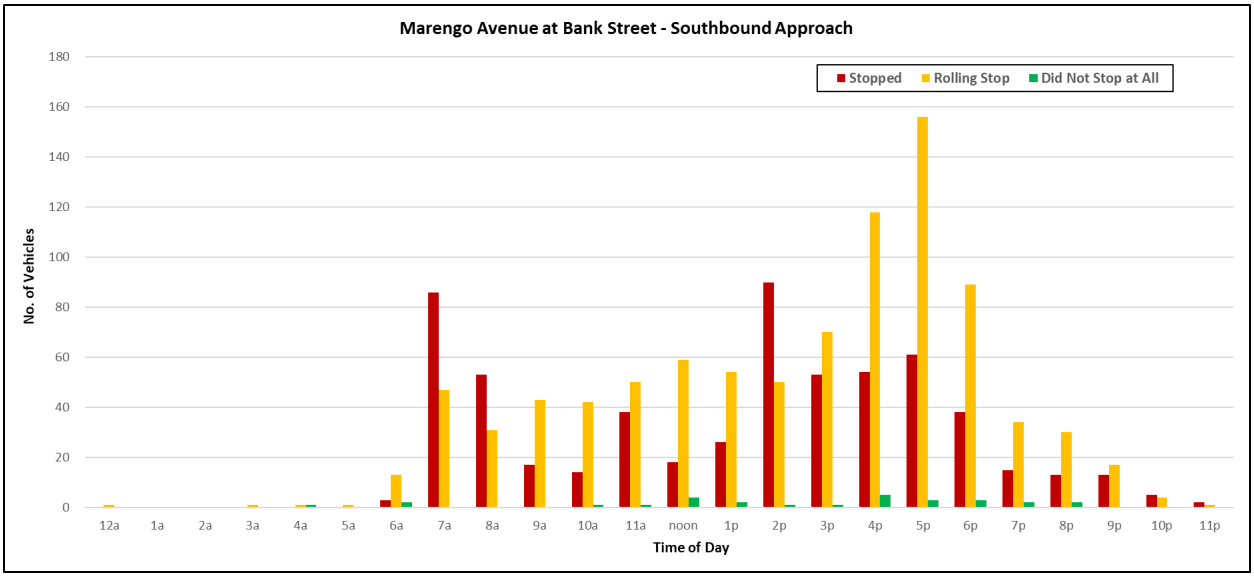


Figure 5-7B. Stop Compliance on Marengo Ave at Bank Street – Southbound

- Marengo Avenue at Monterey Road –
    - **Figures 5-8A** and **5-8B** show the stop compliance data for both the northbound and south approaches throughout the day for this intersection. For the northbound movement, 63% of motorists came to a complete stop and 37% of motorists came to a rolling stop. For the southbound movement, 56% of motorists came to a complete stop and 40% of motorists came to a rolling stop. There is very heavy vehicular demand during the AM and PM peak periods and there is a crossing guard present during the school peak periods. During the AM and PM peak periods, the majority of north/south vehicles do come to a complete stop. This could be attributed to the heavy vehicular demand along Monterey Road and the crossing guard (school time periods). During the PM peak period, there were still significantly more motorists coming to a complete stop. This could be attributed to the heavy vehicular demand along Monterey Road.

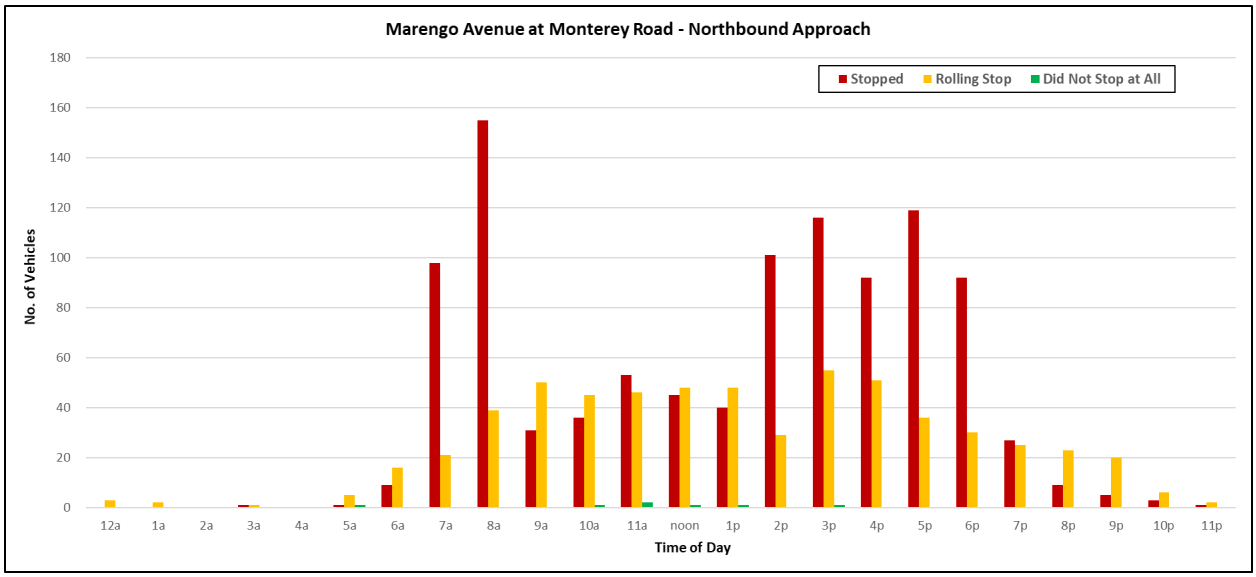


Figure 5-8A. Stop Compliance on Marengo Ave at Monterey Road – Northbound

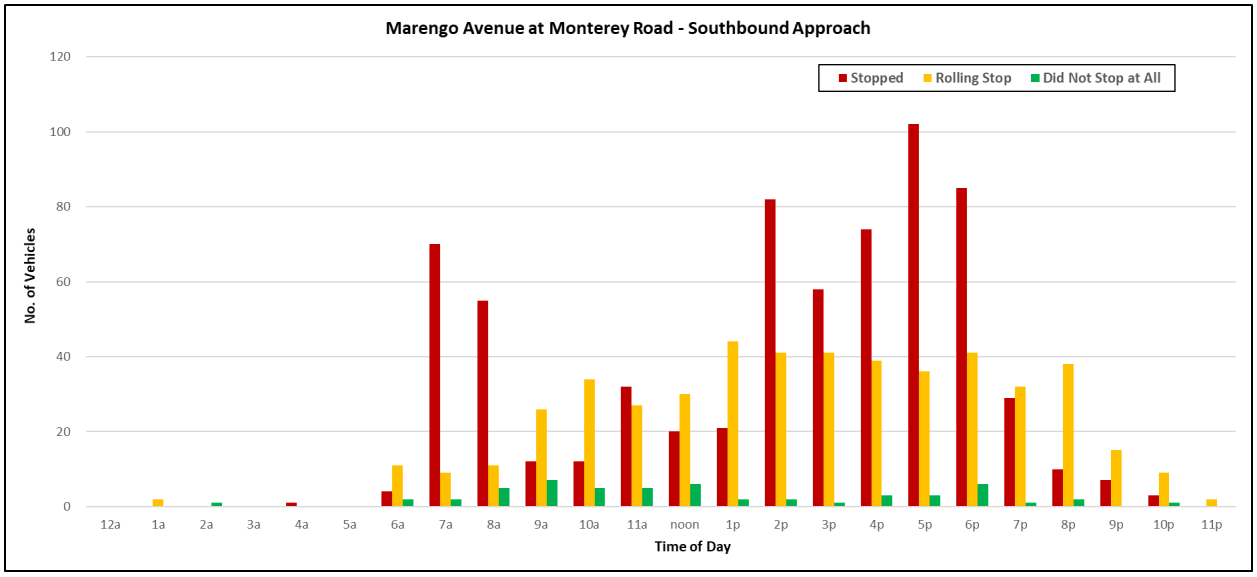


Figure 5-8B. Stop Compliance on Marengo Ave and Monterey Road – Southbound

Summary

Previous studies conducted have indicated rolling stops to be the most common in stop compliance analysis as indicated in this assessment. This is also more common in this study area since it mostly consists of all-way stops, with many at minor intersections. Motorists are aware of the stop control along Marengo Avenue since they are slowing down. However, motorists on Marengo Avenue approaching a minor all-way stop control intersection tend not to come to a complete stop when there is no traffic on the side street. From the data and observations in the field for the school peak periods, motorists near the school areas often come to a complete stop for all approaches, even where crossing guards were not present. Below are some recommendations/suggestions to alleviate the rolling stops along Marengo Avenue.

- *Police Enforcement*: Although police enforcement cannot continuously monitor this corridor, the locations and times of the day to monitor could be recommended to the police department. Maple Street, Laurel Street and Spruce Street have a high number and percentages of rolling stops throughout the day, with higher percentages during the morning and evening peak periods.

- The faded stop sign for the northbound approach at Maple Street should be replaced. All stop signs should be regularly assessed for fading or check the reflectivity. This includes any tree maintenance that may interfere with the visibility of the stop sign.

- *Flashing stop signs* could be implemented in order to encourage motorists to come to a compete stop. These signs could be installed at the locations with a high number of rolling stops such as Maple Street, Laurel Street and Spruce Street. However, these signs are generally solar powered and will need direct sunlight. Also, the flashing light could be a nuisance for residents on the corner of the flashing sign.

Flashing Stop Sign with Red Retroreflective Solid Material along the Support

- Additional *red retroreflective solid material* along the support of the sign could be placed.

- As mentioned in the field review, for all-way stop controlled intersections, the ALL-WAY supplemental plaque should be utilized in lieu of the supplemental number of ways plaque (“4-WAY”).

6. Marengo Avenue at Alhambra Road, Pedestrian Crossing Assessment

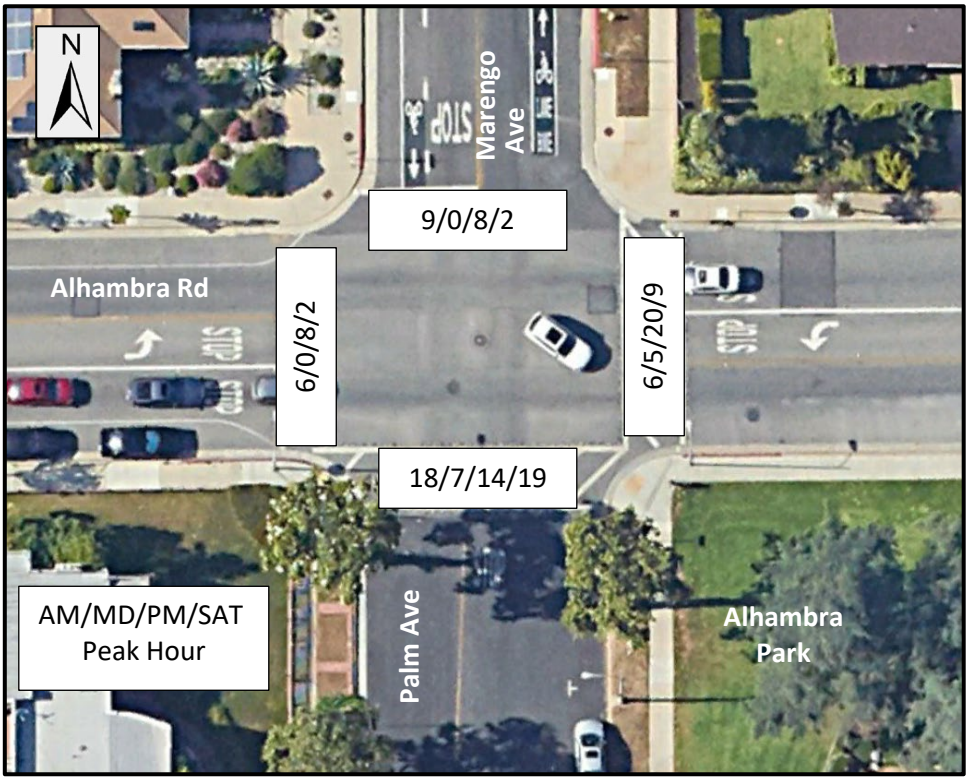
For the intersection of Alhambra Road and Marengo Avenue, the City requested an analysis of the pedestrian crossing and also if pedestrian visibility enhancements could be recommended. This intersection is shared with the City of Alhambra and the south leg is Palm Avenue in the City of Alhambra. Therefore, any proposed improvement for this intersection will need to be coordinated with the City of Alhambra.

Intersection of Alhambra Road and Marengo Avenue

This intersection is all-way stop control with crosswalks on the south-leg and east-leg. The area around the intersection is residential with Alhambra Park located on the southeast corner of the intersection. The speed limits on Marengo Avenue and Palm Avenue are 25 mph. The speed limit on Alhambra Road is 30 mph. On-street parking is allowed along all streets at this intersection.

Traffic count data was collected at this intersection for a typical weekday (October 3, 2023) and Saturday (September 30, 2023). Based on the traffic counts, there is heavy vehicular traffic demand at this intersection during the morning and evening peak hours. There is a higher number of east/west vehicular traffic on Alhambra Road than on Marengo Avenue throughout the day. There is consistent pedestrian traffic along the south and east legs of the intersection where there are crosswalks. Pedestrians also cross at the approaches without crosswalks, which is legal, but the numbers are less than the approaches with crosswalks. **Figure 6-1** shows the peak hour vehicle traffic counts and **Figure 6-2** shows the pedestrian peak hour counts. All count data is provided in **Appendix C.**

Alhambra Road and Marengo Avenue – Peak Hour Vehicle Counts

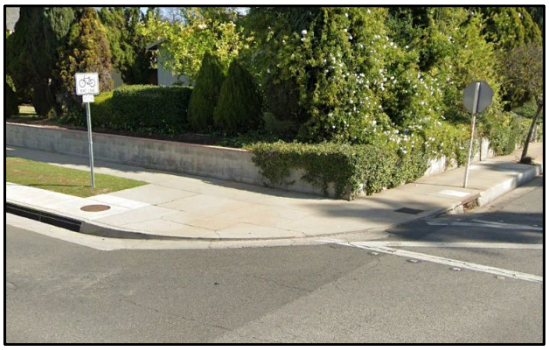


Alhambra Road and Marengo Avenue – Peak Hour Pedestrian Counts

Based on the count data, the approaches without crosswalks do not have a high volume of pedestrians. However, when there are events at the Alhambra Park, AGA staff have personally observed heavy pedestrian and vehicular activity in and around the park. It is assumed that there is also heavy vehicular and pedestrian traffic at this intersection and that there is more pedestrian traffic along the approaches without crosswalks. Adding a crosswalk to the south and west approaches can provide better visibility of pedestrians crossing those approaches. Along with the general higher traffic volumes at this intersection, there are higher vehicle turning movements. Motorists turning may not expect a pedestrian to cross at the approaches without crosswalks. Therefore, crosswalks for the eastbound and southbound approaches should be assessed to determine if they could be accommodated. Below are some factors to consider in the assessment of the crosswalks.

- Addition of the two crosswalks would require the installation of wheelchair ramps (Caltrans standards) on both the northwest and northeast corners.

Northwest Corner



Northeast Corner

- An option to further enhance the visibility of pedestrians and the crosswalks is to install raised crosswalks. This option would not impact general vehicles as they are required to stop at this intersection. However, this could impact emergency vehicles and their response time and should be discussed with emergency services. This would also require all crosswalks at this intersection to be raised.

- Along with the installation of the two crosswalks, an option to install bulbouts at all four corners could be considered to increase the visibility of pedestrians and to reduce the distance the pedestrians travel. This improvement is also a traffic calming measure as it reduces the traveled way for all approaches. This is an expensive cost and drainage could be of concern. Trash and debris can also collect at the bulbouts. Bicyclists may also need to merge with traffic.

- For all existing and/or proposed crosswalks at this intersection, a stop bar should be placed behind the crosswalk to provide distance between pedestrians crossing and the associated vehicle.

Collision Assessment

From the collision assessment, this intersection had the 2nd highest number of reported collisions of 21, that includes eight broadside collisions and two vehicle-pedestrian collisions, in the ten year period. In order to alleviate future broadside collisions, the following improvements could be made to improve the visibility of the stop signs.

- The CA MUTCD states that at intersections with two or more approach lanes of traffic exist, an additional stop sign can be installed on the left-hand side of the road. There are two approach lanes on Alhambra Road and Marengo Avenue is wide enough for a defacto right turn lane. Therefore, additional stop signs could be installed on the left side of all approaches.

- Install solar powered flashing stop signs with red retroreflective solid material along the support of the sign for each approach. The flashing red light around the stop sign increases the motorists awareness of the upcoming stop approach. However, the flashing light could be a nuisance for residents on the corner of the flashing sign. The solar powered flashing stop signs should be utilized with only a single stop sign per approach and not with two stop signs as mentioned above.

- Install Stop Ahead signs for all approaches with the exception of the eastbound approach. The eastbound approach on Alhambra Road already has the sign. Along with the signs, STOP AHEAD pavement legend should be installed on all approaches.

- Enhance the visibility of the stop signs by adding red curb to the approaches. There is existing red curb on all approaches but the westbound approach at this intersection. The length of red curb varies in length. Based on the State of California recently passed California Assembly Bill 413 that prohibits the stopping or parking of a vehicle 20 feet from the approach side of any unmarked or marked crosswalk or 15 feet of any crosswalk with a curb extension, it is recommended to increase the existing red curb to a minimum of 20 feet. For the northbound approach, increasing the red curb to 20 feet would cause the removal of one parking space along Palm Avenue. Since the entire parking space will need to be removed, it is recommended to add 20 feet of red curb to this approach. For the westbound approach where there is no existing red curb, it is recommended to install a minimum of 20 feet of red curb at the approach. **Figure 6-2** below shows the existing red curb and proposed red curb. The additional red curb would improve the visibility of the stop signs and pedestrians waiting to cross either street.

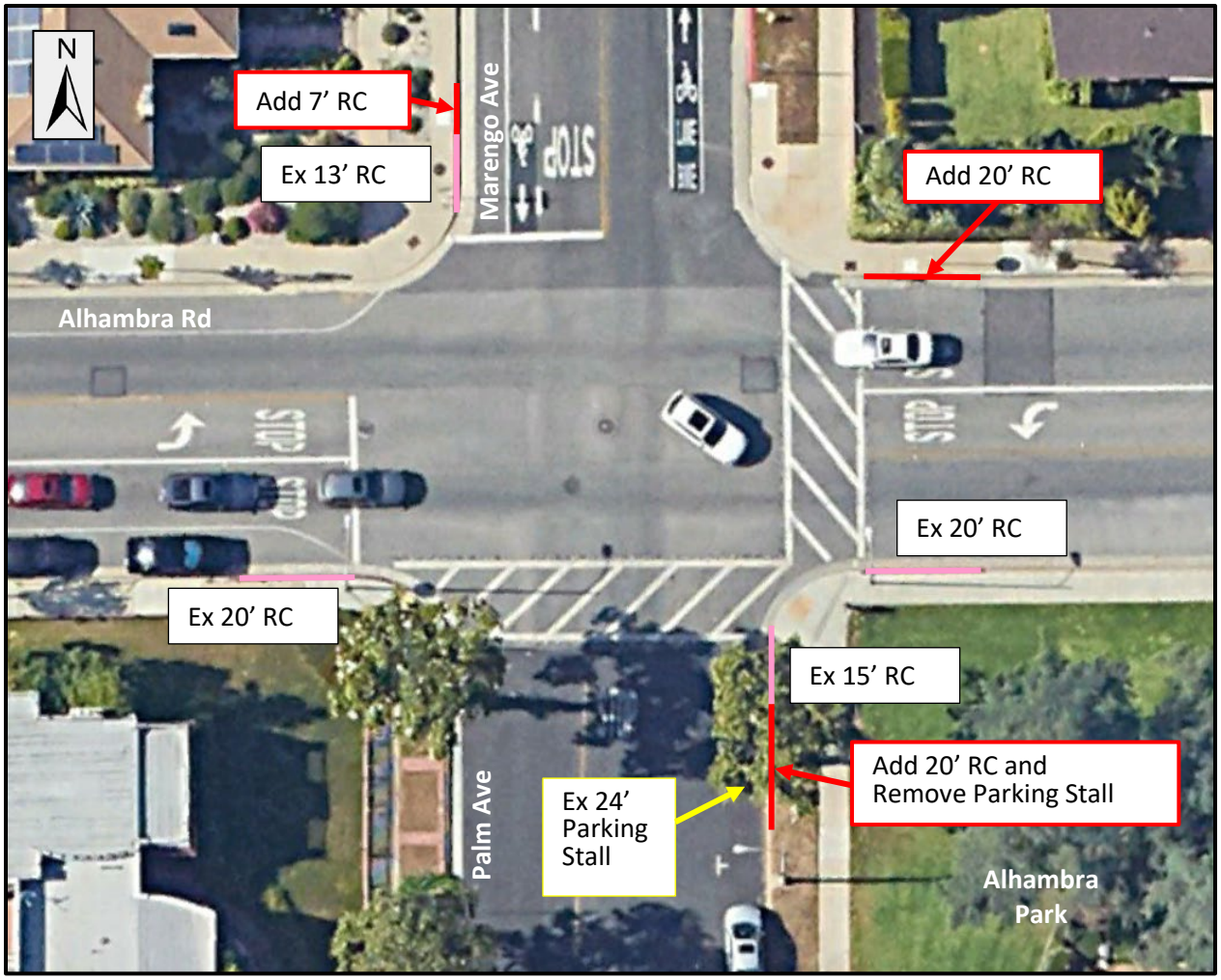


Figure 6-2. Existing and Proposed Red Curb along Each Approach

Summary and Findings

AGA Engineers, Inc. (AGA) conducted a comprehensive traffic review along Marengo Avenue from Mission Street to Alhambra Road, in the City of South Pasadena. The review included assessing collisions along Marengo Avenue for the past 10 years (2013–2023), assessing the existing traffic and roadway conditions, evaluating the traffic volumes and speeds, and analyzing the stop compliance of motorists at some of the stop controlled intersections along the corridor. Based on discussions with City staff, the following tasks and observations were conducted for this study.

1. Conduct Traffic Counts
2. Collision Analysis
    a. Conceptual/Template Plan of a Traffic Island Diverter: Removed
    b. Replaced with: Conceptual Plan for Alignment of North/South Left Turns at Marengo Ave/Huntington Dr and included it in the Collision Analysis
3. Field Review of Corridor
4. Speed Analysis
5. Stop Compliance Analysis
6. Marengo Avenue/Alhambra Road, Pedestrian Crossing Assessment

The following is a summary of each task conducted.

Task 1. Conduct Traffic Counts

24-hour traffic counts along Marengo Avenue were conducted over a two-day period in the fall of 2023. The data collected was then averaged for the two days to create the traffic volumes. The counts were conducted along the following segments.

- Marengo Avenue: Between Alhambra Road and Maple Street
- Marengo Avenue: Between Maple Street and Huntington Drive
- Marengo Avenue: Between Spruce Street and Laurel Street
- Marengo Avenue: Between Lyndon Street and Monterey Road
- Marengo Avenue: Between Monterey Road and Oxley Street

24-hour traffic counts were conducted for Marengo Avenue on two consecutive weekdays in the fall of 2023. Based on the 24-hour traffic counts (average of the two days), the traffic volumes were highest in the segment between Maple Street and Huntington Drive. After Huntington Drive, the traffic volumes decreased significantly. The street segments between Maple Street to Huntington Drive, Maple Street to Alhambra Road, Lyndon Street to Monterey Road and Spruce Street to Laurel Street all had similar traffic volume patterns. Each segment's northbound approach had a higher traffic volume in the morning while the southbound approach had a higher traffic volume in the evening. The segment between Monterey Road and Oxley Street had a different traffic pattern with the traffic volume having three peaks through the day, one in the morning and two in the afternoon.

Task 2. Collision Analysis

The collision analysis covered the periods from 2013 through 2023. The use of a multi-year collision data allows for a more effective evaluation. AGA engineers utilized the *Statewide* ***Integrated Traffic Records System (SWITRS)*** and evaluated the number of collisions, the locations of the collisions, types of collisions and primary collision factors. Additional collision data was provided by the South Pasadena Police Department for Years 2022 and 2023. Special attention was focused on collisions involving pedestrians and bicyclists. The SWITRS data evaluated involves the reported collisions. There could be additional collisions in the study area that have not been reported.

Based on the collision analysis for the past ten years, there were a total of 89 reported collisions with a higher number of reported collisions occurring in the past two years 2022 and 2023. Of the total 89 number of collisions, 23 occurred at Huntington Drive and 21 occurred at Alhambra Road. The majority of these collisions were broadside (29) and rear-end (17). There were seven collisions involving a pedestrian or bicyclist. Four of the pedestrian/bicycle involved collisions occurred at Huntington Drive and two occurred at Alhambra Road. The higher collisions at these two intersections are mainly due to the higher amount of traffic volumes from Huntington Drive and Alhambra Road. Recommendations for the intersection of Marengo Avenue/Huntington Drive were provided and recommendations for the intersection of Marengo Avenue/Alhambra Road were assessed in Section 6 of this study. For ongoing monitoring of collisions, the City should coordinate with the police department monthly or bi-monthly, regarding recent collisions or other concerns. It is also recommended that the City should evaluate this corridor and the study intersections with Citywide studies to determine where they correspond with the overall high collision locations in the City.

Task 3. Field Review of Corridor

AGA conducted a field review along Marengo Avenue to observe the traffic patterns along the corridor during a typical weekday. Special attention was given during the peak school periods (arrival and dismissal time periods). From the observations taken, there was heavy vehicular and pedestrian demand during the morning peak hour. During the late afternoon period, typical school traffic (vehicular and pedestrian) was observed within a peak period of approximately 15-20 minutes. During the evening peak period, there was less pedestrian demand and some commuter traffic, but overall, there was moderate demand for vehicular traffic. Outside of these time periods, there was very low vehicular and pedestrian demand. The field observations included the following.

It was observed that the City has implemented multiple traffic calming measures along the corridor. Some measures include: Reduced school speed of 15 mph, In-Pedestrian Crossing signs, delineators to reduce the width of the travelled way, and botts dots to raise attention of motorists approaching a stop control location.

AGA evaluated the areas with heavy school traffic demand and observed the crossing guards and how they successfully manage both vehicular and pedestrian traffic on all approaches of an intersection.

The Marengo Elementary School utilizes a temporary traffic control during the morning school arrival time period. During the afternoon pickup period, it was noticed that a few motorists would double park on Marengo Avenue and block northbound traffic. It is recommended that the school provide the students with observant/educational flyers on how the traffic circulation works during arrival and dismissal and not have vehicles double park on Marengo Avenue.

At the intersection of Marengo Avenue and Bank Street, there was very heavy pedestrian demand crossing Marengo Avenue to and from Marengo Elementary. It is recommended to increase the existing red curb on the northwest corner along Marengo Avenue from 13 feet to 20 feet to improve the visibility of the crossing guard and pedestrians on this corner for southbound approaching vehicles. The State of California recently passed California Assembly Bill 413 that prohibits the stopping or parking of a vehicle 20 feet from the approach side of any unmarked or marked crosswalk or 15 feet of any crosswalk with a curb extension. This includes areas with and without red curb.

At the intersection of Marengo Avenue and Huntington Drive, it was observed from the field review that there is a slight negative offset for the north/south left turns. In order to improve the alignment of the left turns, north/south approaches could be restriped to improve the alignment. However, the restriping could affect parking or the departing bike lanes. This intersection was further evaluated as part of the collision analysis. A detailed plan was developed for that task that showed in order to align the north/south left turn lanes, the northbound bicycle lane, north of the intersection on Marengo Avenue will need to be removed and begin approximately 190 feet north of the intersection.

Other items-recommendations observed from the field review include:

- ALL WAY plaque should be installed in lieu of the supplemental number of ways plaque (“4-WAY”) at various locations.

- School signs and/or pavement legends need to be updated or checked along Marengo Avenue and the cross streets.

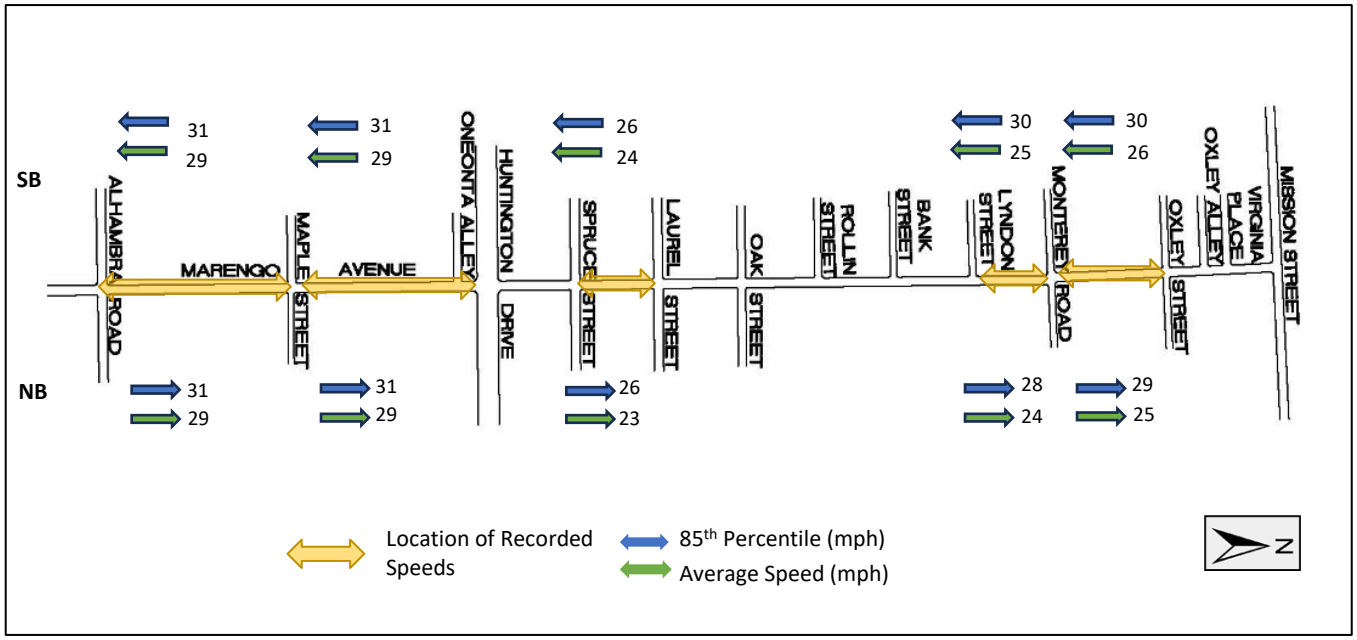
- The existing crosswalks have different patterns throughout the corridor. The City could utilize the ladder style pattern along the corridor for all crosswalks. In order to assess if additional crosswalks need to be placed along the corridor, the City should work with the school district and police department in the development of a Suggested Routes to School Plan.

- Trees should be maintained to prevent any impacts to street lighting at the following intersections.
    - Bank Street, East Side of Marengo Avenue
    - Laurel St, Northwest Corner
    - Spruce Street, Northwest Corner
    - Maple St, Northeast corner

Task 4. Speed Analysis

Speed analyses were conducted at five different locations throughout the study area on Marengo Avenue. This includes south of Oxley Street, south of Monterey Road, south of Laurel Street, Maple Street to Huntington Drive and Alhambra Road to Maple Street. The 85th percentile (speed at or below which 85 percent of drivers travel) and average recorded speeds were evaluated from the analysis.

Overall, the majority of recorded speeds remained in the 25 to 29 mph range. The 85th percentile speeds were 31 mph or less for both the northbound and southbound movements. The southerly area, south of Huntington Drive, had higher speeds than the northerly areas. Speeds over 35 mph occurred approximately 7% of the time in this area and were noted to occur throughout the day. This could be attributed to longer segments with fewer stop control intersections. Speed feedback signs could be installed at the locations south of Huntington Drive. Not only will the signs provide feedback (SLOW DOWN) to the motorists that are speeding, but the signs can collect the data and provide City staff and the police department on information on when the speeding is occurring. Enforcement is the most effective solution in reduce speeding. Speeds in the school areas were significantly lower during the school time periods. The City has implemented many traffic calming measures throughout the corridor. If speeding becomes more prevalent, additional measures were suggested.



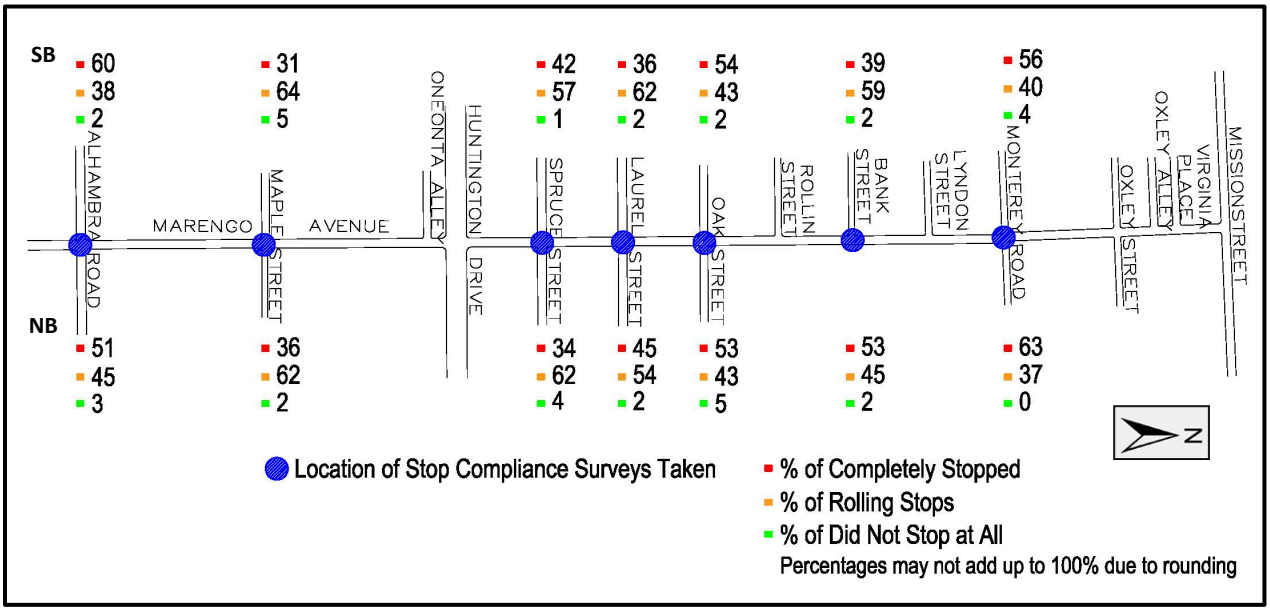
Recorded Speeds on Marengo Avenue (2-Day Average)

California's Governor has passed an Assembly Bill 645 (AB 645) that will establish a speed safety system pilot program. The cities under this bill are Cities of Los Angeles, San Jose, Oakland, Glendale, Long Beach, and San Francisco. The cities mentioned will issue warning notices for the first 60 days of the program. Afterwards, tickets will be issued to drivers going over 11 mph over the speed limit. These cameras will be installed in prioritized areas that are near schools or high-injury intersections in order to reduce speeds

and fatalities. This pilot program will last five years, and if successful, it will be expanded throughout the state. This bill will also require the participating cities to submit a report on the financial system's impact on the city. Agencies will then be permitted to install speed cameras throughout their cities, where areas of concern arise. Speed cameras are portable, therefore, making them easy to relocate.

Task 5. Stop Compliance Analysis

Based on discussions with City staff, seven intersections that were all way stops were chosen to evaluate the stop compliance of motorists. The locations were chosen due to the different characteristics around their location. Some locations are near schools and have crossing guards; some are closely spaced with other stop control intersections; some have heavy vehicular and pedestrian movements and some locations are situated further away from other stop control intersections on Marengo Avenue. All locations are all-way stop controlled and are shown below. The stop compliance analysis surveys were taken for both the northbound and southbound approaches at each location for a typical weekday (24-hour period). The data was then analyzed to determine the percentages of motorist compliance and was also evaluated hourly throughout the day. The percentage of rolling stops was higher at locations with low side street vehicular and pedestrian demand. This is typically the case, as motorists tend not to come to a complete stop at minor intersections with low side street traffic demand. Overall, the percentage of motorists not stopping at all was low.



Stop Compliance on Marengo Avenue

Details of the stop compliance assessment for each location on Marengo Avenue were provided. Previous studies conducted have indicated rolling stops to be the most common in stop compliance analysis as indicated in this assessment. This is also more common in this study area since it mostly consists of all-way stops, with many at minor intersections. Motorists are aware of the stop control along Marengo Avenue since they are slowing down. However, motorists on Marengo Avenue approaching a minor all-way stop control intersection tend not to come to a complete stop when there is no traffic on the side

street. From the data and observations in the field for the school peak periods, motorists near the school areas often come to a complete stop for all approaches, even where crossing guards were not present. Below are some recommendations/suggestions to alleviate the rolling stops along Marengo Avenue.

- *Police Enforcement*: Although police enforcement cannot continuously monitor this corridor, the locations and times of the day to monitor could be recommended to the police department. Maple Street, Laurel Street and Spruce Street have a high number and percentages of rolling stops throughout the day, with higher percentages during the morning and evening peak periods.

- The faded stop sign for the northbound approach at Maple Street should be replaced. All stop signs should be regularly assessed for fading or check the reflectivity. This includes any tree maintenance that may interfere with the visibility of the stop sign.

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- Additional *red retroreflective solid material* along the support of the sign could be placed.

- As mentioned in the field review, for all-way stop controlled intersections, the ALL-WAY supplemental plaque should be utilized in lieu of the supplemental number of ways plaque ("4-WAY").

Flashing Stop Sign with Red Retroreflective Solid Material along the Support

Task 6. Marengo Avenue at Alhambra Road, Pedestrian Crossing Assessment

For the intersection of Alhambra Road and Marengo Avenue, the City requested an analysis of the pedestrian crossing and also if pedestrian visibility enhancements could be recommended. This intersection is shared with the City of Alhambra and the south leg is Palm Avenue in the City of Alhambra.

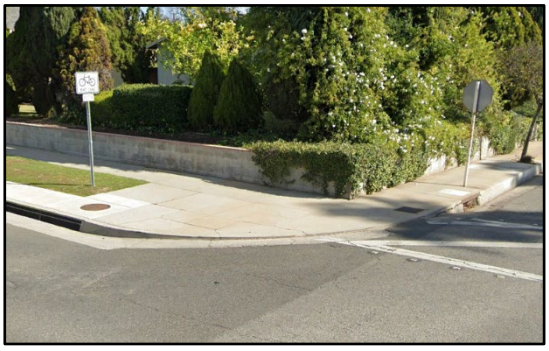
Traffic count data was collected at this intersection for a typical weekday and Saturday in the fall of 2023. Based on the traffic counts, there is heavy vehicular traffic demand at this intersection during the morning and evening peak hours. There is a higher number of east/west vehicular traffic on Alhambra Road than on Marengo Avenue throughout the day. There is consistent pedestrian traffic along the south and east

legs of the intersection where there are crosswalks. Pedestrians also cross at the approaches without crosswalks, which is legal, but the numbers are less than the approaches with crosswalks.

Based on the count data, the approaches without crosswalks do not have a high volume of pedestrians. However, when there are events at the Alhambra Park, AGA staff have personally observed heavy pedestrian and vehicular activity in and around the park. It is assumed that there is also heavy vehicular and pedestrian traffic at this intersection and that there is more pedestrian traffic along the approaches without crosswalks. Adding a crosswalk to the south and west approaches can provide better visibility of pedestrians crossing those approaches. Along with the general higher traffic volumes at this intersection, there are higher vehicle turning movements. Motorists turning may not expect a pedestrian to cross at the approaches without crosswalks. Therefore, crosswalks for the eastbound and southbound approaches should be assessed to determine if they could be accommodated. Below are some factors to consider in the assessment of the crosswalks.

- Addition of the two crosswalks would require the installation of wheelchair ramps (Caltrans standards) on both the northwest and northeast corners.

Northwest Corner



Northeast Corner

- An option to further enhance the visibility of pedestrians and the crosswalks is to install raised crosswalks. This option would not impact general vehicles as they are required to stop at this intersection. However, this could impact emergency vehicles and their response time and should be discussed with emergency services. This would also require all crosswalks at this intersection to be raised.

- Along with the installation of the two crosswalks, an option to install bulbouts at all four corners could be considered to increase the visibility of pedestrians and to reduce the distance the pedestrians travel. This improvement is also a traffic calming measure as it reduces the traveled way for all approaches. This is an expensive cost and drainage could be of concern. Trash and debris can also collect at the bulbouts.

- For all existing and/or proposed crosswalks at this intersection, a stop bar should be placed behind the crosswalk to provide distance between pedestrians crossing and the associated vehicle.

Collision Assessment

From the collision assessment, this intersection had the 2nd highest number of reported collisions of 21, that includes eight broadside collisions and two vehicle-pedestrian collisions, in the ten-year period. In order to alleviate future broadside collisions, the following improvements could be made to improve the visibility of the stop signs.

- The CA MUTCD states that at intersections with two or more approach lanes of traffic exist, an additional stop sign can be installed on the left-hand side of the road. There are two approach lanes on Alhambra Road and Marengo Avenue is wide enough for a defacto right turn lane. Therefore, additional stop signs could be installed on the left side of all approaches.

- Install solar powered flashing stop signs with red retroreflective solid material along the support of the sign for each approach. The flashing red light around the stop sign increases the motorists awareness of the upcoming stop approach. However, the flashing light could be a nuisance for residents on the corner of the flashing sign. The solar powered flashing stop signs should be utilized with only a single stop sign per approach and not with two stop signs as mentioned above.

- Install Stop Ahead signs for all approaches with the exception of the eastbound approach. The eastbound approach on Alhambra Road already has the sign. Along with the signs, STOP AHEAD pavement legend should be installed on all approaches.

- Enhance the visibility of the stop signs by adding red curb to the approaches. There is existing red curb on all approaches but the westbound approach at this intersection. The length of red curb varies in length. Based on the State of California recently passed California Assembly Bill 413 that prohibits the stopping or parking of a vehicle 20 feet from the approach side of any unmarked or marked crosswalk or 15 feet of any crosswalk with a curb extension, it is recommended to increase the existing red curb to a minimum of 20 feet. For the northbound approach, increasing the red curb to 20 feet would cause the removal of one parking space along Palm Avenue. Since the entire parking space will need to be removed, it is recommended to add 20 feet of red curb to this approach.

Marengo Avenue Safety Assessment

Collision Data Tables by Year

Appendix A

AGA Engineers, Inc.

DRAFT

2013-2023 Collisions on Marengo Avenue (Mission St to Alhambra Rd)

2013 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
1/30/2013	7:42 PM	at Monterey Rd	None	Broadside	R/W Auto, EBT-SB	1 Vehicle	Yes
3/29/2013	4:46 PM	3' N/o Lyndon St	None	Rear End	Improper Turn, NB	1 Vehicle	Yes
4/9/2013	1:18 PM	at Rollin St	None	Broadside	R/W Auto, WBL-SBT	1 Vehicle	Yes
4/30/2013	3:23 PM	15' S/o Bank St	None	Rear End	Unsafe Speed NB	1 Vehicle	PDO
8/27/2013	3:47 PM	Alhambra Rd - 70' W/o Marengo Ave	None	Hit Object	Unsafe Speed SB	None	PDO
8/28/2013	1:00 PM	at Oxley St	None	Broadside	R/W Auto, EB-NB	1 Vehicle	PDO
8/30/2013	7:56 PM	48' N/o Huntington Dr	None	Auto/Ped	Ped Violation, EBT-NBT	1 Vehicle	Yes
10/28/2013	10:00 PM	at Alhambra Rd	None	Broadside	Sig, WBT-NBT	2 Vehicles	PDO

2014 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
2/11/2014	7:02 AM	199' S/o Huntington Dr	None	Other	MIDBLOCK - Unsafe Speed NB	1 Vehicle	Yes
6/16/2014	6:00 PM	Monterey Rd - 19' E/o Marengo Ave	None	Hit Object	Unsafe Speed EB	None	PDO
7/26/2014	7:21 PM	21' S/o Spruce St	None	Rear End	Unsafe Speed NB	1 Vehicle	Yes
8/7/2014	10:39 PM	Huntington Dr - 33' E/o Marengo Ave	None	Rear End	Unsafe Speed WB	1 Vehicle	PDO
8/30/2014	12:47 PM	Huntington Dr - 48' W/o Marengo Ave	None	Rear End	Lane Change, WB	1 Vehicle	PDO
9/6/2014	6:45 PM	at Huntington Dr	None	Broadside	Lane Change, EB	1 Vehicle	Yes
9/23/2014	9:02 AM	Huntington Dr - 135' E/o Marengo Ave	None	Rear End	Unsafe Speed WB	1 Vehicle	Yes

2015 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
1/2/2015	2:00 PM	496' S/o Huntington Dr	IMP Unk	Hit Object	MIDBLOCK - Improper Turn NBT	None	PDO
6/12/2015	5:48 PM	at Monterey Rd	None	Broadside	R/W Auto, EBT-SBT	1 Vehicle	PDO
10/23/2015	3:52 PM	at Oxley St	None	Broadside	R/W Auto, EBT-NBT	1 Vehicle	PDO
11/5/2015	1:37 PM	Mission St - 18' W/o Marengo Ave	None	Sideswipe	R/W Auto, WBT-NBT	1 Vehicle	Yes

2013-2023 Collisions on Marengo Avenue (Mission St to Alhambra Rd)

2016 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
3/15/2016	1:37 PM	9' N/o Oak St	None	Sideswipe	Improper Turn SBR-Parked	1 Vehicle	PDO
4/2/2016	1:19 AM	at Alhambra Rd	HBD-IU	Head-On	Drvr Alc	None	PDO
6/12/2016	8:50 PM	36' S/o Alhambra Rd	None	Sideswipe	Unknown, Not Stated	2 Vehicles	PDO
6/27/2016	12:22 PM	at Lyndon St	None	Broadside	R/W Auto, EBL-SBT	1 Vehicle	PDO
7/26/2016	6:08 PM	Monterey Rd - 96' W/o Marengo Ave	None	Head-On	Lane Change, WBT-EBT	1 Vehicle	Yes
8/10/2016	5:55 PM	Monterey Rd - 54' W/o Marengo Ave	IMP Unk	Rear End	Other, Too Close, EBT-Stopped	1 Vehicle	Yes
8/12/2016	6:01 PM	at Alhambra Rd	None	Overturned	Sig, EBT-SBT	1 Vehicle	Yes
8/17/2016	4:02 PM	at Alhambra Rd	None	Broadside	Sig, SBT-WBT	1 Vehicle	PDO
9/12/2016	6:32 PM	Oak St - 63' E/o Marengo Ave	None	Other	Other, WBT-Fixed object	None	PDO
9/17/2016	4:44 PM	at Alhambra Rd	None	Broadside	Sig, WBT-SBT	1 Vehicle	PDO
10/25/2016	11:29 PM	at Alhambra Rd	None	Broadside	Unknown, Not Stated	1 Vehicle	PDO
10/26/2016	4:58 PM	at Oxley St	None	Other	Unsafe Speed, NBT	None	PDO
12/16/2016	4:00 PM	Mission St - 10' W/o Marengo Ave	None	Broadside	Unknown	2 Vehicles	PDO
12/22/2016	5:38 PM	at Huntington Dr	None	Auto/Ped	Sig, EBT-NBT, PED	2 Pedestrians	Yes

2017 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
4/8/2017	1:44 PM	at Monterey Rd	IMP-Unk	Rear End	Unsafe Speed, WBT	1 Vehicle	PDO
6/2/2017	12:46 PM	Mission St - 42' E/o Marengo Ave	None	Rear End	Unsafe Speed, WBT	1 Vehicle	Yes
7/23/2017	5:47 PM	Mission St - 70' W/o Marengo Ave	IMP-Unk	Sideswipe	Strtng/Bckng, EBT	1 Vehicle	PDO
7/31/2017	12:53 PM	at Monterey Rd	None	Broadside	R/W Auto, WBT-NBT	1 Vehicle	Yes
9/15/2017	2:57 PM	Alhambra Rd - 39' W/o Marengo Ave	None	Rear End	Other, Too Close	1 Vehicle	Yes
9/22/2017	10:38 AM	48' S/o Huntington Dr	None	Rear End	Unsafe Speed, WBT	1 Vehicle	Yes
10/23/2017	8:25 AM	50' N/o Monterey Rd	None	Broadside	R/W Auto, EB(U-Turn)-SBT	1 Vehicle	Yes
10/29/2017	2:05 PM	17' N/o Alhambra Rd	None	Rear End	Unsafe Speed, WBT	1 Vehicle	Yes
12/24/2017	1:18 PM	at Huntington Dr	None	Broadside	Sig, EBT-SBT,NBT	3 Vehicles	Yes

2013-2023 Collisions on Marengo Avenue (Mission St to Alhambra Rd)

2018 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
3/2/2018	7:30 PM	at Huntington Dr	None	Broadside	Sig, EBT-SBT	1 Vehicle	Yes
4/29/2018	12:30 AM	Alhambra Rd - 21' E/o Marengo Ave	HBD-IU	Hit Object	Drvr Alc	None	PDO
8/13/2018	11:10 AM	Maple St - 15' E/o Marengo Ave	None	Head-On	Improper Turn, SBT-NBT	1 Vehicle	Yes
12/19/2018	8:00 AM	Huntington Dr - 15' E/o Marengo Ave	None	Auto/Ped	R/W Ped, SBL-NBT	1 Pedestrian	Yes

2019 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
9/10/2019	2:16 PM	34' N/o Huntington Dr	IMP Unk	Rear-End	Unsafe Speed, SBT-SB	1 Vehicle	PDO
10/23/2019	10:48 AM	Huntington Dr - 12' W/o Marengo Ave	None	Auto/Ped	R/W Auto-Ped Not Stated, EBR-NBT	1 Bicycle	Yes
11/20/2019	5:30 PM	at Alhambra Rd	None	Broadside	Sig, NBT-EBT	1 Vehicle	PDO
11/27/2019	7:17 PM	Huntington Dr - 35' W/o Marengo Ave	IMP Unk	Sideswipe	Lane Change, EBT-EB	1 Vehicle	PDO
11/27/2019	12:49 PM	Alhambra Rd - 105' E/o Marengo Ave	None	Hit Object	Other	1 Vehicle	PDO
12/1/2019	2:56 PM	at Huntington Dr	None	Broadside	Sig, WBT-SBT	1 Vehicle	PDO

2020 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
5/14/2020	7:14 AM	at Huntington Dr	None	Broadside	Sig, EBT-NBT	1 Vehicle	Yes
6/28/2020	2:55 PM	at Mission St	None	Broadside	Stop Sgn/Sig, EBT	1 Vehicle	Yes
8/29/2020	5:43 PM	Alhambra Rd - 10' W/o Marengo Ave	None	Rear-End	Unsafe Speed, EBT	1 Vehicle	PDO
10/7/2020	2:53 PM	at Monterey Rd	None	Broadside	Unknown, Not Stated, NBT-WBT	1 Vehicle	PDO

2013-2023 Collisions on Marengo Avenue (Mission St to Alhambra Rd)

2021 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
1/26/2021	10:03 PM	at Huntington Dr	None	Broadside	Unknown, SBT-EBT	1 Vehicle	PDO
5/13/2021	6:52 PM	Alhambra Rd - 14' W/o Marengo Ave	None	Broadside	R/W Auto-Ped, WBT-SBT	1 Pedestrian	Yes
7/20/2021	9:37 PM	2' N/o Alhambra Rd	None	Auto/Ped	R/W Auto-Ped, NBL-SBT	1 Pedestrian	Yes
8/24/2021	8:09 AM	at Oxley St	None	Broadside	R/W Auto, WBT-NBT	2 Vehicle	Yes
9/22/2021	12:29 PM	Alhambra Rd - 42' E/o Marengo Ave	None	Rear-End	Unsafe Speed, WBT	1 Vehicle	Yes
9/24/2021	5:25 PM	at Huntington Dr	None	Broadside	Sig, WBT-SBT	1 Vehicle	Yes

2022 Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
3/18/2022	6:52 PM	413' N/o Alhambra Rd	None	Rear End	MIDBLOCK - Improper Turn, NBT	2 Vehicle	Yes
4/1/2022	10:51 AM	1211 Marengo Ave	N/A	N/A	Unknown, MIDBLOCK	N/A	No
4/11/2022*	6:48 PM	at Monterey Rd	N/A	N/A	Unknown	N/A	No
5/2/2022*	3:34 PM	at Monterey Rd	N/A	N/A	Unknown	N/A	No
5/13/2022*	11:56 AM	at Oxley St	N/A	N/A	Unsafe Speed	N/A	No
5/13/2022*	12:24 PM	at Oxley St	N/A	N/A	Unknown	N/A	No
6/14/2022	3:10 PM	at Oxley St	None	Broadside	R/W Auto, EBT-NBT	1 Vehicle	Yes
7/2/2022	11:17 PM	at Mission St	HBD-UI	Hit Object	Drvr Alc/Drg	None	PDO
7/22/2022	2:03 PM	146' N/o Alhambra Rd	None	Broadside	Unsafe Speed, Too Close, WBT-SBT	1 Vehicle	PDO
7/27/2022*	8:25 PM	at Maple St	N/A	N/A	R/W, Auto-Ped, Fail to Yield to Ped	N/A	Yes
9/25/2022	7:54 PM	at Huntington Dr	HBD-UI	Broadside	Sig, EBT-SBT	1 Vehicle	PDO
12/19/2022	4:43 PM	at Alhambra Rd	None	Broadside	R/W Auto, WBT-EBT	1 Vehicle	PDO
12/21/2022*	1:28 PM	1500 Marengo Ave	N/A	N/A	Unknown, N/A, MIDBLOCK	N/A	No

2013-2023 Collisions on Marengo Avenue (Mission St to Alhambra Rd)

2023 (January - September) Collisions on Marengo Avenue

Date	Time	Location on Marengo Ave	Sobriety	Collision Type	PCF	Other Party	Injury
1/25/2023*	3:56 PM	Marengo Elementary School	N/A	N/A	Unknown, Hit & Run, assume near Rollin St	N/A	N/A
3/15/2023*	3:15 PM	at Alhambra Rd	N/A	N/A	Unknown	N/A	Yes
3/18/2023*	5:02 AM	at Huntington Dr	N/A	N/A	Unknown	N/A	Yes
4/3/2023	10:16 AM	at Huntington Dr	HBD-UI	Rear End	Too Close, NBR-NBR	1 Vehicle	Yes
4/16/2023*	12:35 PM	at Bank St	N/A	N/A	Unknown	N/A	No
5/31/2023*	5:28 PM	at Oxley St	N/A	N/A	Unknown	N/A	No
7/13/2023	12:27 PM	35' N/o Bank St	None	Other	Improper Turn, SBT	None	Yes
8/3/2023*	12:19 PM	at Mission St	N/A	N/A	Unknown	N/A	No
8/23/2023*	5:08 PM	at Huntington Dr	N/A	N/A	Unknown	N/A	No
8/29/2023*	7:50 PM	at Huntington Dr	N/A	N/A	Unknown	N/A	N/A
9/26/2023*	9:19 PM	at Alhambra Rd	HBD-UI	N/A	TC Hit & Run	N/A	N/A
10/9/2023*	8:05 AM	2007 Marengo Ave	N/A	N/A	Unknown, Hit & Run, just s/o Maple St	N/A	N/A
10/9/2023*	10:26 PM	1903 Marengo Ave	HBD-UI	N/A	DUI, just s/o Huntington Dr	N/A	Yes
11/4/2023*	4:37 PM	at Mission St	N/A	N/A	Unknown, Hit & Run	N/A	N/A

Marengo Avenue Safety Assessment

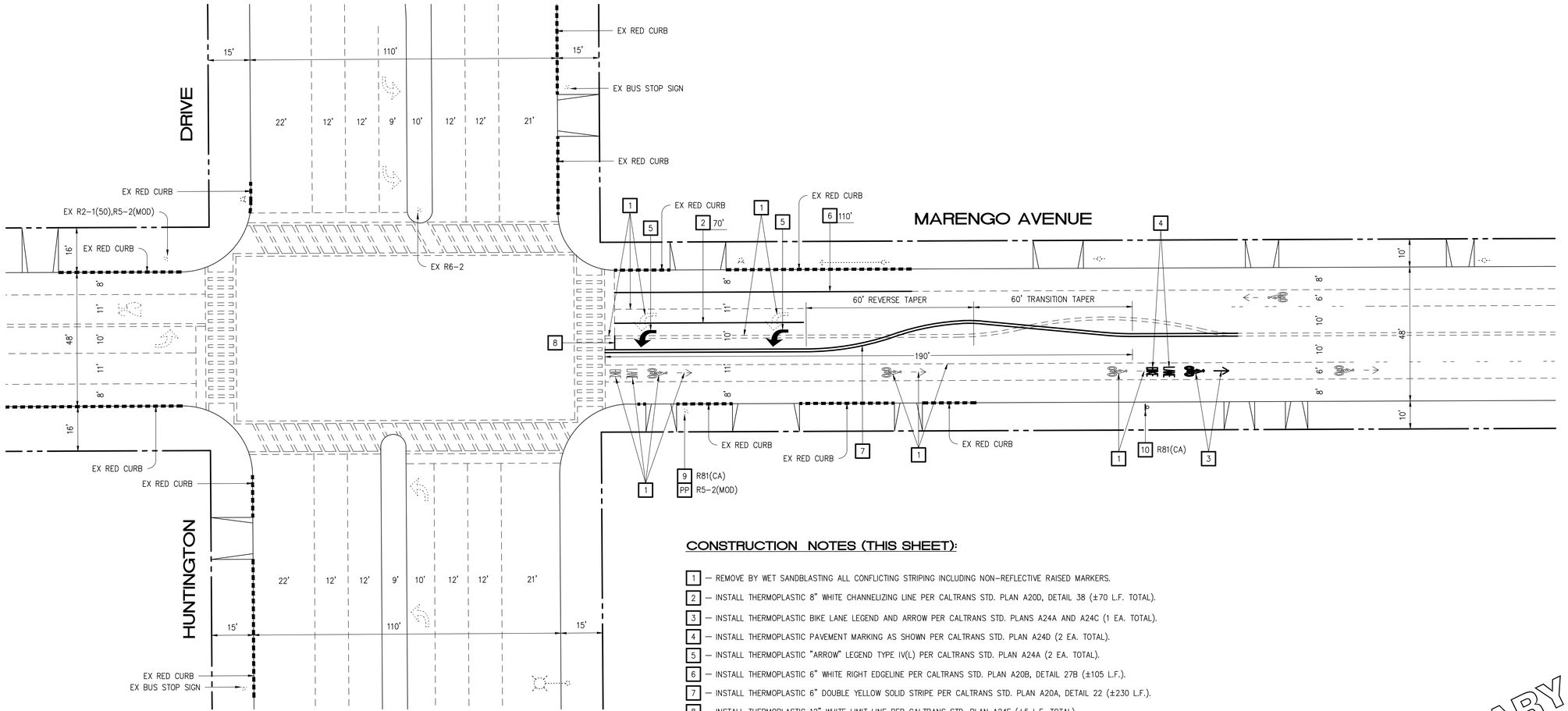
Marengo Avenue at Huntington Drive
Draft Signing and Striping Plan

Appendix B

AGA Engineers, Inc.

DRAFT

SUBMITTED



CONSTRUCTION NOTES (THIS SHEET):

1 — REMOVE BY WET SANDBLASTING ALL CONFLICTING STRIPING INCLUDING NON-REFLECTIVE RAISED MARKERS.
2 — INSTALL THERMOPLASTIC 8" WHITE CHANNELIZING LINE PER CALTRANS STD. PLAN A20D, DETAIL 38 (±70 L.F. TOTAL).
3 — INSTALL THERMOPLASTIC BIKE LANE LEGEND AND ARROW PER CALTRANS STD. PLANS A24A AND A24C (1 EA. TOTAL).
4 — INSTALL THERMOPLASTIC PAVEMENT MARKING AS SHOWN PER CALTRANS STD. PLAN A24D (2 EA. TOTAL).
5 — INSTALL THERMOPLASTIC "ARROW" LEGEND TYPE IV(L) PER CALTRANS STD. PLAN A24A (2 EA. TOTAL).
6 — INSTALL THERMOPLASTIC 6" WHITE RIGHT EDGELINE PER CALTRANS STD. PLAN A20B, DETAIL 27B (±105 L.F.).
7 — INSTALL THERMOPLASTIC 6" DOUBLE YELLOW SOLID STRIPE PER CALTRANS STD. PLAN A20A, DETAIL 22 (±230 L.F.).
8 — INSTALL THERMOPLASTIC 12" WHITE LIMIT LINE PER CALTRANS STD. PLAN A24F (±5 L.F. TOTAL).
9 — REMOVE SIGN(S) (1 EA. TOTAL).
10 — FURNISH AND INSTALL NEW SIGN(S) ON NEW POST (1 EA. TOTAL).
PP — PROTECT IN PLACE.

PRELIMINARY
"NOT FOR CONSTRUCTION"

SIGNING AND STRIPING PLAN

REGISTERED PROFESSIONAL ENGINEER XXXXX XXXXX XXXXX Exp. 00/00/0000 CIVIL STATE OF CALIFORNIA

CONSULTANT'S NAME AND/OR COMPANY CONSULTANT'S ADDRESS CONSULTANT'S TELEPHONE ENGINEER'S SIGNATURE _____ DATE _____ ENGINEER'S NAME AND EXP. DATE	DRAWN BY NAME (PRI) DESIGNED BY NAME (PRI) CHECKED BY DANIEL DIAZ	REVISIONS: MARK / DATE / DESCRIPTION / BY / CHKD. / APPROVED AS BUILT	~~CITY OF PASADENA— DEPARTMENT OF PUBLIC WORKS~~ PROJECT MARENGO AVENUE SAFTEY ASSESSMENT LIMITS HUNTINGTON DRIVE AND MARENGO AVENUE SCALE 1"=20' ACCOUNT NUMBER XXXXX	SHEET 1 OF 1 DWG. NO. XXXX

HUNMARSS

DRAFT

Marengo Avenue Safety Assessment

Marengo Avenue at Alhambra Road Traffic Count Data

Appendix C

AGA Engineers, Inc.

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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

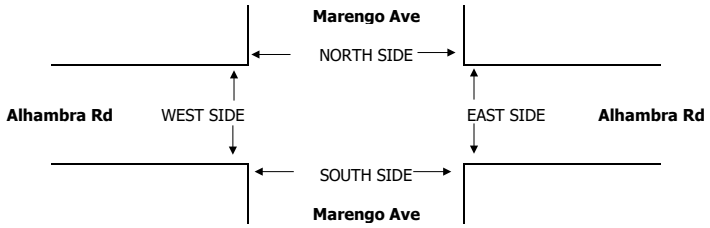
T218

DATE:	LOCATION:	South Pasadena	PROJECT #:	SC3873
Tue, Oct 3, 23	NORTH & SOUTH:	Marengo Ave	LOCATION #:	6
	EAST & WEST:	Alhambra Rd	CONTROL:	STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Marengo Ave			SOUTHBOUND Marengo Ave			EASTBOUND Alhambra Rd			WESTBOUND Alhambra Rd				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
AM	7:00 AM	1	12	1	8	12	4	3	23	2	5	26	25	122	0	0	0	0	0
	7:15 AM	4	14	6	8	19	4	4	19	4	4	47	26	159	0	0	0	0	0
	7:30 AM	1	24	2	7	29	5	4	30	3	6	55	50	216	0	0	0	0	0
	7:45 AM	4	32	10	15	38	6	16	81	5	13	67	36	323	0	0	0	0	0
	8:00 AM	2	25	9	16	44	4	6	48	3	16	85	29	287	0	0	0	0	0
	8:15 AM	6	20	10	18	33	3	3	49	3	5	60	35	245	0	0	0	0	0
	8:30 AM	2	19	8	13	27	4	3	35	8	15	70	19	223	0	0	0	0	0
	8:45 AM	6	23	9	13	28	7	2	50	10	15	55	23	241	0	0	0	0	0
	9:00 AM	7	25	12	11	16	0	3	30	4	11	41	23	183	0	0	0	0	0
	9:15 AM	5	22	12	9	41	7	1	37	4	8	47	23	216	0	0	0	1	1
	9:30 AM	4	27	8	8	32	2	4	32	5	8	48	19	197	0	0	0	0	0
	9:45 AM	4	18	5	10	28	1	1	31	0	8	32	24	162	0	0	0	0	0
	VOLUMES	46	261	92	136	347	47	50	465	51	114	633	332	2,574	0	0	0	1	1
	APPROACH %	12%	65%	23%	26%	65%	9%	9%	82%	9%	11%	59%	31%						
	APP/DEPART	399	/	643	530	/	511	566	/	694	1,079	/	726	0					
	BEGIN PEAK HR		7:45 AM																
	VOLUMES	14	96	37	62	142	17	28	213	19	49	282	119	1,078					
	APPROACH %	10%	65%	25%	28%	64%	8%	11%	82%	7%	11%	63%	26%						
	PEAK HR FACTOR		0.799			0.863			0.637			0.865		0.834					
	APP/DEPART	147	/	243	221	/	210	260	/	312	450	/	313	0					
AM2	10:00 AM	6	20	6	8	25	2	3	35	4	8	39	13	169	0	0	0	0	0
	10:15 AM	4	11	5	17	29	1	4	33	2	8	35	19	168	0	0	0	0	0
	10:30 AM	4	17	12	17	25	4	3	38	5	8	30	14	177	0	0	0	0	0
	10:45 AM	4	12	5	8	21	1	2	51	4	6	50	16	180	0	0	0	0	0
	11:00 AM	2	12	17	10	29	1	1	33	3	7	42	18	175	0	0	0	0	0
	11:15 AM	5	14	10	7	25	3	5	41	6	7	43	19	185	0	0	0	0	0
	11:30 AM	3	17	9	13	34	2	2	34	7	6	47	19	193	0	0	0	0	0
	11:45 AM	4	12	10	13	29	3	5	57	4	12	33	20	202	0	0	0	0	0
	12:00 PM	6	15	10	14	30	4	3	46	12	12	55	20	227	0	0	0	0	0
	12:15 PM	6	16	13	13	32	2	7	48	4	8	49	13	211	0	0	0	0	0
	12:30 PM	1	21	7	15	30	5	5	15	7	7	39	19	171	0	0	0	0	0
	12:45 PM	4	26	8	16	28	1	2	43	5	10	37	17	197	0	0	0	0	0
	VOLUMES	49	193	112	151	337	29	42	474	63	99	499	207	2,255	0	0	0	0	0
	APPROACH %	14%	55%	32%	29%	65%	6%	7%	82%	11%	12%	62%	26%						
	APP/DEPART	354	/	442	517	/	499	579	/	737	805	/	577	0					
	BEGIN PEAK HR		11:30 AM																
	VOLUMES	19	60	42	53	125	11	17	185	27	38	184	72	833					
	APPROACH %	16%	50%	35%	28%	66%	6%	7%	81%	12%	13%	63%	24%						
	PEAK HR FACTOR		0.864			0.964			0.867			0.845		0.917					
	APP/DEPART	121	/	149	189	/	190	229	/	280	294	/	214	0					



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N LEG	S LEG	E LEG	W LEG	TOTAL	N LEG	S LEG	E LEG	W LEG	TOTAL	NL	SL	EL	WL	TOTAL
AM	7:00 AM	3	3	1	1	8	1	2	1	0	4	2	1	0	1	4
	7:15 AM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	7:30 AM	3	6	0	1	10	3	6	0	1	10	0	0	0	0	0
	7:45 AM	3	2	2	1	8	1	2	2	1	6	2	0	0	0	2
	8:00 AM	0	5	0	2	7	0	4	0	2	6	0	1	0	0	1
	8:15 AM	2	9	1	2	14	1	8	1	1	11	1	1	0	1	3
	8:30 AM	4	2	3	1	10	4	2	2	0	8	0	0	1	1	2
	8:45 AM	0	5	2	2	9	0	5	2	2	9	0	0	0	0	0
	9:00 AM	0	4	2	1	7	0	4	2	1	7	0	0	0	0	0
	9:15 AM	3	6	4	1	14	2	6	4	0	12	1	0	0	1	2
	9:30 AM	1	3	4	0	8	1	3	3	0	7	0	0	1	0	1
	9:45 AM	2	2	4	0	8	2	2	4	0	8	0	0	0	0	0
	TOTAL	21	48	24	12	105	15	45	22	8	90	6	3	2	4	15
	AM BEGIN PEAK HR			7:45 AM			6	16	5	4	31					
AM2	10:00 AM	1	2	2	0	5	0	2	2	0	4	1	0	0	0	1
	10:15 AM	1	1	3	2	7	0	1	2	2	5	1	0	1	0	2
	10:30 AM	1	8	3	3	15	1	8	3	3	15	0	0	0	0	0
	10:45 AM	4	1	5	2	12	3	1	5	2	11	1	0	0	0	1
	11:00 AM	0	1	1	2	4	0	1	1	1	3	0	0	0	1	1
	11:15 AM	0	3	0	1	4	0	1	0	1	2	0	2	0	0	2
	11:30 AM	1	3	1	3	8	1	3	1	3	8	0	0	0	0	0
	11:45 AM	2	1	0	2	5	0	0	0	1	1	2	1	0	1	4
	12:00 PM	0	1	2	2	5	0	0	2	0	2	0	1	0	2	3
	12:15 PM	0	0	2	1	3	0	0	2	1	3	0	0	0	0	0
	12:30 PM	0	2	1	0	3	0	1	1	0	2	0	1	0	0	1
	12:45 PM	0	0	1	0	1	0	0	1	0	1	0	0	0	0	0
	TOTAL	10	23	21	18	72	5	18	20	14	57	5	5	1	4	15
	PM BEGIN PEAK HR			11:30 AM			1	3	5	5	14					

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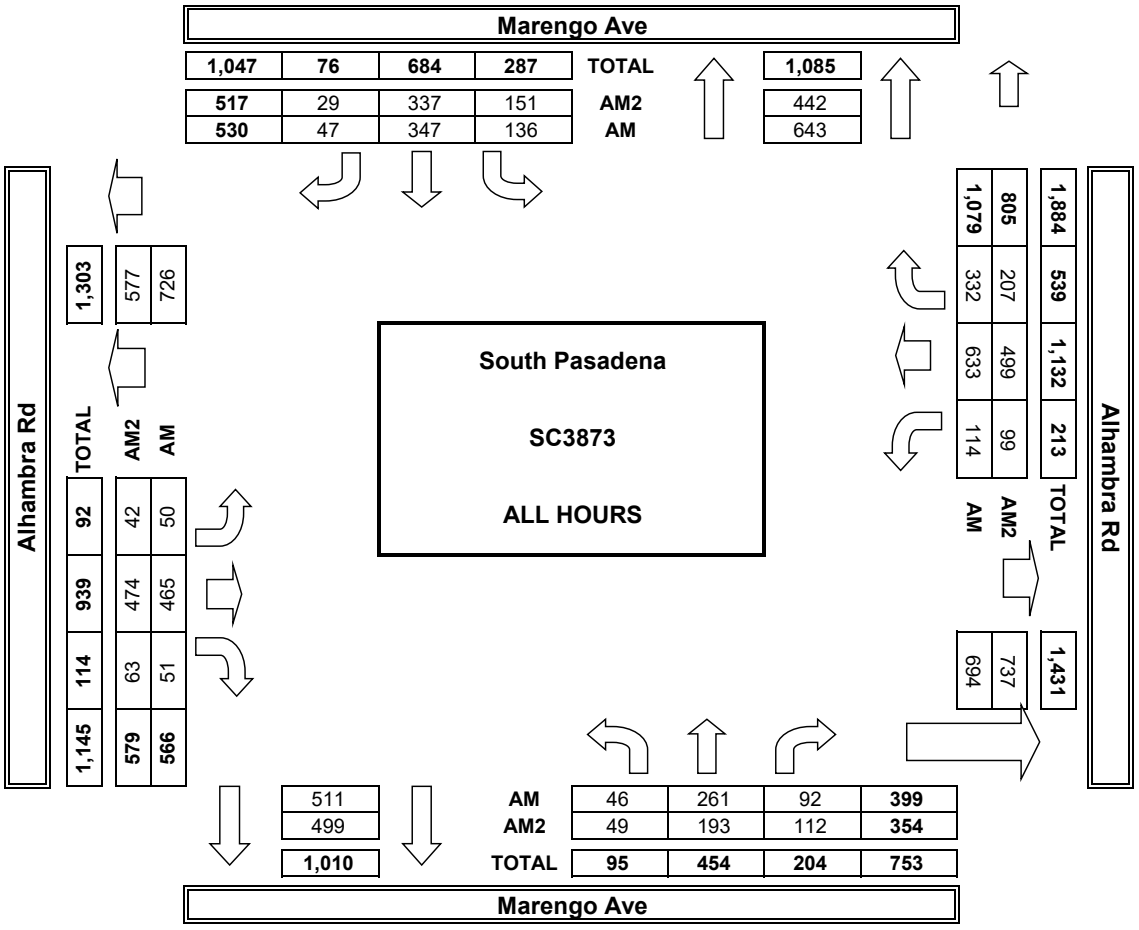
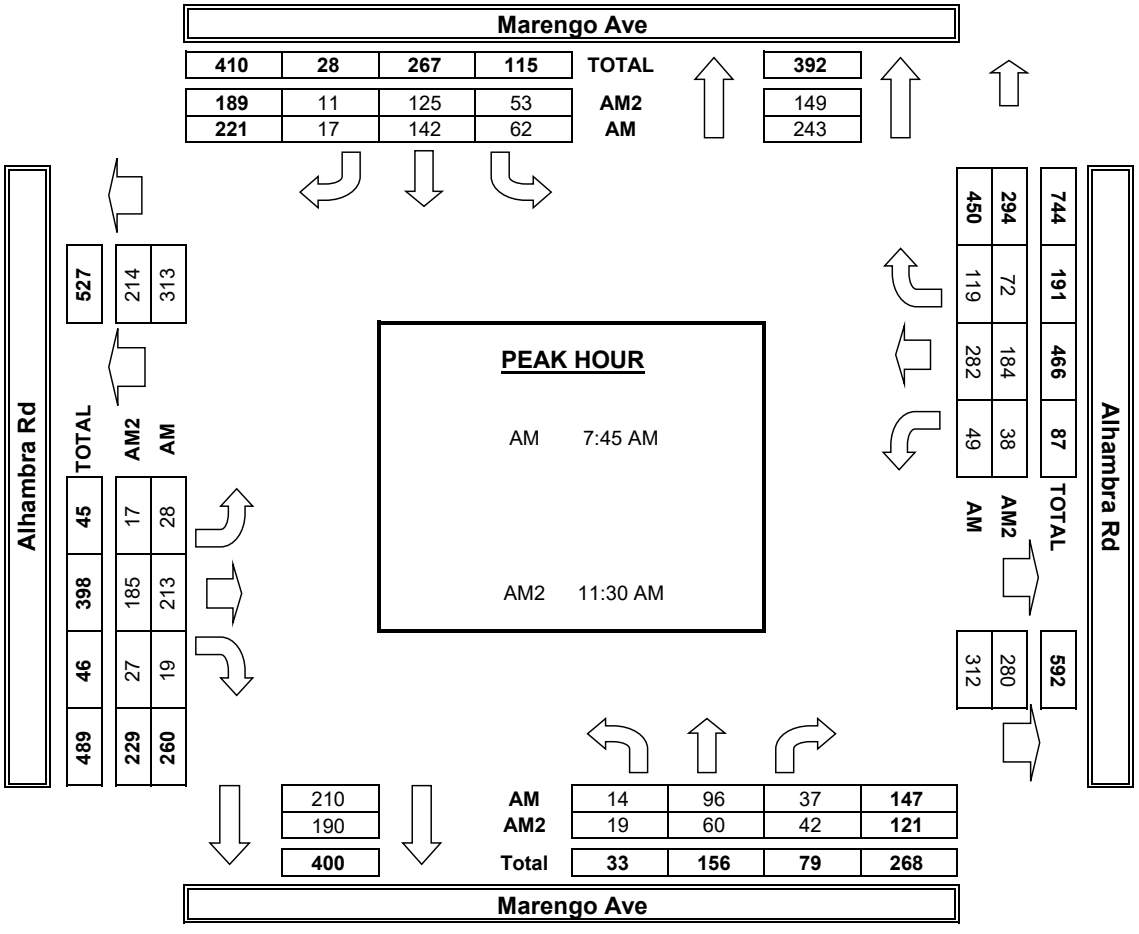
AimTD LLC

TURNING MOVEMENT COUNTS





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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

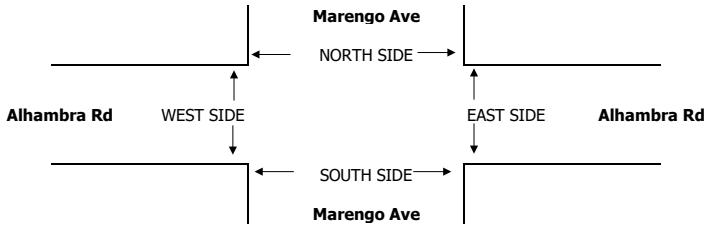
T218

DATE:	LOCATION:	South Pasadena	PROJECT #:	SC3873
Tue, Oct 3, 23	NORTH & SOUTH:	Marengo Ave	LOCATION #:	6
	EAST & WEST:	Alhambra Rd	CONTROL:	STOP ALL

NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Marengo Ave			SOUTHBOUND Marengo Ave			EASTBOUND Alhambra Rd			WESTBOUND Alhambra Rd				U-TURNS				
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL	NB 0	SB 0	EB 0	WB 0	TTL
PM	1:00 PM	7	16	12	17	28	1	3	41	6	10	57	14	212	0	0	0	0	0
	1:15 PM	12	21	7	8	30	2	1	45	5	10	45	17	203	0	0	0	0	0
	1:30 PM	8	27	8	11	28	2	2	51	7	12	36	17	209	0	0	0	0	0
	1:45 PM	2	22	7	10	39	4	6	59	4	9	41	15	218	0	0	0	0	0
	2:00 PM	5	17	8	17	42	4	4	42	6	9	42	23	219	0	0	0	0	0
	2:15 PM	7	20	13	15	29	4	3	36	3	8	51	22	211	0	0	0	0	0
	2:30 PM	9	31	8	15	35	4	7	61	3	15	49	23	260	0	0	0	0	0
	2:45 PM	8	26	12	13	42	3	4	69	7	15	43	31	273	0	0	0	0	0
	3:00 PM	4	26	8	17	43	2	2	65	1	14	60	19	261	0	0	0	0	0
	3:15 PM	3	25	13	19	33	6	3	67	6	13	33	14	235	0	0	0	0	0
	3:30 PM	3	29	8	19	37	3	1	51	5	17	49	25	247	0	0	0	0	0
	3:45 PM	4	21	20	25	32	1	4	58	2	12	52	22	253	0	0	0	0	0
	VOLUMES	72	281	124	186	418	36	40	645	55	144	558	242	2,801	0	0	0	0	0
	APPROACH %	15%	59%	26%	29%	65%	6%	5%	87%	7%	15%	59%	26%						
	APP/DEPART	477	/	563	640	/	617	740	/	955	944	/	666	0					
	BEGIN PEAK HR		2:30 PM																
	VOLUMES	24	108	41	64	153	15	16	262	17	57	185	87	1,029					
	APPROACH %	14%	62%	24%	28%	66%	6%	5%	89%	6%	17%	56%	26%						
	PEAK HR FACTOR		0.901			0.935			0.922			0.884		0.942					
	APP/DEPART	173	/	211	232	/	227	295	/	367	329	/	224	0					
PM2	4:00 PM	4	30	12	19	48	4	4	63	3	15	47	26	275	0	0	0	0	0
	4:15 PM	1	25	11	24	58	6	1	72	2	11	63	25	299	0	0	0	0	0
	4:30 PM	4	34	6	26	43	4	5	79	3	14	54	15	287	0	0	0	0	0
	4:45 PM	4	21	20	24	40	6	3	79	7	17	46	30	297	0	0	0	0	0
	5:00 PM	1	31	20	27	49	13	4	83	7	13	46	26	320	0	0	0	0	0
	5:15 PM	4	34	12	40	44	4	6	80	9	11	39	11	294	0	0	0	0	0
	5:30 PM	7	39	16	28	51	10	7	90	10	7	52	27	344	0	0	0	0	0
	5:45 PM	6	23	17	17	48	13	2	95	10	9	62	26	328	0	0	0	0	0
	6:00 PM	5	27	23	23	38	6	5	82	6	7	44	18	284	0	0	0	0	0
	6:15 PM	7	19	15	20	35	7	4	69	7	11	46	23	263	0	0	0	0	0
	6:30 PM	4	24	15	19	36	5	4	46	4	7	55	10	229	0	0	0	0	0
	6:45 PM	9	25	10	26	45	1	2	53	6	11	48	11	247	0	0	0	0	0
	VOLUMES	56	332	177	293	535	79	47	891	74	133	602	248	3,467	0	0	0	0	0
	APPROACH %	10%	59%	31%	32%	59%	9%	5%	88%	7%	14%	61%	25%						
	APP/DEPART	565	/	627	907	/	742	1,012	/	1,361	983	/	737	0					
	BEGIN PEAK HR		5:00 PM																
	VOLUMES	18	127	65	112	192	40	19	348	36	40	199	90	1,286					
	APPROACH %	9%	60%	31%	33%	56%	12%	5%	86%	9%	12%	60%	27%						
	PEAK HR FACTOR		0.847			0.966			0.942			0.848		0.935					
	APP/DEPART	210	/	236	344	/	268	403	/	525	329	/	257	0					



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N LEG	S LEG	E LEG	W LEG	TOTAL	N LEG	S LEG	E LEG	W LEG	TOTAL	NL	SL	EL	WL	TOTAL
PM	1:00 PM	0	1	1	2	4	0	0	1	2	3	0	1	0	0	1
	1:15 PM	0	1	3	0	4	0	0	3	0	3	0	1	0	0	1
	1:30 PM	1	2	0	0	3	0	2	0	0	2	1	0	0	0	1
	1:45 PM	0	1	0	0	1	0	1	0	0	1	0	0	0	0	0
	2:00 PM	0	1	0	1	2	0	1	0	1	2	0	0	0	0	0
	2:15 PM	0	2	0	2	4	0	1	0	1	2	0	1	0	1	2
	2:30 PM	0	1	2	0	3	0	0	2	0	2	0	1	0	0	1
	2:45 PM	0	1	2	0	3	0	0	2	0	2	0	1	0	0	1
	3:00 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	3:15 PM	0	5	0	0	5	0	4	0	0	4	0	1	0	0	1
	3:30 PM	2	1	0	1	4	2	1	0	1	4	0	0	0	0	0
	3:45 PM	0	5	5	3	13	0	5	5	3	13	0	0	0	0	0
	TOTAL	3	21	13	9	46	2	15	13	8	38	1	6	0	1	8
	AM BEGIN PEAK HR			2:30 PM			0	4	4	0	8					
PM2	4:00 PM	0	0	1	1	2	0	0	1	0	1	0	0	0	1	1
	4:15 PM	1	3	7	1	12	1	3	3	0	7	0	0	4	1	5
	4:30 PM	3	8	5	2	18	2	7	5	2	16	1	1	0	0	2
	4:45 PM	3	2	2	0	7	0	2	2	0	4	3	0	0	0	3
	5:00 PM	2	3	13	4	22	2	2	13	3	20	0	1	0	1	2
	5:15 PM	5	3	2	1	11	5	2	2	0	9	0	1	0	1	2
	5:30 PM	0	4	2	0	6	0	4	1	0	5	0	0	1	0	1
	5:45 PM	1	4	3	3	11	1	4	2	3	10	0	0	1	0	1
	6:00 PM	2	3	3	3	11	1	3	2	2	8	1	0	1	1	3
	6:15 PM	0	12	3	3	18	0	12	2	3	17	0	0	1	0	1
	6:30 PM	0	11	2	0	13	0	11	2	0	13	0	0	0	0	0
	6:45 PM	2	7	7	0	16	0	7	6	0	13	2	0	1	0	3
	TOTAL	19	60	50	18	147	12	57	41	13	123	7	3	9	5	24
	PM BEGIN PEAK HR			5:00 PM			8	12	18	6	44					

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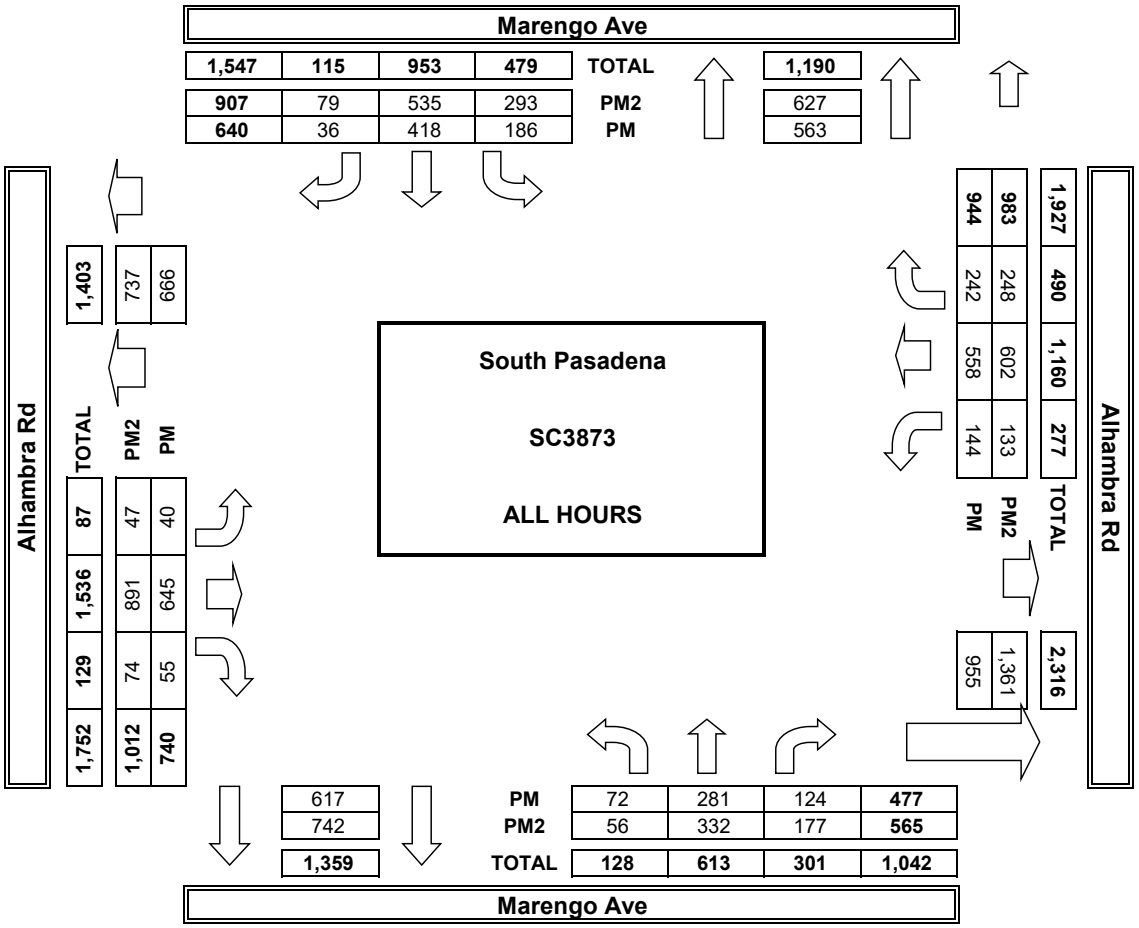
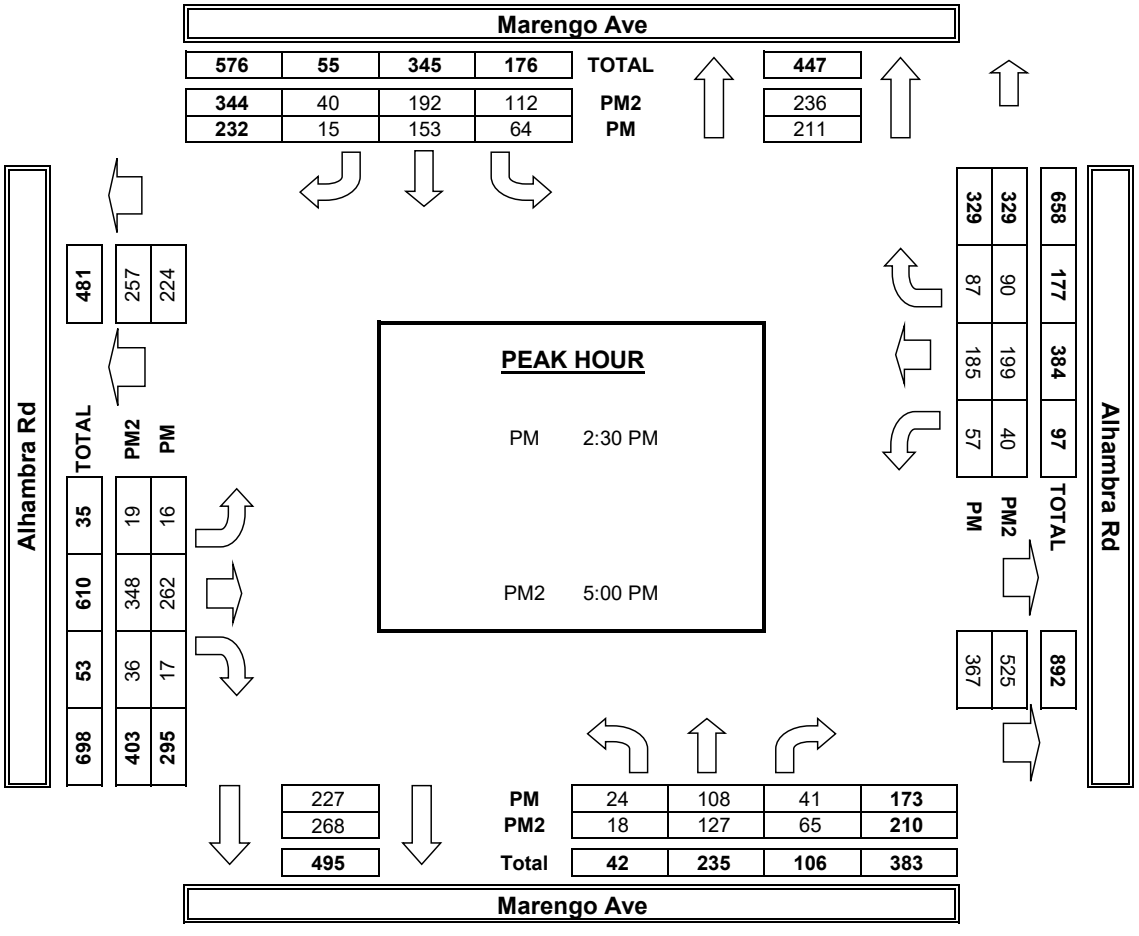
TURNING MOVEMENT COUNTS





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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T218

DATE:	LOCATION:	South Pasadena	PROJECT #:	SC3873
Sat, Sep 30, 23	NORTH & SOUTH:	Marengo Ave	LOCATION #:	6
	EAST & WEST:	Alhambra Rd	CONTROL:	STOP ALL

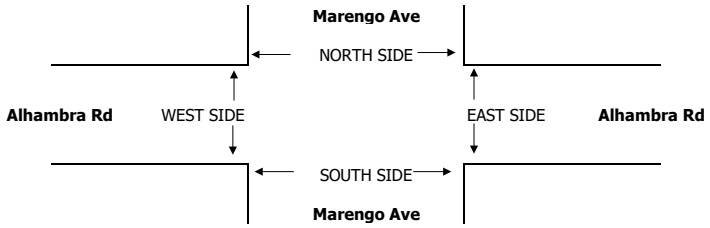
NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N / ◄ W / E ► / S ▼

		NORTHBOUND (Marengo Ave)			SOUTHBOUND (Marengo Ave)			EASTBOUND (Alhambra Rd)			WESTBOUND (Alhambra Rd)			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
AM	7:00 AM	2	3	1	4	5	1	1	8	2	1	9	8	45
	7:15 AM	1	7	4	2	9	0	0	18	2	2	13	8	66
	7:30 AM	0	10	6	5	8	3	0	20	2	4	14	11	83
	7:45 AM	4	12	17	5	11	2	1	18	1	6	14	10	101
	8:00 AM	2	9	3	4	10	0	1	13	3	8	23	12	88
	8:15 AM	1	16	6	4	17	3	4	29	1	5	22	16	124
	8:30 AM	6	17	6	1	12	4	2	36	2	7	19	8	120
	8:45 AM	1	17	10	11	24	1	2	31	8	6	33	19	163
	9:00 AM	8	14	8	9	25	4	1	34	2	6	43	16	170
	9:15 AM	6	18	10	11	31	1	2	48	8	12	34	13	194
	9:30 AM	5	26	8	11	30	1	8	35	3	7	38	20	192
	9:45 AM	6	23	14	12	30	3	1	40	2	10	40	13	194
	VOLUMES	42	172	93	79	212	23	23	330	36	74	302	154	1,540
	APPROACH %	14%	56%	30%	25%	68%	7%	6%	85%	9%	14%	57%	29%	
	APP/DEPART	307	/	349	314	/	322	389	/	502	530	/	367	0
	BEGIN PEAK HR		9:00 AM											
	VOLUMES	25	81	40	43	116	9	12	157	15	35	155	62	750
	APPROACH %	17%	55%	27%	26%	69%	5%	7%	85%	8%	14%	62%	25%	
	PEAK HR FACTOR		0.849			0.933			0.793			0.969		0.966
	APP/DEPART	146	/	155	168	/	166	184	/	240	252	/	189	0
AM2	10:00 AM	5	18	8	6	39	2	4	41	3	4	32	25	187
	10:15 AM	8	17	8	9	28	3	2	39	8	6	49	20	197
	10:30 AM	5	16	7	11	31	9	6	52	2	8	44	12	203
	10:45 AM	2	12	13	14	34	6	0	55	8	10	47	29	230
	11:00 AM	8	19	10	18	28	2	7	48	5	20	45	30	240
	11:15 AM	4	27	13	15	41	4	6	53	4	12	52	19	250
	11:30 AM	7	19	12	9	34	4	6	53	1	7	42	19	213
	11:45 AM	5	13	9	20	26	6	2	50	6	10	52	19	218
	12:00 PM	2	24	18	14	29	4	3	57	3	18	65	14	251
	12:15 PM	4	15	14	9	27	4	3	49	5	13	45	17	205
	12:30 PM	6	20	6	19	37	3	7	45	3	8	56	26	236
	12:45 PM	4	16	12	8	33	5	4	36	4	14	40	24	200
	VOLUMES	60	216	130	152	387	52	50	578	52	130	569	254	2,630
	APPROACH %	15%	53%	32%	26%	65%	9%	7%	85%	8%	14%	60%	27%	
	APP/DEPART	406	/	520	591	/	569	680	/	860	953	/	681	0
	BEGIN PEAK HR		10:45 AM											
	VOLUMES	21	77	48	56	137	16	19	209	18	49	186	97	933
	APPROACH %	14%	53%	33%	27%	66%	8%	8%	85%	7%	15%	56%	29%	
	PEAK HR FACTOR		0.830			0.871			0.976			0.874		0.933
	APP/DEPART	146	/	193	209	/	204	246	/	313	332	/	223	0

U-TURNS

	NB	SB	EB	WB	TTL
AM	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
AM2	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0
	0	0	0	0	0



		PEDESTRIAN + BIKE CROSSINGS					PEDESTRIAN CROSSINGS					BICYCLE CROSSINGS				
		N LEG	S LEG	E LEG	W LEG	TOTAL	N LEG	S LEG	E LEG	W LEG	TOTAL	NL	SL	EL	WL	TOTAL
AM	7:00 AM	3	0	0	1	4	2	0	0	1	3	1	0	0	0	1
	7:15 AM	1	0	0	2	3	1	0	0	2	3	0	0	0	0	0
	7:30 AM	2	5	2	1	10	2	5	2	1	10	0	0	0	0	0
	7:45 AM	0	1	4	1	6	0	1	4	1	6	0	0	0	0	0
	8:00 AM	1	21	5	1	28	1	21	5	1	28	0	0	0	0	0
	8:15 AM	4	3	14	1	22	4	3	13	1	21	0	0	1	0	1
	8:30 AM	3	0	0	3	6	3	0	0	2	5	0	0	0	1	1
	8:45 AM	0	7	8	1	16	0	7	8	1	16	0	0	0	0	0
	9:00 AM	0	6	2	1	9	0	4	2	1	7	0	2	0	0	2
	9:15 AM	1	5	2	3	11	1	5	2	2	10	0	0	0	1	1
	9:30 AM	0	3	3	3	9	0	2	1	1	4	0	1	2	2	5
	9:45 AM	4	6	5	5	20	3	6	4	3	16	1	0	1	2	4
	TOTAL	19	57	45	23	144	17	54	41	17	129	2	3	4	6	15
	AM BEGIN PEAK HR	9:00 AM					4	17	9	7	37					
AM2	10:00 AM	3	6	1	1	11	3	6	0	1	10	0	0	1	0	1
	10:15 AM	1	3	0	7	11	1	3	0	5	9	0	0	0	2	2
	10:30 AM	0	5	1	0	6	0	5	0	0	5	0	0	1	0	1
	10:45 AM	0	13	5	1	19	0	12	4	1	17	0	1	1	0	2
	11:00 AM	2	3	2	1	8	2	3	2	1	8	0	0	0	0	0
	11:15 AM	0	3	2	0	5	0	3	1	0	4	0	0	1	0	1
	11:30 AM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	11:45 AM	2	0	0	1	3	2	0	0	0	2	0	0	0	1	1
	12:00 PM	0	1	1	0	2	0	1	1	0	2	0	0	0	0	0
	12:15 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	12:30 PM	0	2	1	0	3	0	2	0	0	2	0	0	1	0	1
	12:45 PM	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	TOTAL	8	36	13	11	68	8	35	8	8	59	0	1	5	3	9
	PM BEGIN PEAK HR	10:45 AM					2	18	7	2	29					

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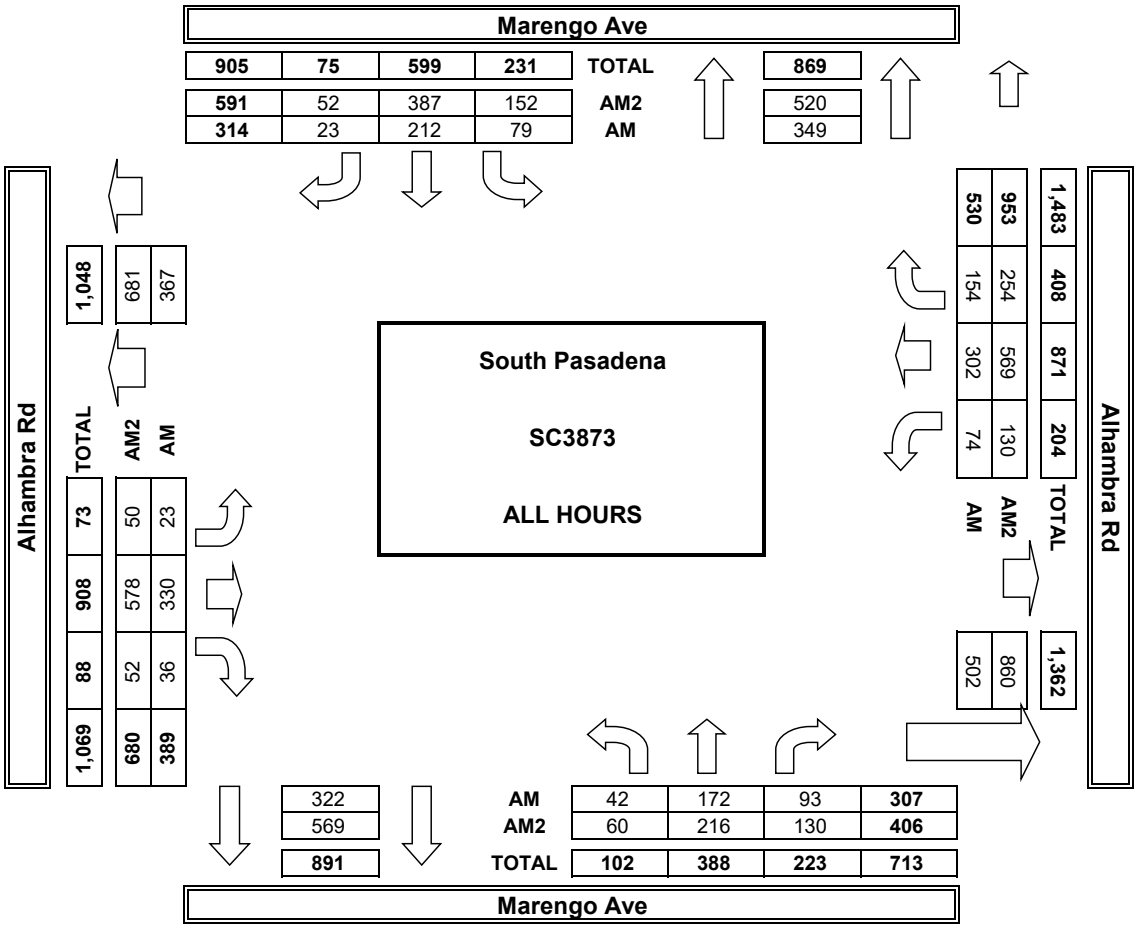
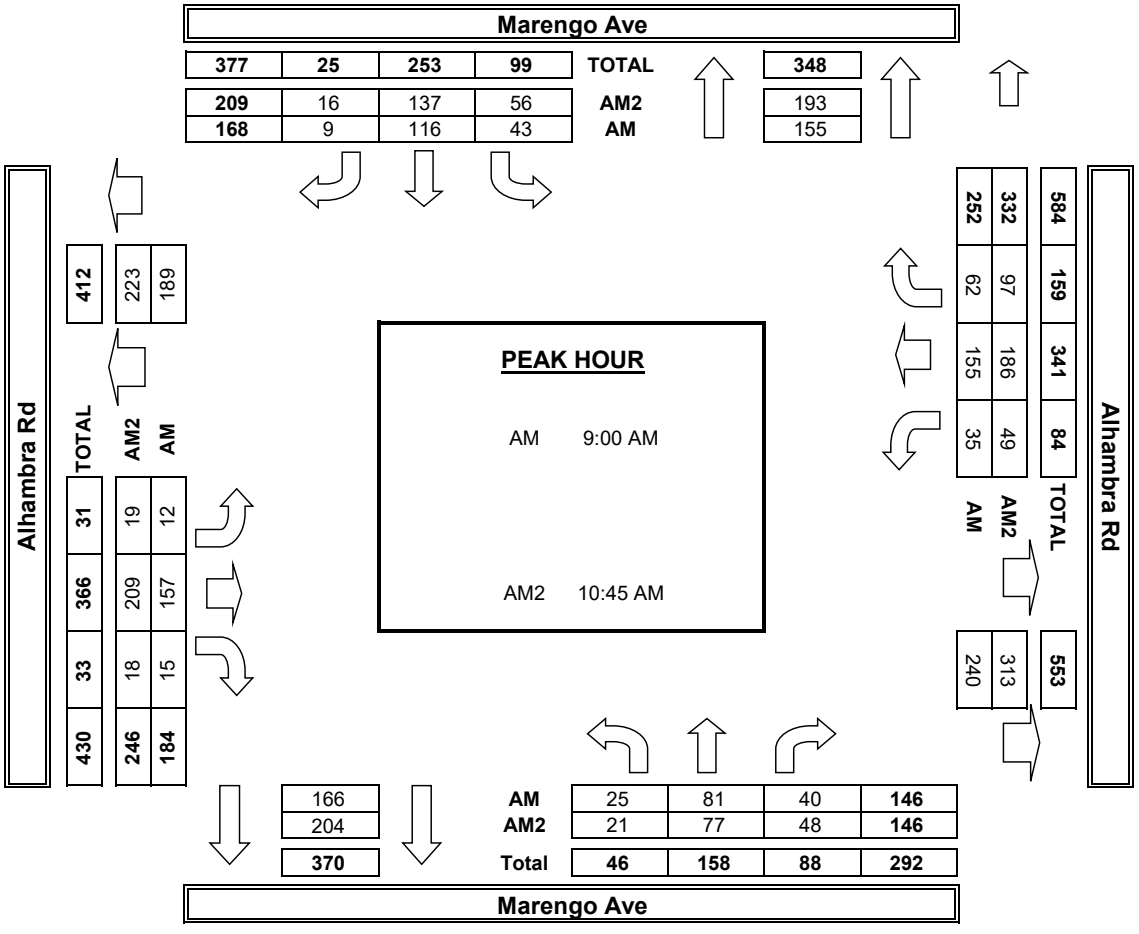
AimTD LLC

TURNING MOVEMENT COUNTS





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INTERSECTION TURNING MOVEMENT COUNTS

PREPARED BY: AimTD LLC. tel: 714 253 7888 cs@aimtd.com

T218

DATE: Sat, Sep 30, 23

LOCATION: South Pasadena
NORTH & SOUTH: Marengo Ave
EAST & WEST: Alhambra Rd

PROJECT #: SC3873
LOCATION #: 6
CONTROL: STOP ALL

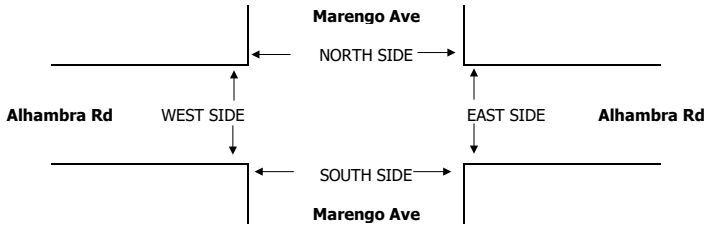
NOTES:

AM / PM / MD / OTHER / OTHER — ▲ N ◄ W E ► S ▼

		NORTHBOUND Marengo Ave			SOUTHBOUND Marengo Ave			EASTBOUND Alhambra Rd			WESTBOUND Alhambra Rd			
	LANES:	NL 0	NT 1	NR 0	SL 0	ST 1	SR 0	EL 1	ET 1	ER 0	WL 1	WT 1	WR 0	TOTAL
PM	1:00 PM	3	13	13	8	32	8	5	51	4	5	38	13	193
	1:15 PM	3	16	11	13	31	8	3	52	6	7	38	19	207
	1:30 PM	5	17	9	13	29	2	2	55	11	10	47	19	219
	1:45 PM	2	23	16	10	28	2	2	53	4	7	47	14	208
	2:00 PM	2	26	12	11	39	1	4	51	6	15	45	13	225
	2:15 PM	4	23	14	12	35	2	3	46	4	11	44	17	215
	2:30 PM	3	19	7	17	36	2	7	39	9	15	54	15	223
	2:45 PM	3	21	17	15	28	7	3	53	6	7	60	19	239
	3:00 PM	1	21	17	7	42	0	3	52	2	5	37	21	208
	3:15 PM	4	19	9	11	46	3	2	40	6	7	55	14	216
	3:30 PM	7	26	7	15	25	4	4	55	7	10	44	24	228
	3:45 PM	5	12	13	17	31	2	1	54	6	8	41	20	210
	VOLUMES	42	236	145	149	402	41	39	601	71	107	550	208	2,591
	APPROACH %	10%	56%	34%	25%	68%	7%	5%	85%	10%	12%	64%	24%	
	APP/DEPART	423	/	483	592	/	580	711	/	895	865	/	633	0
	BEGIN PEAK HR		2:00 PM											
	VOLUMES	12	89	50	55	138	12	17	189	25	48	203	64	902
	APPROACH %	8%	59%	33%	27%	67%	6%	7%	82%	11%	15%	64%	20%	
	PEAK HR FACTOR		0.921			0.932			0.931			0.916		0.944
	APP/DEPART	151	/	170	205	/	211	231	/	294	315	/	227	0
PM2	4:00 PM	3	19	11	17	24	5	4	46	8	12	45	23	217
	4:15 PM	4	18	7	9	32	4	6	38	4	7	47	22	198
	4:30 PM	2	34	15	7	29	3	4	51	6	4	48	30	233
	4:45 PM	7	23	13	7	44	3	5	46	4	8	46	16	222
	5:00 PM	4	20	12	8	30	6	4	42	3	14	40	15	198
	5:15 PM	6	23	16	12	25	3	6	51	8	13	52	23	238
	5:30 PM	6	26	8	8	28	4	2	36	9	9	36	17	189
	5:45 PM	3	26	15	15	28	4	3	32	7	13	41	17	204
	6:00 PM	2	12	10	17	30	6	5	45	8	14	40	13	202
	6:15 PM	4	15	12	11	17	2	2	46	4	10	46	16	185
	6:30 PM	4	14	8	11	29	1	1	27	3	5	34	28	165
	6:45 PM	1	14	7	18	25	3	7	32	3	12	33	12	167
	VOLUMES	46	244	134	140	341	44	49	492	67	121	508	232	2,418
	APPROACH %	11%	58%	32%	27%	65%	8%	8%	81%	11%	14%	59%	27%	
	APP/DEPART	424	/	525	525	/	529	608	/	766	861	/	598	0
	BEGIN PEAK HR		4:30 PM											
	VOLUMES	19	100	56	34	128	15	19	190	21	39	186	84	891
	APPROACH %	11%	57%	32%	19%	72%	8%	8%	83%	9%	13%	60%	27%	
	PEAK HR FACTOR		0.858			0.819			0.885			0.878		0.936
	APP/DEPART	175	/	203	177	/	188	230	/	280	309	/	220	0

U-TURNS

	NB	SB	EB	WB	TTL
PM 1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	0	0	0	0
2:15 PM	0	0	0	0	0
2:30 PM	0	0	0	0	0
2:45 PM	0	0	0	0	0
3:00 PM	0	0	0	0	0
3:15 PM	0	0	0	0	0
3:30 PM	0	0	0	0	0
3:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0
PM2 4:00 PM	0	0	0	0	0
4:15 PM	0	0	0	0	0
4:30 PM	0	0	0	0	0
4:45 PM	0	0	0	0	0
5:00 PM	0	0	0	0	0
5:15 PM	0	0	0	0	0
5:30 PM	0	0	0	0	0
5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
6:15 PM	0	0	0	0	0
6:30 PM	0	0	0	0	0
6:45 PM	0	0	0	0	0
VOLUMES	0	0	0	0	0



PEDESTRIAN + BIKE CROSSINGS

	N LEG	S LEG	E LEG	W LEG	TOTAL
PM 1:00 PM	0	1	0	0	1
1:15 PM	0	2	0	0	2
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	1	1
2:00 PM	0	1	0	0	1
2:15 PM	0	1	0	0	1
2:30 PM	1	1	1	2	5
2:45 PM	0	3	1	1	5
3:00 PM	0	2	0	2	4
3:15 PM	0	3	0	0	3
3:30 PM	2	1	3	2	8
3:45 PM	0	2	1	1	4
TOTAL	3	17	6	9	35
AM BEGIN PEAK HR	2:00 PM				
PM2 4:00 PM	0	0	4	0	4
4:15 PM	1	1	2	0	4
4:30 PM	1	0	2	1	4
4:45 PM	3	4	4	0	11
5:00 PM	3	5	0	0	8
5:15 PM	0	6	4	1	11
5:30 PM	4	3	1	3	11
5:45 PM	2	1	3	1	7
6:00 PM	0	2	2	2	6
6:15 PM	0	3	2	5	10
6:30 PM	5	10	6	4	25
6:45 PM	1	8	1	5	15
TOTAL	20	43	31	22	116
PM BEGIN PEAK HR	4:30 PM				

PEDESTRIAN CROSSINGS

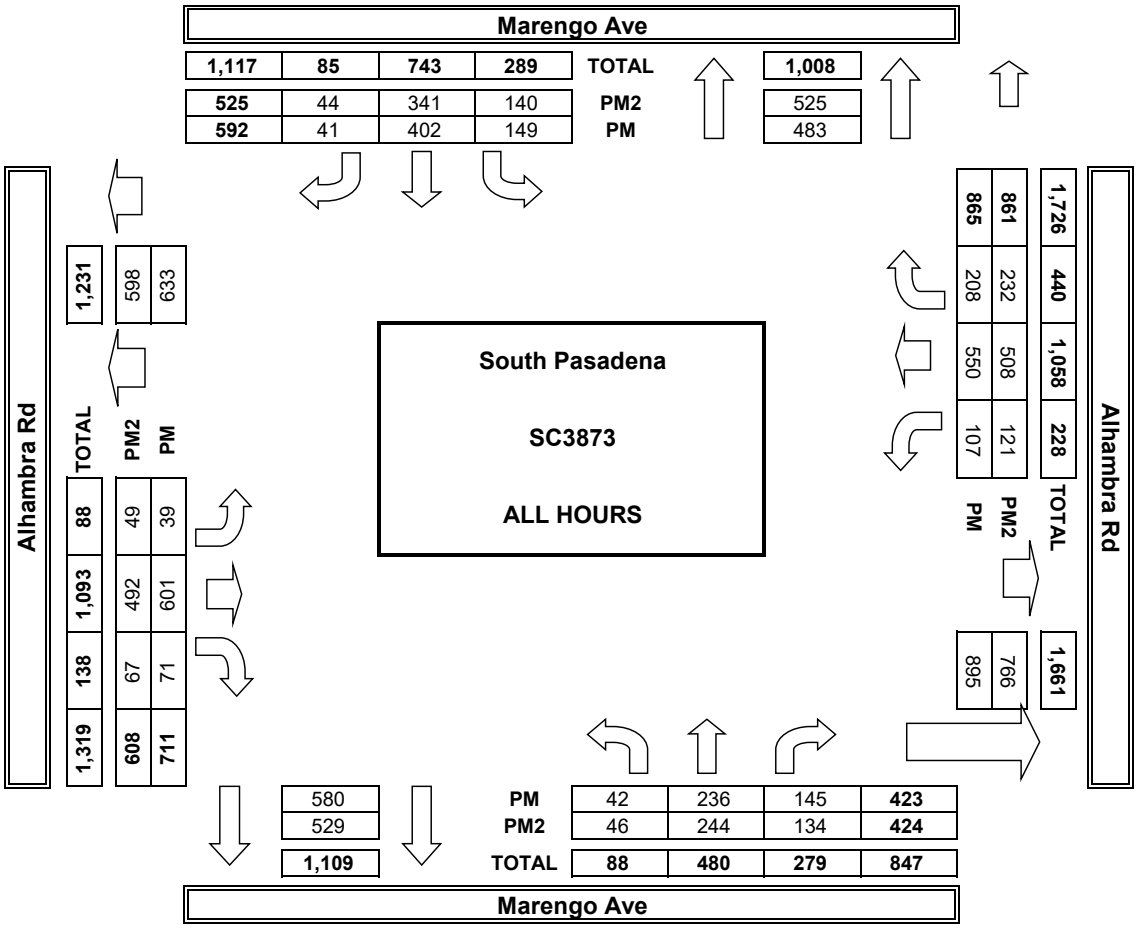
	N LEG	S LEG	E LEG	W LEG	TOTAL
PM 1:00 PM	0	1	0	0	1
1:15 PM	0	2	0	0	2
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	1	1
2:00 PM	0	0	0	0	0
2:15 PM	0	1	0	0	1
2:30 PM	1	1	0	2	4
2:45 PM	0	2	1	0	3
3:00 PM	0	2	0	2	4
3:15 PM	0	2	0	0	2
3:30 PM	2	1	1	2	6
3:45 PM	0	2	0	1	3
TOTAL	3	14	2	8	27
AM BEGIN PEAK HR	1	4	1	2	8
PM2 4:00 PM	0	0	4	0	4
4:15 PM	0	1	2	0	3
4:30 PM	1	0	2	1	4
4:45 PM	3	2	4	0	9
5:00 PM	3	5	0	0	8
5:15 PM	0	5	4	1	10
5:30 PM	4	3	1	2	10
5:45 PM	2	1	3	1	7
6:00 PM	0	2	2	2	6
6:15 PM	0	2	2	3	7
6:30 PM	5	10	6	4	25
6:45 PM	1	8	1	5	15
TOTAL	19	39	31	19	108
PM BEGIN PEAK HR	7	12	10	2	31

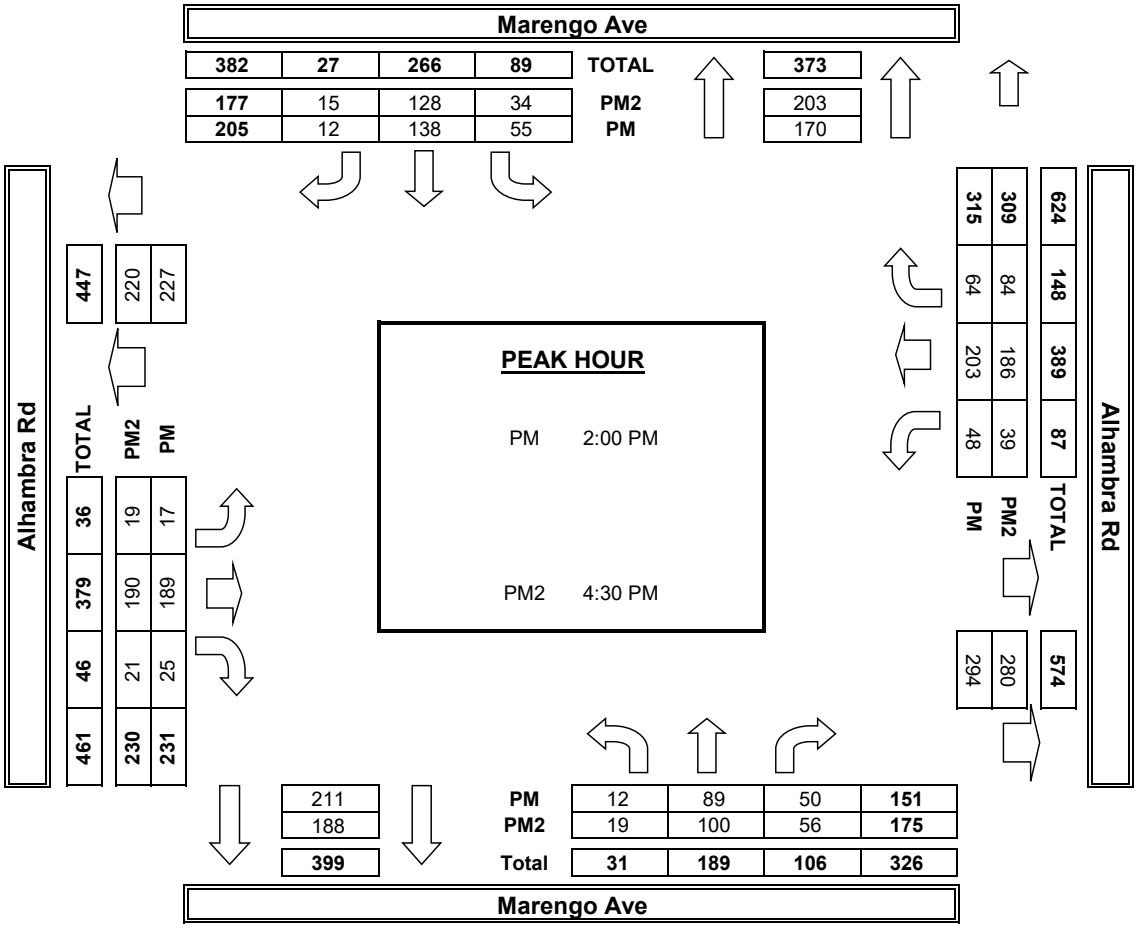
BICYCLE CROSSINGS

	NL	SL	EL	WL	TOTAL
PM 1:00 PM	0	0	0	0	0
1:15 PM	0	0	0	0	0
1:30 PM	0	0	0	0	0
1:45 PM	0	0	0	0	0
2:00 PM	0	1	0	0	1
2:15 PM	0	0	0	0	0
2:30 PM	0	0	1	0	1
2:45 PM	0	1	0	1	2
3:00 PM	0	0	0	0	0
3:15 PM	0	1	0	0	1
3:30 PM	0	0	2	0	2
3:45 PM	0	0	1	0	1
TOTAL	0	3	4	1	8
PM2 4:00 PM	0	0	0	0	0
4:15 PM	1	0	0	0	1
4:30 PM	0	0	0	0	0
4:45 PM	0	2	0	0	2
5:00 PM	0	0	0	0	0
5:15 PM	0	1	0	0	1
5:30 PM	0	0	0	1	1
5:45 PM	0	0	0	0	0
6:00 PM	0	0	0	0	0
6:15 PM	0	1	0	2	3
6:30 PM	0	0	0	0	0
6:45 PM	0	0	0	0	0
TOTAL	1	4	0	3	8

AimTD LLC

TURNING MOVEMENT COUNTS





DRAFT

ITEM 3

Project Status Update

Mobility and Transportation Infrastructure Commission Agenda Report

ITEM NO. 3

DATE: August 20, 2024

FROM: H. Ted Gerber, Director of Public Works

SUBJECT: **Project Status Update**

Recommendation
It is recommended that the Commission receive and file an update on the status of projects related to the City's mobility and transportation infrastructure.

Information
Public Works projects are generally divided into two areas: (1) Capital Improvement Program (CIP) projects and (2) routine or special Operations & Maintenance (O&M) projects. Ongoing or planned projects related to mobility and transportation infrastructure in both of these areas, along with their recent status, are listed in the tables below.

Capital Improvement Program (CIP) Projects	Project Status
Mission and Fremont Rectangular Rapid Flashing Beacons *Budget: Highway Safety Improvement Program (HSIP) $238,465, Measure M Local Return $26,497*	<u>Updated Status</u> *Staff working to preserve federal funding and facilitate remaining plan and specification updates.* This project installs Rectangular Rapid Flashing Beacons (RRFBs) at Fremont Avenue and Lyndon Street, Mission Street and Diamond Avenue, and Mission Street and Fairview Avenue. Staff are facilitating the final updates to the project plans and specifications. There is an issue with the federal funding source component, which staff is diligently working to resolve. The project is expected to bid in September with construction commencing as soon the equipment is received.

Capital Improvement Program (CIP) Projects	Project Status
Street Improvements *Budget: General Fund $2,298,445, Proposition C $300,000, Gas Tax $200,000, Measure R Local Return $300,000, Measure M Local Return $177,565, SB1 $585,093, Bike & Pedestrian $25,000* *Total $3,886,103*	<u>Updated Status</u> *1st Project completed. 2nd Project Design is 95% complete. 3rd Project Bid Package is 95% complete. 4th Project funding agreement is being submitted to Metro via the Measure M MSP Program.* Staff presented a comprehensive street improvement program to MTIC and City Council in June 2024. Surface treatment projects (e.g. slurry seal) and reconstruction projects were discussed. The 2nd reconstruction project is expected to commence construction by February 2025. The 3rd slurry seal project is expected to commence construction by September 2024. The U.S. Department of Transportation contacted staff to resolve minor technical issues with the City's Safe Streets for All (SS4A) Planning Grant application – and Staff are awaiting updates on the status of awards.
Measure M Project Funding Requests	<u>Updated Status</u> *New projects approved by City Council and being submitted to Metro.* Staff submitted Multi-Subregional Program proposed projects for consideration and approval to the City Council. The two MSP projects were approved/modified. The consultant is currently putting together the MSP plan (the programming request) for approval at the next AVCJPA Board meeting.
Grevelia Street and Fair Oaks Avenue--Measure M Project *Budget: Measure M MSP $200,000*	<u>Updated Status</u> *Staff is working with Metro to finalize the Funding Agreement. Staff is working with an on-call consultant to finalize a task order which will require Council approval.* Staff submitted the Scope of Work and Funding Expenditure to Metro to execute a funding agreement (MM5506.06), and some adjustments are needed. The on-call consultant's scope of work for the analysis of Fair Oaks/Grevelia will include data collection and review, conceptual alternatives, operational evaluation, technical memo, and staff meetings tasks.

Capital Improvement Program (CIP) Projects	Project Status
Orange Grove Avenue Widening from Oliver Street to Arroyo Seco Park *Budget: Measure M MSP $500,000*	No Significant Update *Staff submitted a second round of comments to the on-call consultant regarding the scope of work Orange Grove Project. Staff is working on a Master Service Agreement.* Staff are working with a Metro representative to file the documents necessary to execute a funding agreement (MM5506.08). Upon approving the funding submittal, City Council directed staff to explore the feasibility of alternatives to the widening. Staff will also look at a traffic safety assessment for Orange Grove as part of the consultant's scope to then develop a task order. Staff received draft scope of work which will include 1) Data collection and review 2) Neighborhood Stakeholder Meetings/Work Sessions 3) Conceptual alternatives and recommendations 4) Meetings/Work Sessions and Administrative Support.
Pedestrian Crossing Devices *Budget: Measure M MSP $322,624*	No Significant Update *Funding Agreement is being routed internally for signatures.* Staff is working with a Metro representative to file the documents necessary in order to execute a funding agreement (MM4101.11). Staff made edits to Metro's feedback and submitted a final scope of work to Metro to initiate Funding Agreement terms. MTIC recommended crossing locations and will prioritize three intersections Meridian and Bank, Grevelia and Park, and Fair Oaks/Spruce. The pedestrian crossing devices area meant to assist pedestrians mid-block intersections or higher-speed roadways and uncontrolled intersections.
Columbia Street Striping & Signal Improvements *Budget: Measure M MSP $300,000*	No Significant Update *$9.9M in Measure R Mobility Improvement Project (MIP) Funds were approved by Metro and Pasadena City Council included the project in their City CIP.* The City of Pasadena is working with Metro to execute a funding agreement for the $9.9M in Measure R MIP funds by Summer 2024. Staff are working with a Metro representative to file the documents necessary in order to execute South Pasadena's Measure M MSP funding agreement (MM5506.07). City staff discussed this project with the City of Pasadena and discussed potential short-term changes to Columbia Street like edge striping or other minor modifications before more comprehensive striping and signal improvements begin. Pasadena staff will look at the corridor and check to see what is feasible.

Capital Improvement Program (CIP) Projects	Project Status
Garfield Avenue and Monterey Road Traffic Signal	<u>Updated Status</u> *Staff is working with the AVCJPA TAC consultant to submit the project for funding with Metro. Staff is working on the Master Service Agreement and Task Order to execute a contract with on-call consultant.* Staff submitted this Multi-Subregional Program proposed project for consideration to the City Council – which was approved. The consultant is currently putting together the MSP plan programming request for approval at the next AVCJPA Board meeting. Simultaneously, staff are moving forward with the warrant analysis and will then have a follow-up discussion with the City of San Marino.
Fremont/Huntington Mobility Active Transportation & Mobility Improvement Projects *Budget: Measure M MAT $6M, Measure M MIP $10M*	<u>Updated Status</u> *Staff received the latest revision of the consolidated design charrette memos and is reviewing for finalization.* Staff plans to present the final draft memo to MTIC at a future meeting. Fremont Avenue restriping was completed.
City of Pasadena 'Stub' Relinquishment / Transitional Project Development & City of Alhambra I-10 Modifications	<u>No Significant Update</u> *Discussion with Alhambra and Pasadena.* South Pasadena, Pasadena, and Alhambra staff held an initial discussion, and are scheduling follow up meetings. The City of Alhambra approved a Measure R funding agreement with Metro for the Fremont Ramp and Interchange Improvements. Staff provided an update to Council on the status of the Pasadena re-visioning process and the 'Advancing Alhambra' projects. Pasadena Council considered a contract for strategic planning and project management services for the relinquished 710 stub area. City Manager team also made a presentation to Council regarding the status of the project. City staff discussed this project with the City of Pasadena, the City of Alhambra, and the Fremont/Huntington/Fair Oaks planning consultant as it related to neighboring City projects and their impact on South Pasadena planning effort.

Capital Improvement Program (CIP) Projects	Project Status
Sidewalks Replacement & ADA Ramps Upgrades *Budget: $564,663*	<u>Updated Status</u> *Staff submitted the 90% bid package to Los Angeles County Development Authority (LACDA) for review as required under the Community Development Block Grant (CDBG) Program.* Plans are 90% complete and once LACDA review is complete, the project can be bid. Sidewalk ramp widths will need to be expanded at Lyndon, Rollin, and Wolford Lane (bulbouts) to be ADA compliant. Braewood Court will need to be removed from this round of construction as survey results show the proposed new ramps encroach onto private property. Ramps at Pine and Maple will be addressed as needed during a separate street improvement project.
North-South Corridor Intelligent Transportation Systems (ITS) Deployment Project *Budget: $9M Rogan Funds, $1.4 General Fund*	<u>Updated Status</u> *Staff is working with the consultant, consultant project manager, and Caltrans through the environmental review process.* Consultant is incorporating 30% design comments into the 60% design submittal. Additional information related to environmental air quality is needed and will be submitted to Caltrans.
Farmer's Market Bollard System	<u>Future Project</u> *Potential grant funding opportunity identified.* This future proposed project is listed in the 5-Year Capital Improvement Program (CIP) in a future year.
Fair Oaks SR-110 Interchange Loop/Hook On-Ramp *Budget: Measure M MIP $70 Million*	<u>No Significant Update</u> *Staff submitted a scope of work to Metro which covers the Project Approval and Environmental Document (PA/ED) Phase only and is pending Metro and City Council approval.* Staff and HNTB continue to work together with Metro to draft a Funding Agreement (FA) to submit to Metro that will cover the Project Approval/Environmental Document Phase of the project. Once this is complete, the draft FA will be sent to Metro for further review. Work on the item can commence with Council approval.
Fair Oaks SR-110 Interchange Loop/Hook Grevelia Off-Ramp *Budget: See above*	<u>No Significant Update</u> *Alternative study scope being developed.* See above “Fair Oaks SR-110 Interchange Loop/Hook On-Ramp” status.

Capital Improvement Program (CIP) Projects	Project Status
Federal Transportation Improvement Plan (FTIP)	No Significant Update *Staff updated five (5) FTIP projects with Metro.* *FTIP is a federally mandated list of transportation projects that are funded with federal, state, or local funds. It also includes projects regionally significant for transit, highway, local roadway, bridge, freight, bicycle, and pedestrian.* *Staff has been working with Metro staff, and discussed projects with Caltrans and FHWA to update all projects and remove projects that were deobligated. Staff also reconciled duplicate projects and projects that were deprioritized by the City several years ago. The system is updated every two years by staff and requires City staff to provide changes to the FTIP system. Future projects will be added to the FTIP pending formal review by Metro's FTIP team based on funding source and significance.*
Highway Safety Improvement Program (HSIP) Cycle 11 Projects *Budget: $540,760 HSIP with $88,840 City match*	No Significant Update *Recently awarded grant funding.* In 2023, South Pasadena was awarded over $500,000 in HSIP funding for four (4) projects submitted in Fall 2022 related to street lighting, bike lanes, and pedestrian crossing improvements at multiple locations: The intersection of Monterey Road and Fremont Avenue and the intersection of Fair Oaks Avenue and Grevelia Street south of the 110 Freeway on and off-ramps to improve traffic signal timing and hardware, add intersection lighting ($32,350). The intersection of Fremont Avenue and Huntington Drive for the addition of bike lanes, installation of pedestrian countdown signals, and addition of lighting ($50,040). Fremont Avenue from Columbia Street to Monterey Road to add street lighting, install flashing beacons at stop-controlled intersection, install curve advance warning signs ($277,110). Huntington Drive from Leman Street to Maple Street to install bike lanes, and add street lighting ($181,260). These HSIP projects will be coordinated with the Fremont/Huntington Mobility Active Transportation & Mobility Improvement Projects.

Operations & Maintenance (O&M) Projects	Project Status
2023-2024 Slow Streets & Open Streets Program *Budget: General Fund $150,000* *Measure M $105,570* *SGVCOG Grant: $45,000*	<u>Updated Status</u> *Alternatives for Mission Street have been modeled by Consultant and will be presented at a future MTIC meeting.* The project consultant modeled three scenarios considering feedback from MTIC related to the Fremont Avenue and Fair Oaks intersections. The conclusions will be summarized and presented to MTIC.
Neighborhood Traffic Management Program (NTMP) Implementation	<u>Updated Status</u> *Software workflow development underway. Scope of work and fee are being discussed.* Staff are working with the contracted software system designer to implement the NTMP online processing forms. The initial work is being completed at a staff level – as Public Works and Community Development test the software system to work out issues making the interface publicly accessible with existing applications before adding the NTMP workflow. While the implementation is underway, staff continue to receive and process requests from the community related to neighborhood traffic management.
Ramona Avenue, Oak Street, Rollin Street, & Fremont Avenue Traffic Management	<u>No Significant Update</u> *Staff met with Ramona residents to discuss ongoing traffic impacts around the neighborhood.* Staff is still working with Holy Family on an amendment to their specific plan to address related traffic and circulation issues. Staff is developing a task order for stop sign warrant analysis at four different locations at Ramona/Rollin, Ramona/Spruce, Ramona/Pine, and Diamond/Lyndon.
Meridian Avenue Traffic Management & Safety Measures	<u>No Significant Update</u> *Pending task order issuance.* Staff have evaluated the site conditions and traffic data to discuss potential improvements to Meridian Avenue. This information was presented at a previous MTIC meeting, and the Commission provided feedback. A study will be conducted, including a speed survey, which will be coordinated with local stakeholders. A task order will be issued to a professional services on-call consultant for this work. The pedestrian crossing at Meridian and Bank has been refreshed with new paint and a new sign.

Operations & Maintenance (O&M) Projects	Project Status
Timing Improvements at the Metro Gold Line Mission & Meridian	<u>No Significant Update</u> *Task order being executed.* Staff previously met with MTIC's Chair to review recommendations regarding the timing of signal lights and railway crossing gates at Mission and Meridian. Metro has provided a contact for timing issues to work with the City, however, Metro requires more information on the matter to troubleshoot the solution. If necessary, a task order to update the timing sheets for this location will be issued to a professional services on-call consultant. The task order work would also reconcile the City's previously requested preemption changes with the known timing issues.
Fremont Avenue Southbound Left Turn Pocket South of Huntington Drive Intersection	<u>Project Consolidation</u> *Work scope being developed.* City staff discussed this project with the Fremont/Huntington/Fair Oaks planning consultant as it related to proposed Fremont/Huntington intersection improvements. The project will be consolidated into the Fremont/Huntington Mobility Active Transportation & Mobility Improvement Projects.
Traffic & Parking Impacts along Glendon Way between El Centro Street and Meridian Avenue	<u>Future Priority</u> *Held site meeting with the Chamber.* City Council recently approved a new five-year agreement with the Chamber of Commerce that contains updated language to facilitate review of the Farmer's Market event Parking Management Plan. Public Works will work with the Chamber of Commerce with the goal of improving traffic and parking impacts along Glendon Way, and met with the Chamber of Commerce and several residents on location.
Replacement of Missing Orange Grove Street Lamps	<u>No Significant Update</u> *Pending staff cost estimate.* Staff is developing a cost estimate to replace the Orange Grove Street Lamps, and relocating the lamps away from the street where possible.
Early Action Projects (EAP) List	<u>No Significant Update</u> Measure R Mobility Improvement Projects (MIP) were discussed at the November 2022 MTIC Meeting, where some elements of the "SR 710 Early Action Projects (EAP)" are planned to be addressed in the North-South Corridor Intelligent Transportation Systems Project, and the current Measure R programmed projects include the Fair Oaks SR-110 Interchange Loop/Hook On-Ramp and Off-Ramp projects and the Fremont/Huntington Mobility Active Transportation Project (see above items). "Early Action Projects (EAP) List". EAPs do not have committed funding and will be kept on this list for future tracking.

Operations & Maintenance (O&M) Projects	Project Status
Installation of City Limit Signs at Various Locations	<u>Future Priority</u> *Pending task order issuance.* A task order to develop a conceptual plan for this project will be issued in the future to a professional services on-call consultant. Potential signage along Fremont & Huntington will be incorporated into those projects.
Preferential Parking Policy	<u>No Significant Update</u> *Pending General Plan Update.* As a City Council Strategic Plan goal, Staff will work with Community Development in this area, considering recommendations provided by MTIC. The scope and priority of parking evaluation efforts are being considered in the Council's revised Strategic Plan.
Traffic Impact Analyses	<u>Updated Status</u> *Proposed development traffic study to be completed.* Staff are working with a developer for a proposed update to the design and traffic study at 815 Fremont. No other development projects have submitted traffic impact analyses for review recently.
Marengo Avenue Traffic Safety Assessment *Budget: Measure M Local Return $39,030*	<u>Updated Status</u> *This item is being discussed at tonight's MTIC Meeting.* Staff are presenting the study findings at tonight's August 20, 2024 MTIC meeting, including results on the traffic counts and collision analysis, stop compliance analysis, speed analysis, intersection with Alhambra.
Huntington Drive 2000 Block Review	<u>Updated Status</u> *The purchased vehicle feedback radar signs were delivered to the City for installation.* Four (4) vehicle feedback signs were ordered and delivered to the City. Staff completed training on the configuration of the signs' operating system. Field staff will install them at different locations to address speeding concerns. Staff is working on finalizing the purchase order for the edge line installation. Once this is complete, the edge line will be installed along Huntington Drive east between Dos Robles to Olive Street.
Diamond Avenue Improvements	<u>No Significant Update</u> *Review of community suggestions and enforcement.* Staff are reviewing improvements suggested by community members along Diamond Avenue between Mission Street and El Centro. The Police Department has been enforcing parking restrictions and Public Works refreshed the existing red curb paint along the roadway.

Operations & Maintenance (O&M) Projects	Project Status
Citywide Engineering Study	No Significant Update *Staff is currently reviewing a scope of work prepared by a consultant to update the Citywide Engineering Study.* The 2014 Citywide Engineering Study was prepared by Minagar & Associates, Inc. on October 22, 2014. On January 21, 2015, City Council by Ordinance adopted the Citywide Engineering Study which established and renewed valid posted speed limits for various street segments within the city. On July 29, 2021, the Citywide Engineering Study was extended another three years until 2024 for a total of ten years. The Engineering and Traffic Survey does not specify an expiration date. However, based on the latest CA MUTCD 2014 Edition: Revision 8 (January 11, 2024), “cities and local agencies should conduct engineering studies, including speed surveys, at least once every 5, 7, or 14 years”. In the newly initiated effort to update the study, prevailing speeds, collision records, and other factors will be considered.

ITEM 4

Approval of Minutes of the Special Mobility and Transportation Infrastructure Commission Meeting on June 13, 2024

CITY OF SOUTH PASADENA
MOBILITY AND TRANSPORTATION INFRASTRUCTURE COMMISSION

MINUTES
SPECIAL MEETING
Thursday, June 13, 2024, AT 6:30 P.M.

CALL TO ORDER:

Chair Hughes called the Meeting of the South Pasadena Mobility and Transportation Infrastructure Commission to order on Tuesday, May 21, 2024 at 6:36 P.M. in the City Council Chambers, 1424 Mission Street, South Pasadena, California.

ROLL CALL:

PRESENT	Chair	Kimberley Hughes
	Commissioner	Eric Dunlap
	Commissioner	Michelle Hammond
	Commissioner	John Fisher
COUNCIL LIAISON	Mayor	Evelyn Zneimer
ABSENT		
	Vice Chair	Diego Zavala

Vice Chair Zavala had an excused absence. Phillip Tran, Management Analyst, announced a quorum.

CITY STAFF PRESENT:

Ted Gerber Public Works Director (PWD); Phillip Tran, Management Analyst (MA) were present at Roll Call

PLEDGE OF ALLEGIANCE

The Flag Salute was led by Commissioner Dunlap.

PUBLIC COMMENT

1. PUBLIC COMMENT – GENERAL (NON-AGENDA ITEMS)

In-person Public Comments
Brent Nikolin commented and expressed concerns about street conditions on Martos Drive. He implored the city to include Martos Drive on the 2024 plans.

PRESENTATION

ACTION/DISCUSSION

2. APPROVAL OF MINUTES OF MARCH 19, 2024, MTIC MEETING

Recommendation
It is recommended that the Commission review and consider approval of the March 19, 2024 Meeting Minutes.

COMMISSION ACTION AND MOTION
A motion was made by Chair Hughes, seconded by Commissioner Fisher to approve the minutes as amended. The motion carried 4-0

AYES: Hughes, Hammond, Fisher, Dunlap
NOES: None.
ABSENT: None.
ABSTAINED: None.

3. APPROVAL OF MINUTES OF APRIL 16, 2024, MTIC MEETING

Recommendation
It is recommended that the Commission review and consider approval of the April 16, 2024 Meeting Minutes.

COMMISSION ACTION AND MOTION
A motion was made by Chair Hughes, seconded by Commissioner Fisher to approve the minutes as amended. The motion carried 4-0

AYES: Hughes, Hammond, Fisher, Dunlap
NOES: None.
ABSENT: None.
ABSTAINED: None.

4. APPROVAL OF MINUTES OF MAY 21, 2024, MTIC MEETING

Recommendation
It is recommended that the Commission review and consider approval of the May 21, 2024 Meeting Minutes.

COMMISSION ACTION AND MOTION

A motion was made by Chair Hughes, seconded by Commissioner Hammond to approve the minutes as amended. The motion carried 4-0

AYES: Hughes, Hammond, Fisher, Dunlap
NOES: None.
ABSENT: None.
ABSTAINED: None.

5. STREET IMPROVEMENT PROGRAM & DRAFT SB1 RESOLUTION

Recommendation

It is recommended that the Mobility and Transportation Infrastructure Commission (MTIC) receive a presentation on the City's Streets Improvement Program implementation and provide general recommendations and advisement related to staff's efforts, as well as recommendations on the selected streets planned for improvements.

PWD Gerber presented a comprehensive presentation outlining the city's Street Improvement Program and road maintenance plan. He explained the different types of road improvement plans and funding plans for long term road maintenance.

COMMISSION ACTION AND MOTION

A motion was made by Chair Hughes, seconded by Commissioner Fisher and approved by roll call vote to approve recommendation to support the SB 1 Resolution. The motion carried 4-0 by the following vote:
AYES: Hughes, Hammond, Fisher, Dunlap
NOES:
ABSENT:
ABSTAINED:

Commissioner Dunlap expressed that he is supportive of the "zoned approach" if the city is transparent and communicates with the community that there is a scheduled approach to road improvements. He moved to make a motion in support of this zoned approach.

Commissioner Fisher made a motion to amend the motion and expressed that this zoning approach works only if there is an infusion of funds to bring us to a point of good streets and stability. He supports more funding to bring each zone up to a point of stability and supports the concept of expediting the construction of projects.

COMMISSION ACTION AND MOTION

A motion was made by Commissioner Fisher, seconded by Commissioner Dunlap and approved by roll call vote to approve support the zoning approach, more funding to bring each zone up to a point of stability, and the concept of expediting construction projects. The motion carried 4-0 by the following vote:
AYES: Hughes, Hammond, Fisher, Dunlap
NOES:
ABSENT:
ABSTAINED:

COMMUNICATIONS

6. CITY COUNCIL LIAISON COMMUNICATIONS

Council Liaison Zneimmer expressed gratitude for the bike lanes staying on Grand Avenue, emphasizing the importance of the bike lanes as a good legacy for future generations. Although it was a contentious topic, she really appreciated when the kids came in and made comments with their parents because it really made a big difference.

7. COMMISSIONER COMMUNICATIONS

Commissioner Hammond spoke about bike plan updates and expressed excitement to bring the plan to MTIC in the future. She is looking forward to the positive upcoming changes in the community.

Commissioner Dunlap echoed Council Liaison's gratitude for the bike lanes continuing to exist on Grand Avenue.

Commissioner Fisher noticed the restriping of Fremont Avenue and suggested that MTIC considers the use of thermoplastic in road reconstruction instead of paint.

PWD Gerber discussed using thermoplastic for future reconstruction projects and mentioned that paint has been reserved for restriping efforts until long term plans have been established.

Chair Hughes wanted to remind the group of the upcoming Commissioner Congress meeting.

8. STAFF LIAISON COMMUNICATIONS

PWD Gerber reminded the commission that the Commissioner Congress is coming up and mentioned that he will be presenting at the next special join finance commission and council meeting.

ADJOURNMENT

There being no further matters, Chair Hughes adjourned the meeting of the Public Works Commission at 10:01 p.m. to the next Regular Public Works Commission meeting scheduled for June 13, 2024.

Respectfully submitted:

_____
_____
_____

APPROVED:

_____
_____
Chair

Approved at Public Works Commission: _____