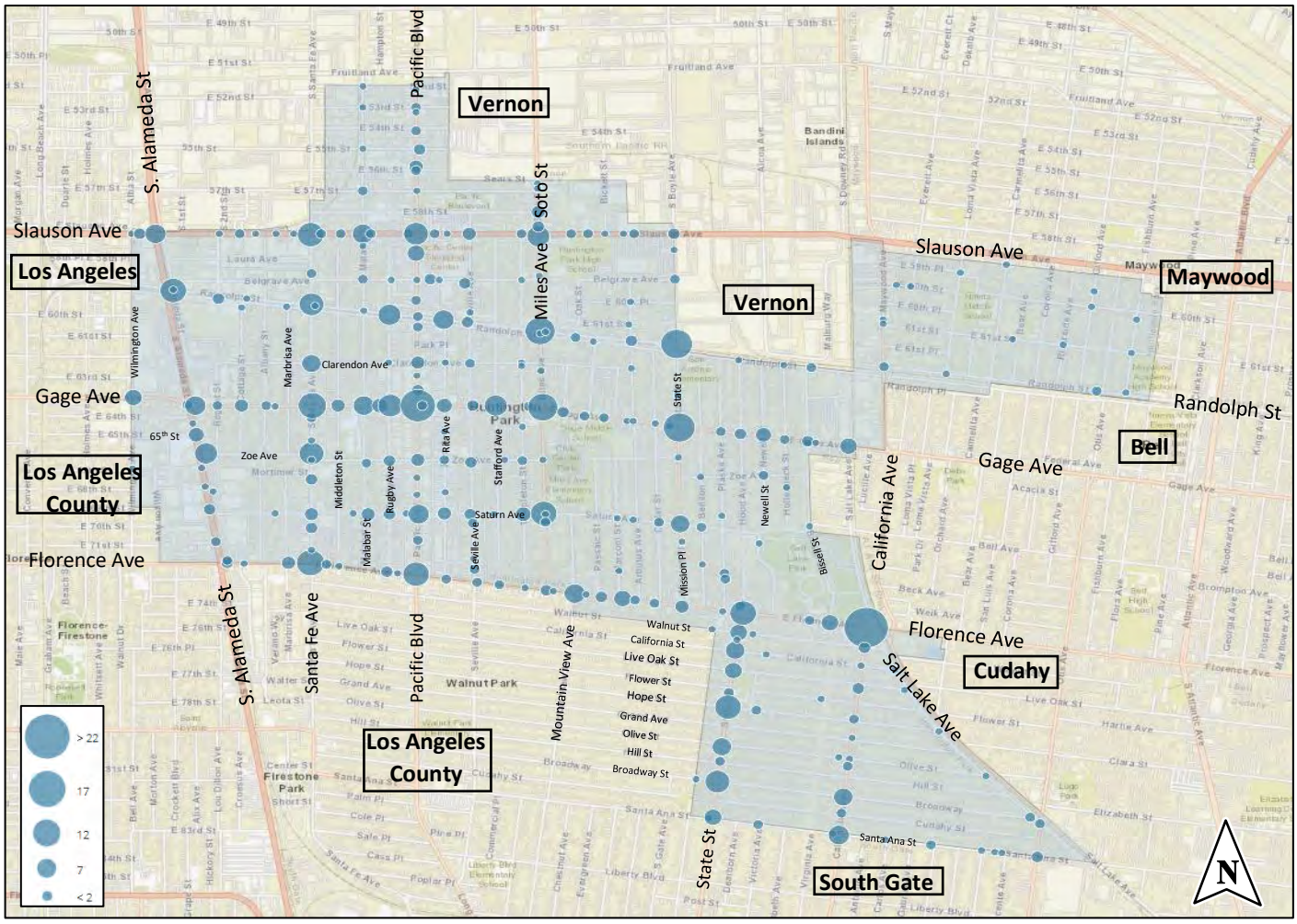
# FINAL

# Local Roadway Safety Plan (LRSP) Project

## for

# City of Huntington Park




**PREPARED FOR:**

## City of Huntington Park

**Department of Public Works**
6900 Bissell St
Huntington Park, CA

**PREPARED BY:**

## MINAGAR & ASSOCIATES, INC.

Traffic/Civil/Electrical Engineering – ITS – Transportation Planning – CEM
23282 Mill Creek Drive, Suite 120
Laguna Hills, CA 92653
Tel: (949)707-1199

28 Years of Excellence

**December 30, 2021**

# ACKNOWLEDGEMENTS

**CITY COUNCIL**

Mayor: Graciela Ortiz

Vice Mayor: Eduardo Martinez

Council Member: Karina Macias

Council Member: Marilyn Sanabria

Council Member: Manuel Avila

**PARTNERS**

City Departments: Public Works, Planning, Police & Fire Los

Angeles Unified School District

Southern California Association of Governments (SCAG) The

Greater Huntington Park Area Chamber of Commerce

General Public of The City of Huntington Park

**CITY STAFF**

City Manager: Ricardo Reyes

Assistant City Manager: Raul Alvarez

Director of Public Works: Cesar Roldan

Chief of Police: Cosme Lozano

Fire Chief: Scott Haberle

City Engineer: Yunus Rahi

City Traffic Engineer: Dennis Barnes

Interim Director of Community Development: Steve Forster

## Executive Summary

The objective of the City of Huntington Park Local Roadway Safety Plan (LRSP) is to establish a safe transportation environment that has safer roads, safer people, safer speeds, and safer vehicles. As part of this safety plan for the City of Huntington Park, Minagar & Associates, Inc. identified, prioritized, and analyzed roadway safety improvements on the City of Huntington Park's intersections and roadway segments. This safety plan also provides the proposed countermeasures that address collision patterns for both intersections and roadway segments, to ultimately reduce collisions in the City's high collision locations.

From December 31, 2015 to December 31, 2020, there has been a total of 878 collisions reported on the Transportation Injury Mapping System (TIMS) which included 18 fatalities and 1,179 injured victims. The most common types of collision were broadside, rear end, and vehicle/pedestrian. Primary Collision Factor (PCF) violations that caused most of the collisions were Automobile Right of Way, Unsafe Speed, and Traffic Signals and Signs. Victims were mostly drivers and passengers in addition to some pedestrians and bicyclists. There was a high number of 185 collisions involved with pedestrians of which 8 collisions were fatal. The highest number of victims happened to be in the age range of 20 to 24 years old.

A Local Road Safety Plan is a major element to ameliorate transportation and traffic safety within a City. This LRSP was prepared and developed in compliance with the State and Federal guidelines for eligibility to apply for the funding of Highway Safety Improvement Program (HSIP). In addition to the provided countermeasures for collision patterns, this Safety Plan also provides the corresponding cost estimates and benefit to cost ratios, to support applications for the Highway Safety Improvement Program (HSIP).

# Statement of Protection of Data From Discovery and Admissions

Per Section 148 of Title 23, United States Code [23 U.S.C. §148(h) (4)] REPORTS DISCOVERY AND ADMISSION INTO EVIDENCE OF CERTAIN REPORTS, SURVEYS, AND INFORMATION—Notwithstanding any other provision of law, reports, surveys, schedules, lists, or data compiled or collected for any purpose relating to this section, shall not be subject to discovery or admitted into evidence in a Federal or State court proceeding or considered for other purposes in any action for damages arising from any occurrence at a location identified or addressed in the reports, surveys, schedules, lists, or other data.

# Table of Contents

# List of Tables

# List of Figures

# List of Acronyms

| | |
|---|---|
| AASHTO | American Association of State Highway and Transportation Officials |
| B/C Ratio | Benefit-Cost Ratio |
| Caltrans | California Department of Transportation |
| CAMUTCD | California Manual on Uniform Traffic Control Devices |
| City | City of Huntington Park |
| CMF | Crash Modification Factor |
| CRF | Crash Reduction Factor |
| DUI | Driving Under the Influence |
| FHWA | Federal Highway Administration |
| HSIP | Highway Safety Improvement Program |
| HSM | Highway Safety Manual |
| LRSM | Local Roadway Safety Manual (Version 1.5, April 2020) |
| LRSP | Local Roadway Safety Plan |
| SHSP | Strategic Highway Safety Plan |
| SWITRS | Statewide Integrated Traffic Records System |
| TIMS | Transportation Injury Mapping System |
| TMC | Turning Movement Count |
| 5Es | The 5Es of Traffic Safety: Education, Engineering, Enforcement, Emergency Medical Services, Emerging Technologies |

# 1. Introduction

The City of Huntington Park is taking the initiative to improve the City's traffic safety by implementing a Local Roadway Safety Plan that aims to reduce traffic collisions by analyzing the factors that previously impacted prominent intersections and roadway segments in the City. This report documents the City of Huntington Park's work to assess and improve transportation safety.

In this Safety Plan, a systemic approach was utilized to identify and analyze collision patterns that had impacted high collision intersections and roadway segments. For each high collision location, whether it was an intersection or a roadway segment, a table with the number of collisions and the corresponding primary collision factor has been provided to identify the prominent collision factors. As part of the collision analysis, collision diagrams have been provided for high collision intersections and roadway segments in the City of Huntington Park.


Following the understanding and acknowledgement of collision patterns, countermeasures for each of the identified high collision intersections and roadway segments, were developed to potentially reduce traffic collisions in the future and ameliorate active transportation within the City. Furthermore, this Local Roadway Safety Plan includes collision data for high collision locations between December 31, 2015 and December 31, 2020, the analysis of collision data, and the proposed countermeasures for collision patterns. Depicted below in Figure 1 is a Local Road Safety Plan provided by the Federal Highway Administration.


**Figure 1: Local Road Safety Plan – Your Map to Safer Roadways**

Source: Federal Highway Administration

# 2. Vision and Goals

The objective of this plan is to strive towards a safer transportation environment by eliminating traffic fatalities and severe injuries while assuring efficient and equitable mobility for all road users. The City of Huntington Park plans to implement systemic countermeasures to target factors affecting citywide prominent intersections and roadway segments. This safety plan aims to reduce the risk of tragedies by taking a proactive, preventative approach that prioritizes traffic safety.

Vision Zero is an initiative approach to eliminate traffic fatalities and severe injuries. Road users will sometimes make mistakes however, the road system, traffic control devices, and traffic laws should be designed to minimize those unavoidable mistakes and reduce their probability to result in severe injuries or fatalities. Transportation and traffic engineers are expected to improve the general traffic environment by ameliorating existing traffic geometries and laws based on a good engineering judgement. However, the roadway users of the City of Huntington Park are still responsible for their mistakes and should follow all traffic laws.

Source: www.archive.kpcc.org

Vision Zero unifies diverse stakeholders who address the factors causing complexity when it comes to traffic safety. It recognizes that many factors contribute to safe mobility including roadway design, speeds, behaviors, technology, and enforced laws. Moreover, vision zero's goal is to achieve zero fatalities and severe injuries.

Source: www.visionzeronetwrok.org

One of the City's visions is to collaborate with local agencies to promote a culture of continuous transportation safety improvement by coordinating with the Huntington Park Police Department, Los Angeles County Department of Public Health, and Los Angeles Unified School District.

Source: U.S. Department of Transportation

The aforementioned vision shall eliminate traffic fatalities and severe injuries by achieving the following goals:

- Obtain accurate collision databases, systematically identify and prioritize the City's highest collision locations based on a 5-year collision history.
- Engage with the local community, stakeholders, and City management to better understand factors that are affecting the traffic safety within the City of Huntington Park.
- Analyze and implement countermeasures utilizing strategies across all traffic safety disciplines, engineering, enforcement, education, emergency medical services, and emerging technologies.
- Strive to reduce the City's primary contributing factors in traffic collisions by ensuring the automobile right of way, maintaining a safe speed, and clear traffic signals and signs.

# 3. Safety Partners

To promote and create a safe transportation environment, collaboration across agencies known as safety partners is a necessity. Safety partners are the agencies, departments, and organizations whose input and support are foundational to a successful Local Roadway Safety Plan.

The safety leadership team is primarily comprised of City Departments that have key roles in the development, implementation, and operation of safety projects, programs, and policies. The safety leadership team is ultimately responsible for developing, adopting, and implementing the safety plan and program. The stakeholder team is different from the leadership team. It comprises partner agencies and organizations who collaborate with the City and contribute to and assist with developing and implementing the plan. These agencies and their roles in the plan's development and implementation are provided below:

## 3.1 Safety Leadership

**I. City Council**

The legislative body which is ultimately responsible for approving and adopting the final plan, setting safety policies, and approving budget and funding levels.

**II. Public Works**

Public Works is the lead City Department in developing and producing the Safety Plan and its periodic updates. The Public Works Department is responsible for assembling other City departments and collaborating with Stakeholders. Public Works is responsible for capital project implementation. The City's Public Works staff may also lead or collaborate in education campaigns.

**III. Community Development**

The Community Development Department supports implementing the plan through its progress. Community Development assigns conditions of approval and mitigation measures to new development applications in collaboration with Public Works.

**IV. Huntington Park Police Department**

The City's Police Department collaborates with and assists the City's Community Development Department in developing and producing the plan and its periodic updates. The Police Department maintains collision records and is responsible for carrying out enforcement practices and activities. The City's Police Department may also lead or collaborate in education campaigns.

**V. Los Angeles County Fire Department**

The City's Fire Department serves in a support role in developing and producing the plan.

## 3.2 Stakeholders

**I. Los Angeles Unified School District**

Collaboration with the Los Angeles Unified School District is important in order to maintain and promote safety for all students within the City of Huntington Park.

**II. Huntington Park Police Department**

Roadways and functional areas of intersections require communication and collaboration. Collaboration with the Huntington Park Police Department over the course of the safety plan is needed to ensure that local safety goals and policies are met.

**III. Southern California Association of Governments (SCAG)**

SCAG is designated as a Metropolitan Planning Organization (MPO) and as a Regional Transportation Planning Agency and a Council of Governments. It coordinates regional transportation programs and projects and regional funding allocations. SCAG provides feedback on developing the plan and updates in context to regional planning activities and potential funding allocations.

**IV. The Greater Huntington Park Area Chamber of Commerce**

The Greater Huntington Park Area Chamber of Commerce coordinates engagement with City businesses. The Chamber and City businesses provide feedback on recommended strategies and countermeasures to addressing traffic safety issues. Feedback from the business community can provide valuable insight on the benefits and impacts of safety measures.

**V. General Public of The City of Huntington Park**

The general public provides feedback and insight on recommended emphasis areas, high incident locations, collision factors, countermeasures, and implementation. Although collision records and statistics are foundational to this plan, public feedback is a critical supplement to that data. This feedback provides the safety plan with a holistic view of safety issues and a recommendation for what types of countermeasures are and are not desired by the community.

# 4. Process


This section describes the steps involved in preparing the safety plan, including a systemic approach that involves the analysis of collision data to identify high crash locations and prioritize countermeasures.

## 4.1 Systemic Approach

The systemic approach in preparing the safety plan comprises the following steps:

**I. Develop Plan Goals and Objectives**

Review the City's existing planning documents to ensure the LRSP visions and goals align with the planning efforts and that the potential 5 Es: Engineering, Education, Enforcement, Emergency Medical Services, and Emerging Technologies are consistent with local traffic safety and policies.

**II. Analyze Collision Data**

Obtain the latest 5-year collision data and analyze the collision factors. Determine high collision intersections and roadway segments and identify significant risk factors.

**III. Determine Focus Areas and Identify Crash Reduction Measures**

Identify emphasis areas and recommend feasible countermeasures at high collision locations. Evaluate Crash Modification Factor (CMF) and Crash Reduction Factor (CRF) and the effectiveness of each countermeasure.

**IV. Prioritize countermeasures/projects**

Conduct Benefit-Cost Ratio (BCR) analysis on all countermeasures and projects. Prioritize projects that are most beneficial to the City's roadway and intersection safety using BCR.

**V. Prepare the Local Roadway Safety Plan**

Prepare the LRSP that includes effective and efficient measures and the implementation plan. Identify priority projects for state or federal programming, grant funding opportunities, and implementation.

## 4.2 Public Outreach

The purpose of public outreach is to acquire the community's concerns that are related to the safety of traffic. Such concerns include speeding, jay walking, traffic signs and signals, pedestrian and bicycle safety on collector roads, and arterial streets. Public outreach is an essential tool to identify and summarize high collision locations and collision factors based on the community's concerns in addition to the collision analysis.

The target audience for the public outreach of this safety plan is the residents of the City of Huntington Park which include the following:

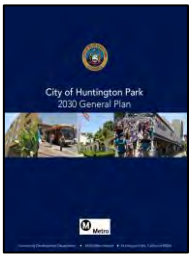
- **Huntington Park City Council**
- **Huntington Park Public Works Department**
- **Huntington Park Community Development Department**
- **Huntington Park Police Department**
- **Los Angeles County Fire Department**
- **Los Angeles Unified School District (LAUSD)**
- **Southern California Association of Governments (SCAG)**
- **The Greater Huntington Park Area Chamber of Commerce**
- **General Public of the City of Huntington Park**

# 5. Existing Efforts

This section summarizes the findings from various planning documents for the City of Huntington Park. The purpose of reviewing existing planning efforts is to ensure the LRSP goals and objectives along with the recommended improvements are aligned with recent planning efforts for transportation safety.

The City of Huntington Park has identified several goals, policies from the following documents:

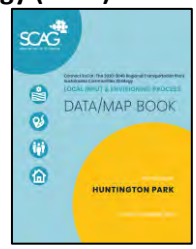
- **General Plan 2030 (2019)**
  The goals and policies identified in the Mobility and Circulation element of the General Plan serve as a guide in the existing and future improvements to the City's roadway and transportation facilities and infrastructure. New project developments in the City and in the surrounding communities will require additional demands on the City's roadways in the future therefore, the purpose of this element is to provide a development plan of a safe and efficient circulation system for the City of Huntington Park.



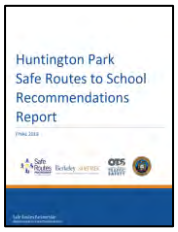

- **Bicycle Transportation Master Plan (2014)**
  This Bicycle Master Plan has been prepared to identify a shared vision, supported by strategies and actions, for improving conditions for bicycling for all user groups and abilities within the City of Huntington Park. The BTA's purpose is to establish a bicycle transportation system that is designed and developed to achieve the functional commuting needs of the employee, student, business person, and shopper as the foremost consideration in route selection, to have the physical safety of the bicyclist and bicyclist's property as a major planning component, and have the capacity to accommodate bicyclists of all ages and skills.


- **Complete Streets Plan (2016)**
  The vision for this plan was to enhance the environment for all road users and balance future policies and investments to reflect local values and conditions. The primary goal of the Huntington Park Complete Streets Plan was to identify challenges people faced in getting around the city, particularly by walking and biking. This plan aimed to provide a range of options that could improve the transportation environment for all road users.


- **The 2020-2045 Regional Transportation Plan/Sustainable Communities Strategy (2019)**
  Prepared by SCAG this plan recommends improving the conditions of existing roads and adding more sidewalks, bike lanes, and restoring, maintaining and expanding transit.



- **Safe Routes to School Recommendations (2019)**
  The City of Huntington Park identified walking and bicycling as a community priority therefore, the City published a Safe Routes to School Action Plan. For this plan, the City ameliorated the existing active transportation within the City by promoting safe walking, biking, and rolling to schools.




- **Draft Environmental Impact Report**
  This draft Environmental Impact Report analyzes the potential impacts associated with the adoption and subsequent implementation of the Mobility and Circulation Element in the City of Huntington Park General Plan 2030. This report takes into account all modes of transportation including mass transit and non-motorized travel and relevant components of the circulation system, including but not limited to, intersections, streets, highways and freeways, pedestrian and bicycle paths, and mass transit.


# 6. Data Analysis and Summary

This section summarizes the results of a citywide collision analysis for the time period between December 31, 2015 and December 31, 2020. The purpose of studying the collision patterns and trends is to identify the factors that caused collisions to occur within the study timeframe. The focus is to identify high crash locations in the City in order to target the factors that are affecting the prominent crash locations.

## 6.1 Overall Summary

According to the Statewide Integrated Traffic Records System (SWITRS) map on the University of California, Berkeley Transportation Injury Mapping System (TIMS), during the period of December 31, 2015 to December 31, 2020, there were 878 collisions in total within the City of Huntington Park. 18 victims were killed, and 1,179 victims were injured. There were 153 pedestrian collisions (17.4% of total), 96 bike collisions (10.9%), 32 motorcycle collisions (3.6%), and 2 state highway collisions (0.2%). Figure 2 displays a map of collisions by point where as Figure 3 displays a map of collisions by cluster.

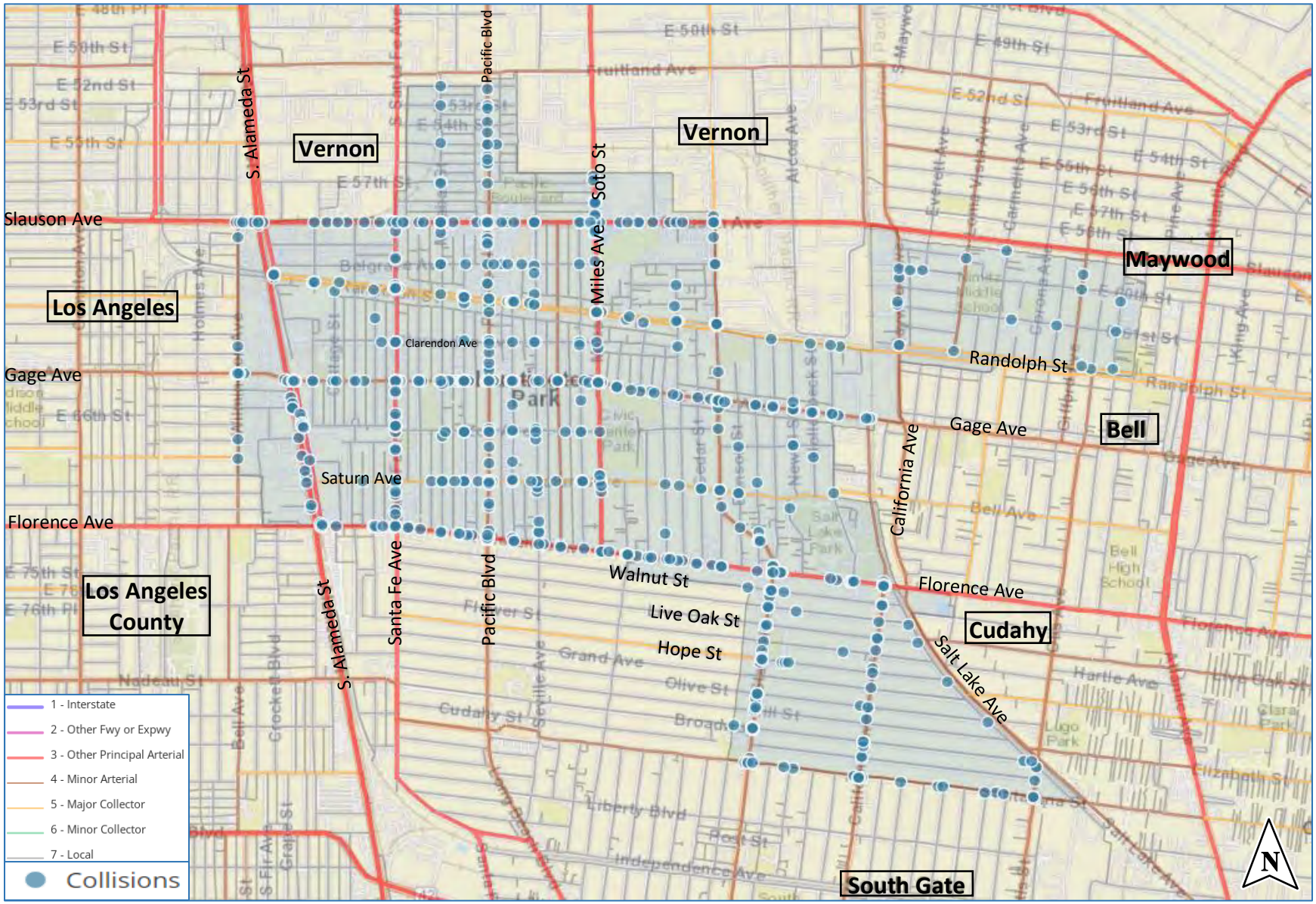



**Figure 2: City of Huntington Park Display of Collisions by Point (December 31, 2015 - December 31, 2020)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

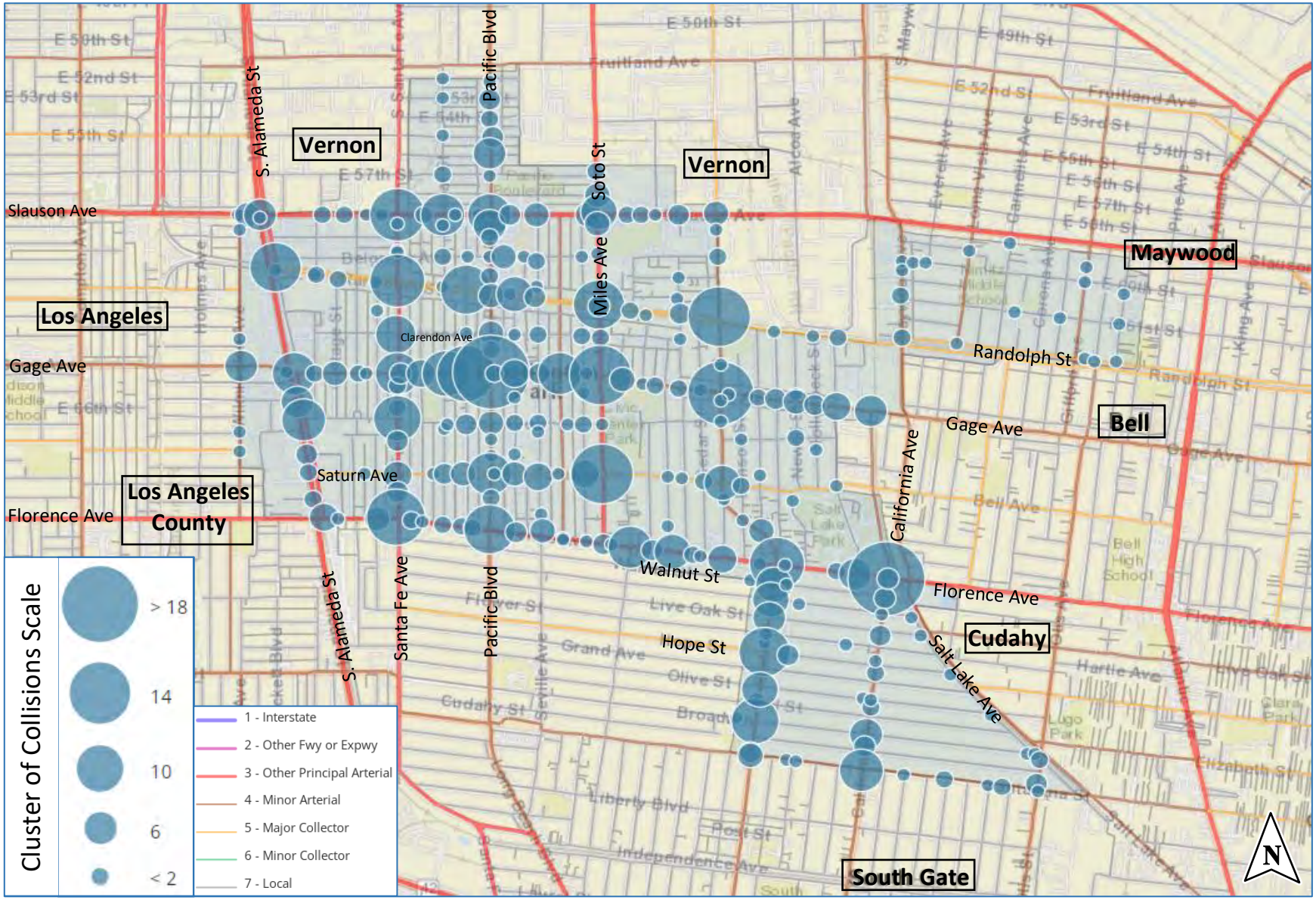
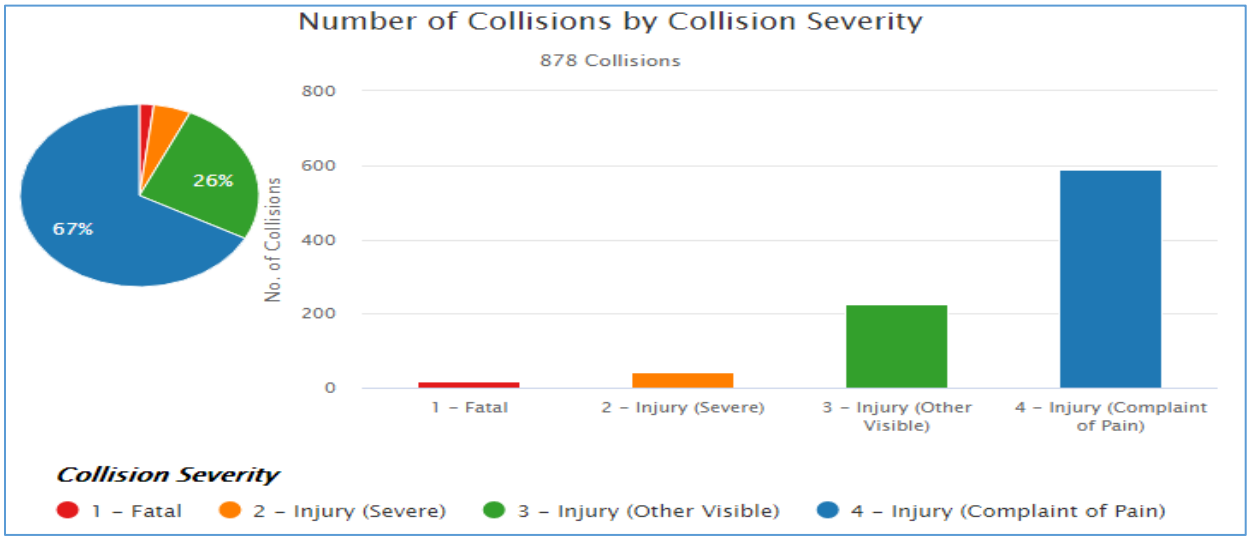



**Figure 3: City of Huntington Park Display of Collisions by Cluster (December 31, 2015 - December 31, 2020)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

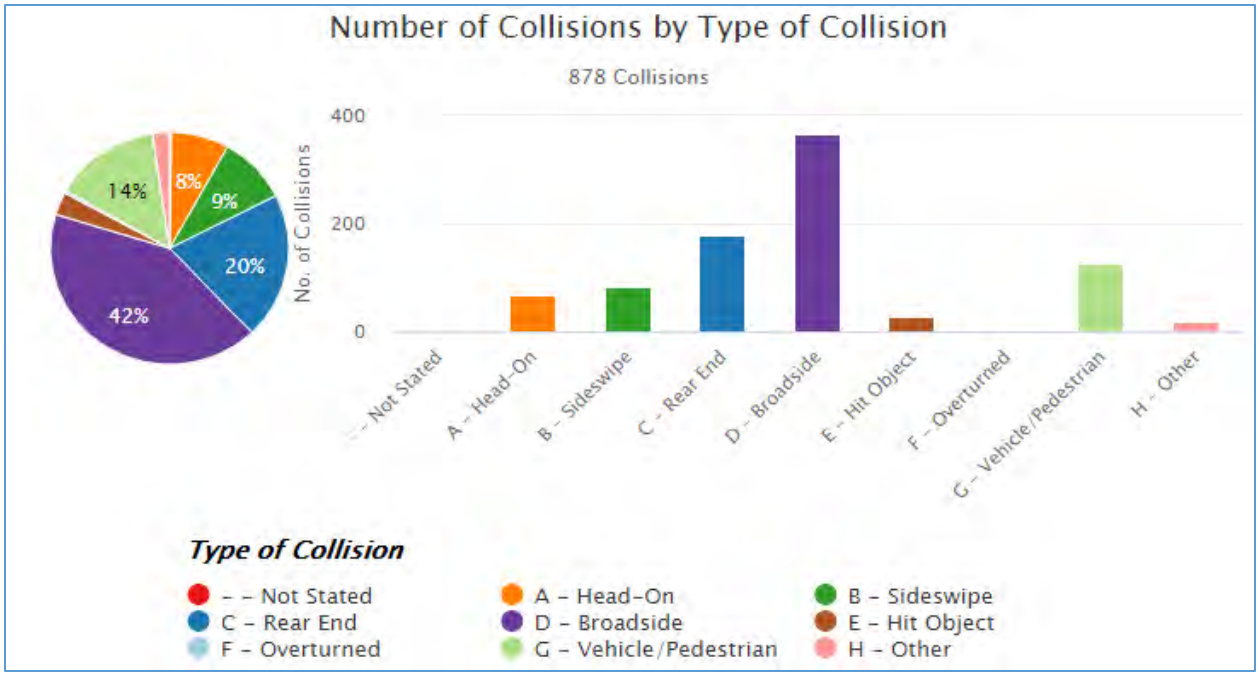



| Collision Severity | Count | % |
|---|---|---|
| 1 - Fatal | 17 | 1.94% |
| 2 - Injury (Severe) | 44 | 5.01% |
| 3 - Injury (Other Visible) | 227 | 25.85% |
| 4 - Injury (Complaint of Pain) | 590 | 67.20% |
| Total | 878 | 100% |

**Figure 4: City of Huntington Park Number of Collisions by Collision Severity**

**Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)**

University of California, Berkeley Transportation Injury Mapping System (TIMS) generated several graphs to detail City of Huntington Park's collisions in the 5-year period. Figure 4 displays the number of collisions by collision severity. From 2015 to 2020, there were 17 fatal collisions, which counted for 1.94 % of total collisions; 44 injury (severe) collisions, 5.01% of total collisions; 227 injury (other visible) collisions (25.85% of total collisions); and 590 injury (complaint of pain) collisions, which took the highest percentage of total collisions in the city (67.20%).




| Type of Collision | Count | % |
|---|---|---|
| - - Not Stated | 2 | 0.23% |
| A - Head-On | 69 | 7.86% |
| B - Sideswipe | 83 | 9.45% |
| C - Rear End | 179 | 20.39% |
| D - Broadside | 367 | 41.80% |
| E - Hit Object | 28 | 3.19% |
| F - Overturned | 3 | 0.34% |
| G - Vehicle/Pedestrian | 127 | 14.46% |
| H - Other | 20 | 2.28% |
| Total | 878 | 100% |

**Figure 5: Number of Collisions by Type of Collision**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

From 2015 to 2020, City of Huntington Park's types of collision were reported by University of California, Berkeley Transportation Injury Mapping System (TIMS). There were 367 broadside collisions during the selected period of time. This was the most common type of collision, which was 41.80% of total collisions in the City of Huntington Park. Rear End was the second common type, which had 179 collisions (20.39%). Third common type of collision was vehicle/pedestrian collision which counted for 127 vehicle/pedestrian collisions (14.46%). There were 83 sideswipe collisions (9.45%). There was a total of 69 (7.86%) Head-On collisions. Hit Object collisions counted for 28 collisions (3.19). Other types of collision counted for 20 collisions (2.28%). Overturned collisions counted for 3 collisions (0.34%), and Not Stated collisions counted for 2 collisions (0.23%).

**Table 1: Number of Collisions per Day of Week per Time**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

Number of Collisions per Day of Week per Time

878 Collisions

| | 1 – Monday | 2 – Tuesday | 3 – Wednesday | 4 – Thursday | 5 – Friday | 6 – Saturday | 7 – Sunday |
|---|---|---|---|---|---|---|---|
| 25:00 – Unknown | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 21:00~23:59 | 16 | 13 | 7 | 13 | 10 | 15 | 13 |
| 18:00~20:59 | 14 | 21 | 16 | 23 | 29 | 24 | 24 |
| 15:00~17:59 | 21 | 29 | 23 | 26 | 18 | 19 | 28 |
| 12:00~14:59 | 20 | 19 | 25 | 21 | 23 | 18 | 19 |
| 09:00~11:59 | 16 | 17 | 18 | 22 | 16 | 14 | 13 |
| 06:00~08:59 | 15 | 17 | 22 | 15 | 19 | 10 | 9 |
| 03:00~05:59 | 5 | 3 | 5 | 9 | 8 | 7 | 3 |
| 00:00~02:59 | 9 | 1 | 3 | 4 | 7 | 18 | 26 |

0 10 20 30

Collisions in the City of Huntington Park were listed for eight (3-hour time periods) for each day of the week.

On Mondays, 51 collisions occurred between 6:00 AM – 2:49 PM. The highest number of collisions within a single 3-hour time period was 21 collisions and occurred between 3:00 PM and 5:59 PM. 30 collisions occurred between 6:00 PM and 11:59 PM.

On Tuesdays, there were 53 collisions from 6:00 AM to 2:59 PM. The highest number of collisions within a single 3-hour time period was 29 collisions and occurred between 3:00 PM to 5:59 PM, and 34 collisions occurred between 6:00 PM and 11:59 PM.

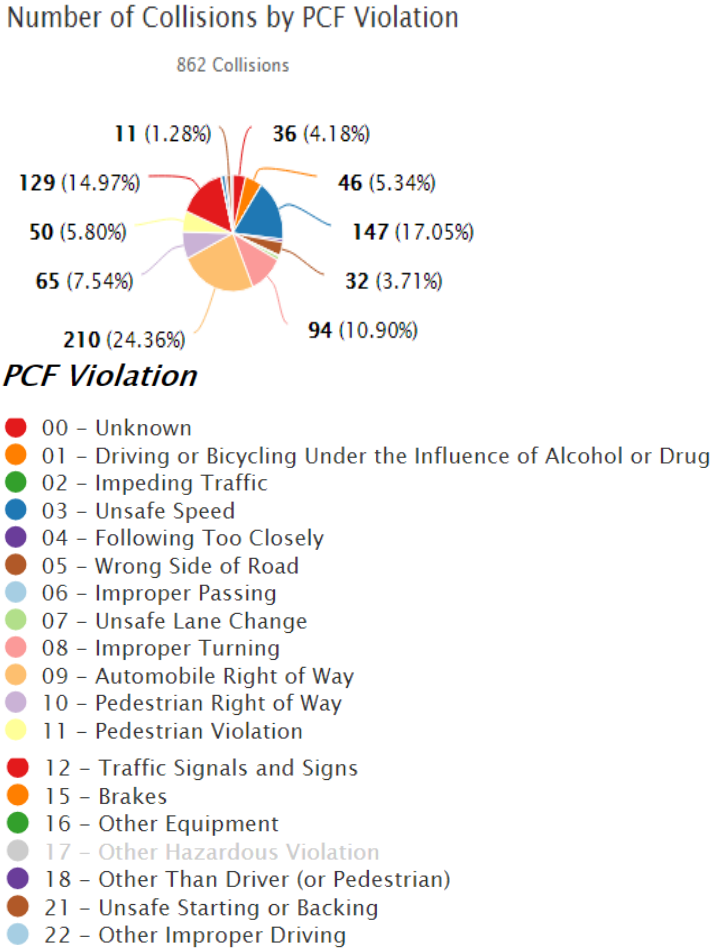
On Wednesdays, there were 65 collisions from 6:00 AM to 2:59 PM. The highest number of collisions within a single 3-hour time period was 25 collisions and occurred between 12:00 PM to 2:59 PM, and 23 collisions occurred between 6:00 PM and 11:59 PM.

On Thursdays, there were, 58 collisions from 6:00 AM to 2:59 PM. The highest number of collisions within a single 3-hour time period was 26 collisions and occurred between 3:00 PM to 5:59 PM. 36 collisions occurred between 6:00 PM and 11:59 PM.

On Fridays, there were 58 collisions from 6:00 AM to 2:59 PM. 18 collisions occurred between 3:00 PM and 5:59 PM. The highest number of collisions within a single 3-hour time period was 29 collisions and occurred between 6:00 PM to 8:59 PM. 10 collisions occurred between 9:00 PM and 11:59 PM.

On Saturdays, there were 42 collisions from 6:00 AM to 2:59 PM. There were 19 collisions between 3:00 PM to 5:59 PM, The highest number of collisions within a single 3-hour time period was 24 collisions and occurred between 6:00 PM to 8:59 PM. 15 collisions between 9:00 PM to 11:59 PM.

On Sundays, the highest number of collisions within a single 3-hour time period was 28 collisions and occurred between 3:00 PM to 5:59 PM. 41 collisions occurred between 6:00 AM to 2:59 PM, 9 collisions occurred between 6:00 PM to 8:59 PM, and 13 collisions occurred between 9:00 PM to 11:59 PM.



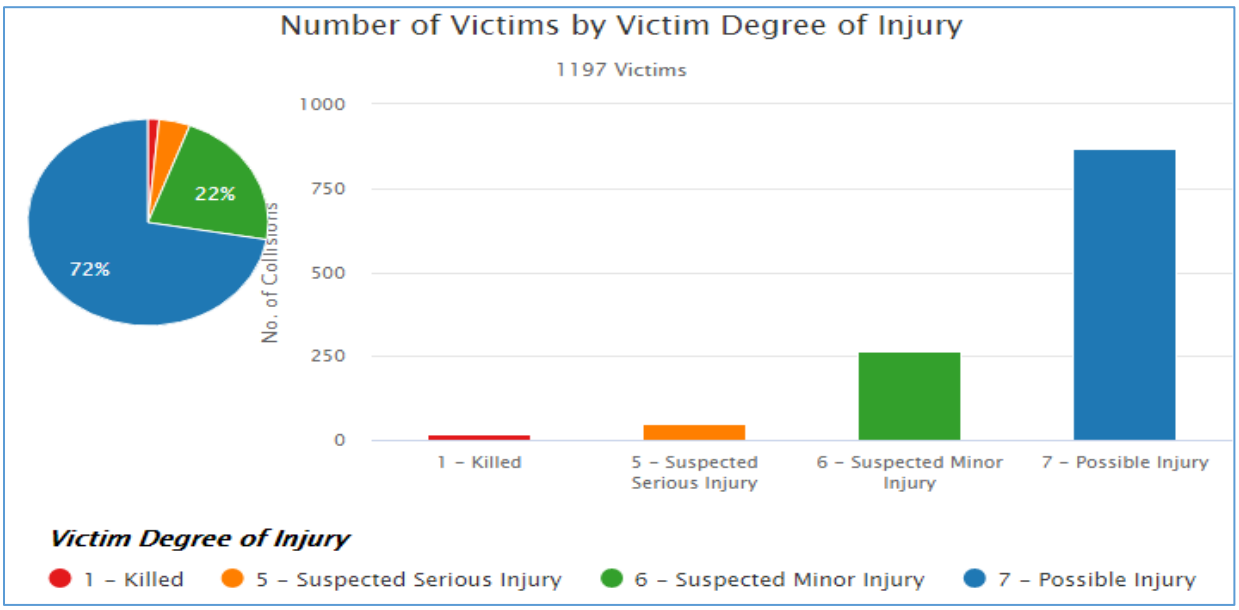

| PCF Violation | Count | % |
|---|---|---|
| 00 - Unknown | 36 | 4.18% |
| 01 - Driving or Bicycling Under the Influence of Alcohol or Drug | 46 | 5.34% |
| 02 - Impeding Traffic | 1 | 0.12% |
| 03 - Unsafe Speed | 147 | 17.05% |
| 04 - Following Too Closely | 7 | 0.81% |
| 05 - Wrong Side of Road | 32 | 3.71% |
| 06 - Improper Passing | 3 | 0.35% |
| 07 - Unsafe Lane Change | 9 | 1.04% |
| 08 - Improper Turning | 94 | 10.90% |
| 09 - Automobile Right of Way | 210 | 24.36% |
| 10 - Pedestrian Right of Way | 65 | 7.54% |
| 11 - Pedestrian Violation | 50 | 5.80% |
| 12 - Traffic Signals and Signs | 129 | 14.97% |
| 15 - Brakes | 1 | 0.12% |
| 16 - Other Equipment | 1 | 0.12% |
| 17 - Other Hazardous Violation | 10 | 1.16% |
| 18 - Other Than Driver (or Pedestrian) | 5 | 0.58% |
| 21 - Unsafe Starting or Backing | 11 | 1.28% |
| 22 - Other Improper Driving | 5 | 0.58% |

**Figure 6: Number of Collisions by (PCF) Primary Collision Factor Violation**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

According to University of California, Berkeley Transportation Injury Mapping System (TIMS), the Primary Collision Factor (PCF) violation that caused the most collisions in the City of Huntington Park was Automobile Right of Way which resulted in 210 collisions (24.36%). The second collision type that had the most collisions after automobile right of way was Unsafe Speed with a total number of 147 collisions (17.05%). The third collision factor was Traffic Signals and Signs with a total number of 129 collisions (14.97%). There were 94 collisions (10.90%) as a result of Improper Turning. 65 collisions (7.54%) occurred as a result of not giving the Pedestrian Right of Way and 50 collisions (5.80%) occurred as result of Pedestrian Violation. Driving or Bicycling Under the Influence of Alcohol or Drug caused 46 collisions (5.34%). Unknown violations caused 36 collisions (4.18%). Wrong Side of Road violations caused 32 collisions (3.71%). Unsafe Starting or Backing caused 11 collisions (1.28%), Other Hazardous violations caused 10 collisions (1.16%), Unsafe Lane Change caused 9 collisions (1.04%), and Following Too Closely caused 7 collisions (0.81%). 3 collisions occurred as a result of Improper Passing (0.35%). Other Than Driver (or Pedestrian) PCF violation resulted in 5 collisions (0.58%). 1 collision (0.12%) occurred as a result of Impeding Traffic and 1 collision (0.12%) occurred as a result of an Other Equipment PCF violation.

## 6.2 Victim Summary

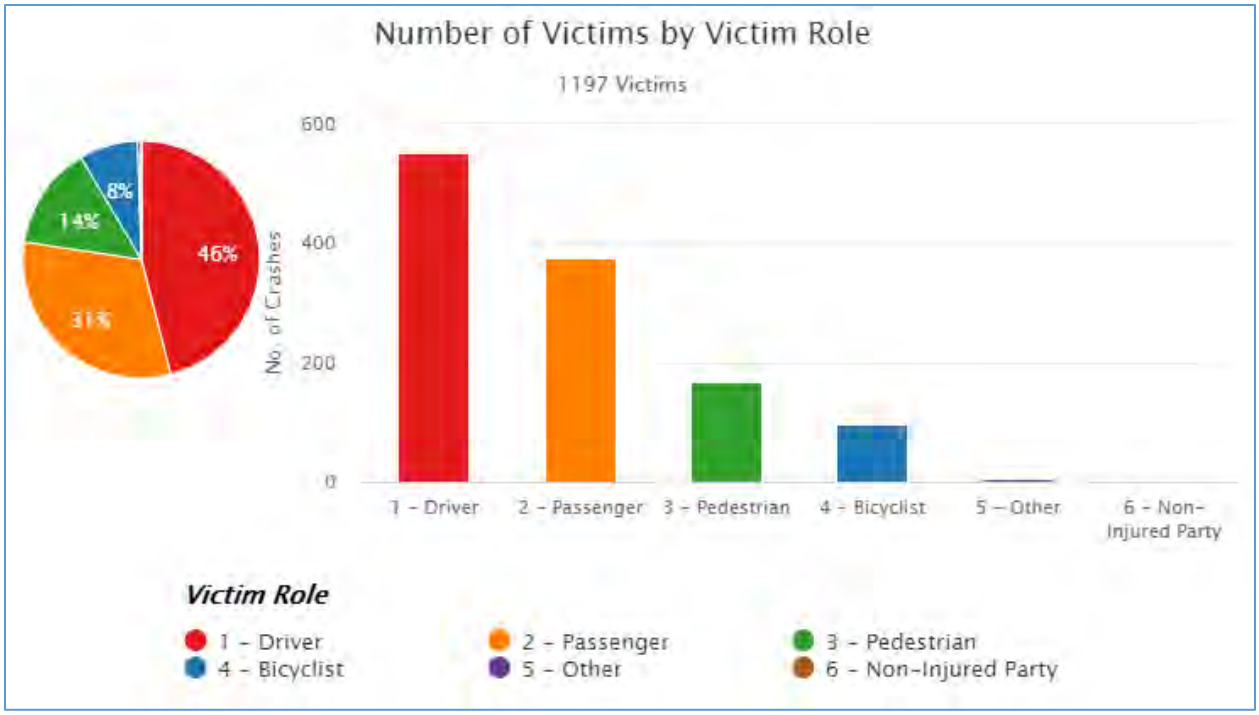



| Victim Degree of Injury | Count | % |
|---|---|---|
| 1 - Killed | 18 | 1.50% |
| 5 - Suspected Serious Injury | 50 | 4.18% |
| 6 - Suspected Minor Injury | 263 | 21.97% |
| 7 - Possible Injury | 866 | 72.35% |
| Total | 1,197 | 100% |

**Figure 7: Number of Victims by Victim Degree of Injury**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

According to University of California, Berkeley Transportation Injury Mapping System (TIMS). There were 1197 victims of traffic collisions in the City of Huntington Park from December 31, 2015 to December 31, 2020. 18 victims were killed (1.50%), 50 victims were reported with suspected serious injury (2.90%), 263 were reported with suspected minor injury (21.97%), and 866 victims were reported with possible injury (72.35%).

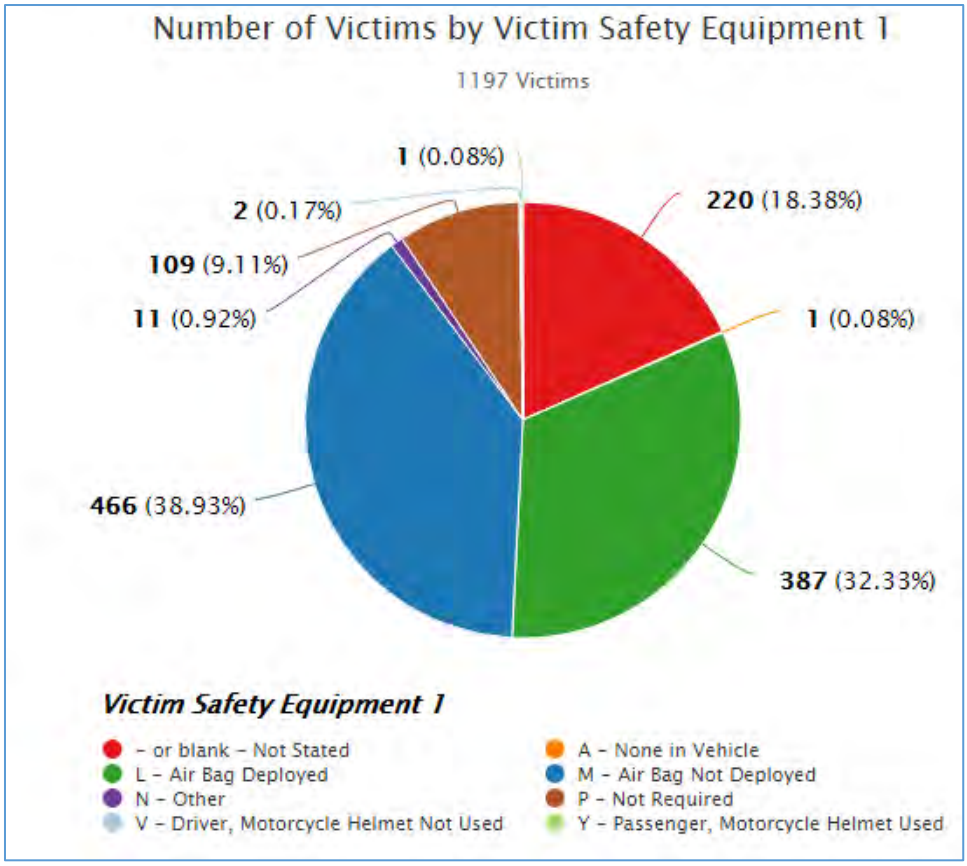



| Victim Role | Count | % |
|---|---|---|
| 1 - Driver | 551 | 46.03% |
| 2 - Passenger | 375 | 31.33% |
| 3 - Pedestrian | 169 | 14.12% |
| 4 - Bicyclist | 96 | 8.02% |
| 5 - Other | 6 | 0.50% |
| Total | 1197 | 100% |

**Figure 8: Number of Victims by Victim Role**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

According to University of California, Berkeley Transportation Injury Mapping System (TIMS), of the collision victims, there were 551 drivers (46.03), 375 passengers (31.33%), 169 pedestrians (14.12%), 96 bicyclists (8.02%), and 6 other (0.50%).




| Victim Safety Equipment 1 | Count | % |
|---|---|---|
| - or blank - Not Stated | 220 | 18.38% |
| A - None in Vehicle | 1 | 0.08% |
| L - Air Bag Deployed | 387 | 32.33% |
| M - Air Bag Not Deployed | 466 | 38.93% |
| N - Other | 11 | 0.92% |
| P - Not Required | 109 | 9.11% |
| V - Driver, Motorcycle Helmet Not Used | 2 | 0.17% |
| Y - Passenger, Motorcycle Helmet Used | 1 | 0.08% |
| Total | 1197 | 100% |

**Figure 9: Number of Victims by Victim Safety Equipment**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

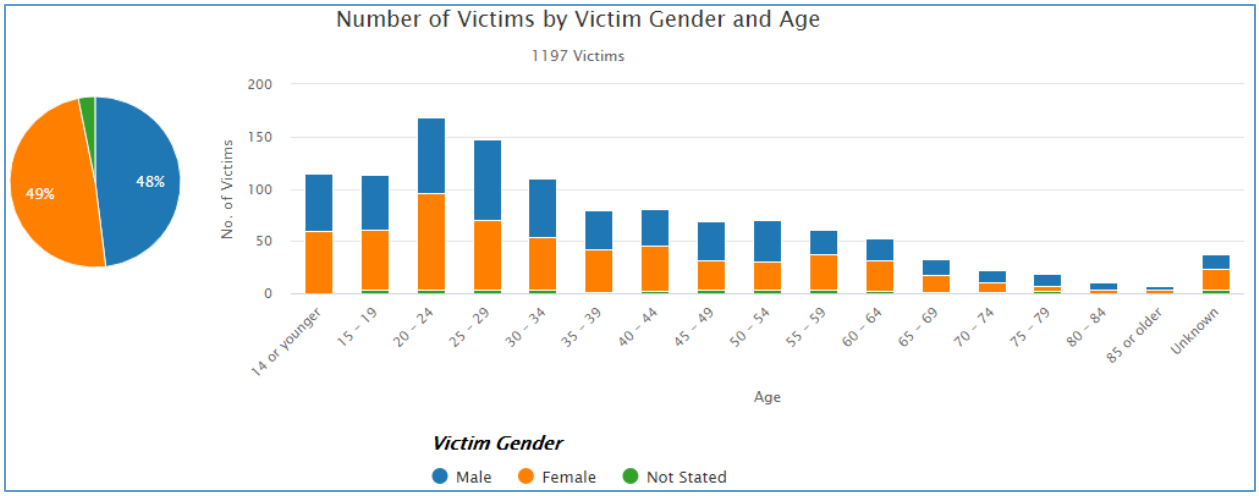


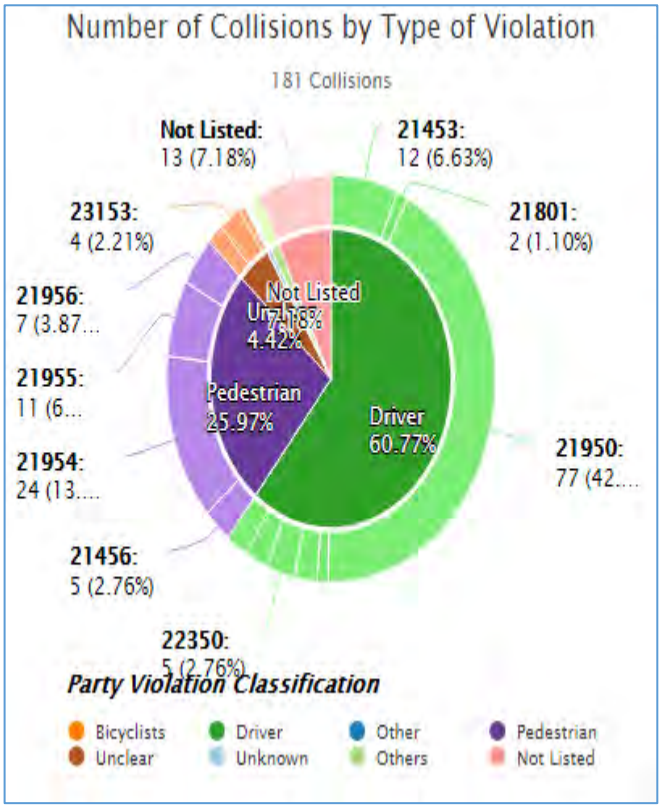

**Figure 10: Number of Victims by Victim Gender and Age**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

For the total of 1197 victims during the 5-year period:

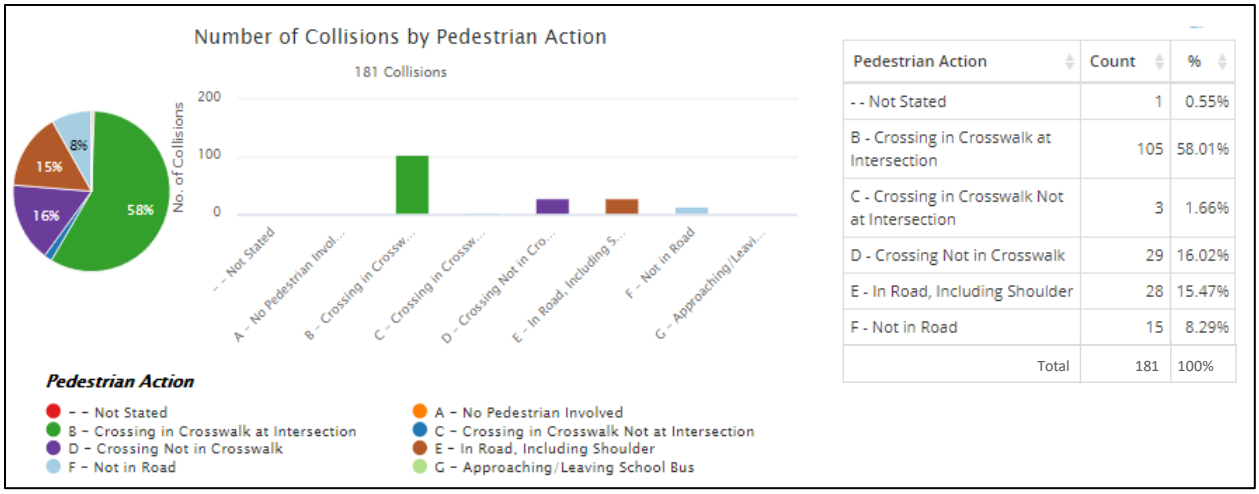
- 49% of them were females
- 48% were males
- 3% were not stated
- The highest number of female victims (93) happened to be in the age range of 20 – 24 years old
- The highest number of male victims (77) happened to be in the age range of 25 – 29 years old
- 115 victims were 14 years old or younger
- 113 victims were between the ages of 15 - 19 years old
- The highest number of male and female victims was 168 ranging between 20 - 24 years old
- 147 victims were between 25-29 years old
- 110 victims were between 30 – 34 years old
- 80 victims were between 35 – 39 years old
- 81 victims were between 40 – 44 years old
- 49 victims were between 45 – 49 years old
- 70 victims were between 50 – 54 years old
- 61 victims were between 55 – 59 years old
- 53 victims were between 60 – 64 years old
- 33 victims were between 65 – 69 years old
- 22 victims were between 70 – 74 years old
- 19 victims were between 75 – 79 years old
- 11 victims were between 80 – 84 years old
- 7 victims were 85 years old or older
- 38 victims were of unknown age

## 6.3 Pedestrian Crash Summary




| Party Violation Classification | Type of Violation | Description | Count | % |
|---|---|---|---|---|
| Driver | 21950 | Driver failure to yield right-of-way to pedestrians at a marked or unmarked crosswalk | 77 | 42.54% |
| Pedestrian | 21954 | Pedestrian failure to yield right-of-way to vehicles when crossing outside of a marked or unmarked crosswalk | 24 | 13.26% |
| Not Listed | Not Listed | Violation code was not included in the collision | 13 | 7.18% |
| Driver | 21453 | Failure to stop at a limit line or crosswalk at a red light Failure to yield right-of-way to pedestrian when turning on a red light | 12 | 6.63% |
| Pedestrian | 21955 | Pedestrian failure to cross at crosswalks between adjacent traffic signal controlled intersections | 11 | 6.08% |
| Pedestrian | 21956 | Pedestrian failure to walk close to the edge of the roadway when there is no sidewalk present / Pedestrian failure to walk on the left-hand edge of the roadway when outside of a business or resident district, unless crossing is not possible | 7 | 3.87% |
| Driver | 22350 | Speeding on the highway / Driving at a dangerously high speed given highway conditions like weather, visibility, traffic, and highway measurements, or driving at a speed that endangers people or property | 5 | 2.76% |
| Pedestrian | 21456 | Pedestrian failure to yield right-of-way at traffic signal / Failure of pedestrian to yield right-of-way to vehicles already in intersection Failure to obey crosswalk symbols or finish crossing before "countdown" ends | 5 | 2.76% |
| Driver | 21952 | Driver failure to yield right-of-way to pedestrians on sidewalks | 4 | 2.21% |
| Driver | 22450 | Driver failure to stop at a stop sign before a limit line (a crosswalk or intersection entrance). Failure to stop at limit line before railroad | 4 | 2.21% |
| Driver | 22106 | Unsafe starting or backing of a vehicle on a highway | 4 | 2.21% |
| Unclear | 23153 | Driving under the influence of alcohol or drugs, resulting in injury to another person | 4 | 2.21% |
| Unclear | 22107 | Unsafe turning or moving right or left on a roadway Turning without signaling | 3 | 1.66% |
| Driver | 21801 | Driver failure to yield right-of-way when making a left turn or U-turn | 2 | 1.10% |
| Driver | 21951 | Failure to stop for a vehicle that has already stopped to permit pedestrian crossing when approaching from behind | 2 | 1.10% |
| Others | Others | 21905 (1) 26708 (1) | 2 | 1.10% |
| Unclear | 21650 | Failure to drive/ride on right half of the roadway (with some exceptions) | 1 | 0.55% |
| Unknown | 22517 | Opening the door of a vehicle on the side of moving traffic unsafely as to interfere with traffic or leaving the door open for a longer period of time than is necessary | 1 | 0.55% |
| | | Total | 181 | 100% |

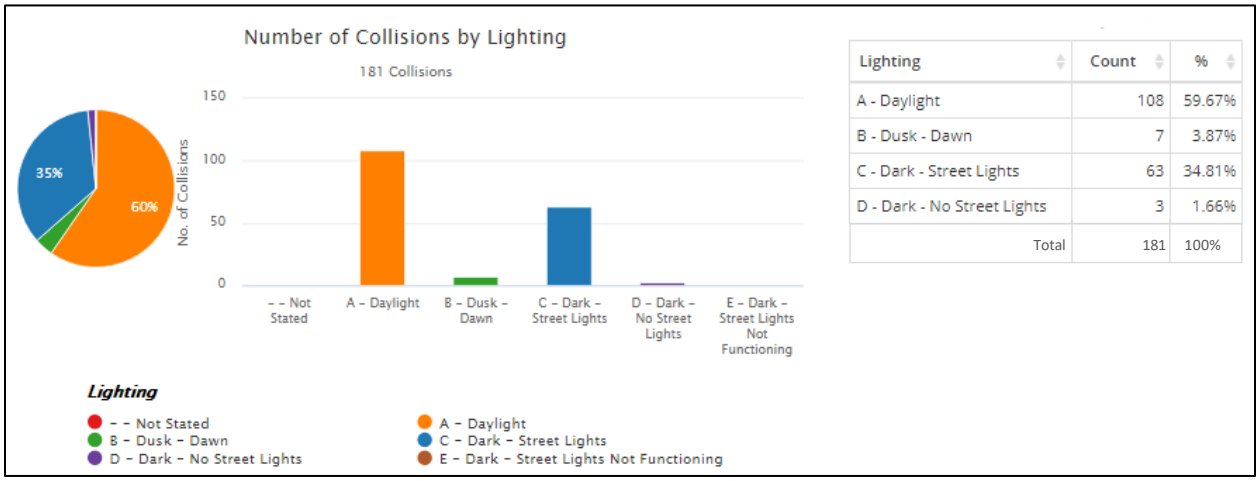
**Figure 11: City of Huntington Park Number of Collisions by Type of Violation**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)




| Pedestrian Action | Count | % |
|---|---|---|
| - - Not Stated | 1 | 0.55% |
| B - Crossing in Crosswalk at Intersection | 105 | 58.01% |
| C - Crossing in Crosswalk Not at Intersection | 3 | 1.66% |
| D - Crossing Not in Crosswalk | 29 | 16.02% |
| E - In Road, Including Shoulder | 28 | 15.47% |
| F - Not in Road | 15 | 8.29% |
| Total | 181 | 100% |

**Figure 12: City of Huntington Park Number of Collisions by Pedestrian Action**

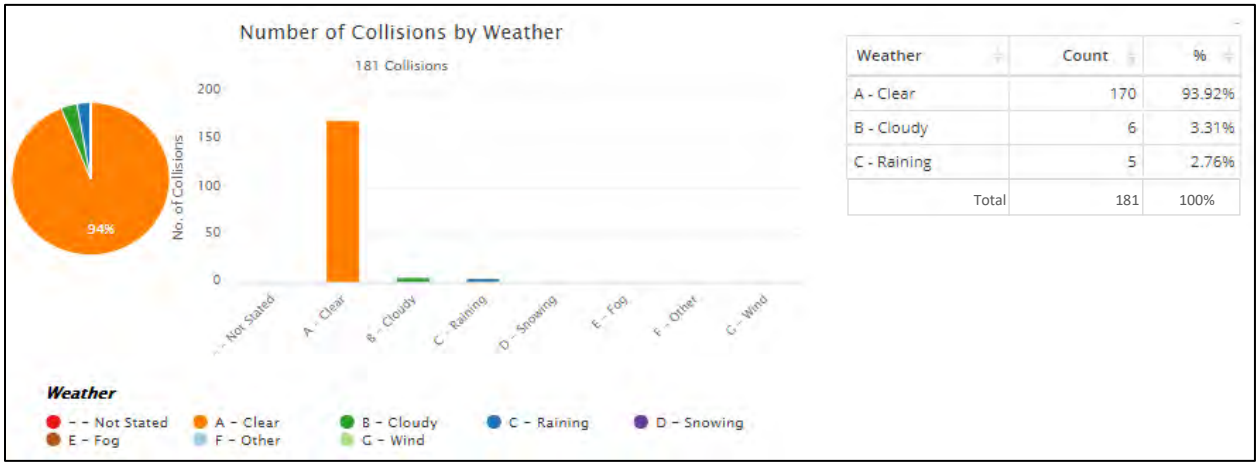
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)




| Lighting | Count | % |
|---|---|---|
| A - Daylight | 108 | 59.67% |
| B - Dusk - Dawn | 7 | 3.87% |
| C - Dark - Street Lights | 63 | 34.81% |
| D - Dark - No Street Lights | 3 | 1.66% |
| Total | 181 | 100% |

**Figure 13: City of Huntington Park Number of Collisions by Lighting**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)



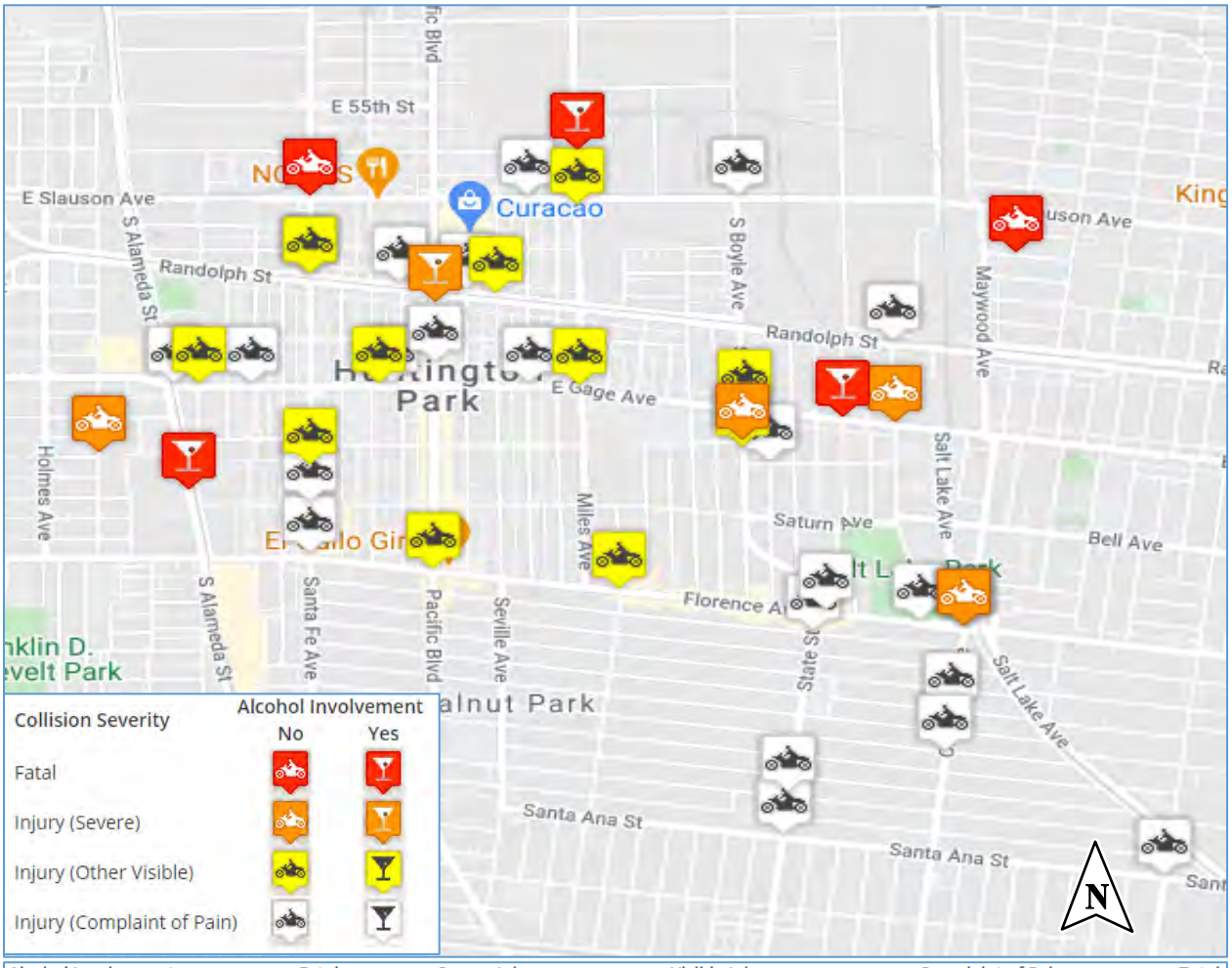

| Weather | Count | % |
|---|---|---|
| A - Clear | 170 | 93.92% |
| B - Cloudy | 6 | 3.31% |
| C - Raining | 5 | 2.76% |
| Total | 181 | 100% |

**Figure 14: City of Huntington Park Number of Collisions by Weather**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## 6.4 Motorcycle Collision Map & Data

The Motorcycle Collision Map below displays Fatal, Injury (Severe), Injury (Other Visible), and Injury (Complaint of Pain) motorcycle collisions that occurred in the City of Huntington Park depicting if there was alcohol involvement with the collisions or not.




| Alcohol Involvement | Fatal | Severe Injury | Visible Injury | Complaint of Pain | Total |
|---|---|---|---|---|---|
| *Yes* | 3 | 1 | 0 | 0 | 4 |
| *No* | 2 | 4 | 13 | 22 | 41 |
| *Total* | 5 | 5 | 13 | 22 | 45 |

**Figure 15: City of Huntington Park Motorcycle Collision Map**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

According to University of California, Berkeley Transportation Injury Mapping System (TIMS) Motorcycle Collision Map, 45 motorcycle collisions occurred in the City of Huntington Park between 2015 and 2020. 4 of the collisions had alcohol involvement (3 Fatal and 1 Severe Injury) and the remaining 41 collisions did not have alcohol involvement. Out of 41 non-alcoholic involvement collisions, 5 collisions were identified as Fatal, 5 were Severe Injury, 13 were Visible Injury, and 22 were Complaint of Pain.

## 6.5 Active Transportation Program (ATP) Summary Data & Maps

From 2015 to 2020 there has been 185 pedestrian collisions and 131 bicycle collisions. Out of the 185 pedestrian collisions, 8 were fatal, 16 were severe injury, 56 were visible injury, and 105 were complaint of pain. Out of the 131 bicycle collisions, 0 were fatal, 5 were severe injury, 62 were visible injury, and 64 were comlaint of pain. The following figure displays the City's ATP heat map.


**Figure 16: City of Huntington Park Active Transportation Heat Map**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

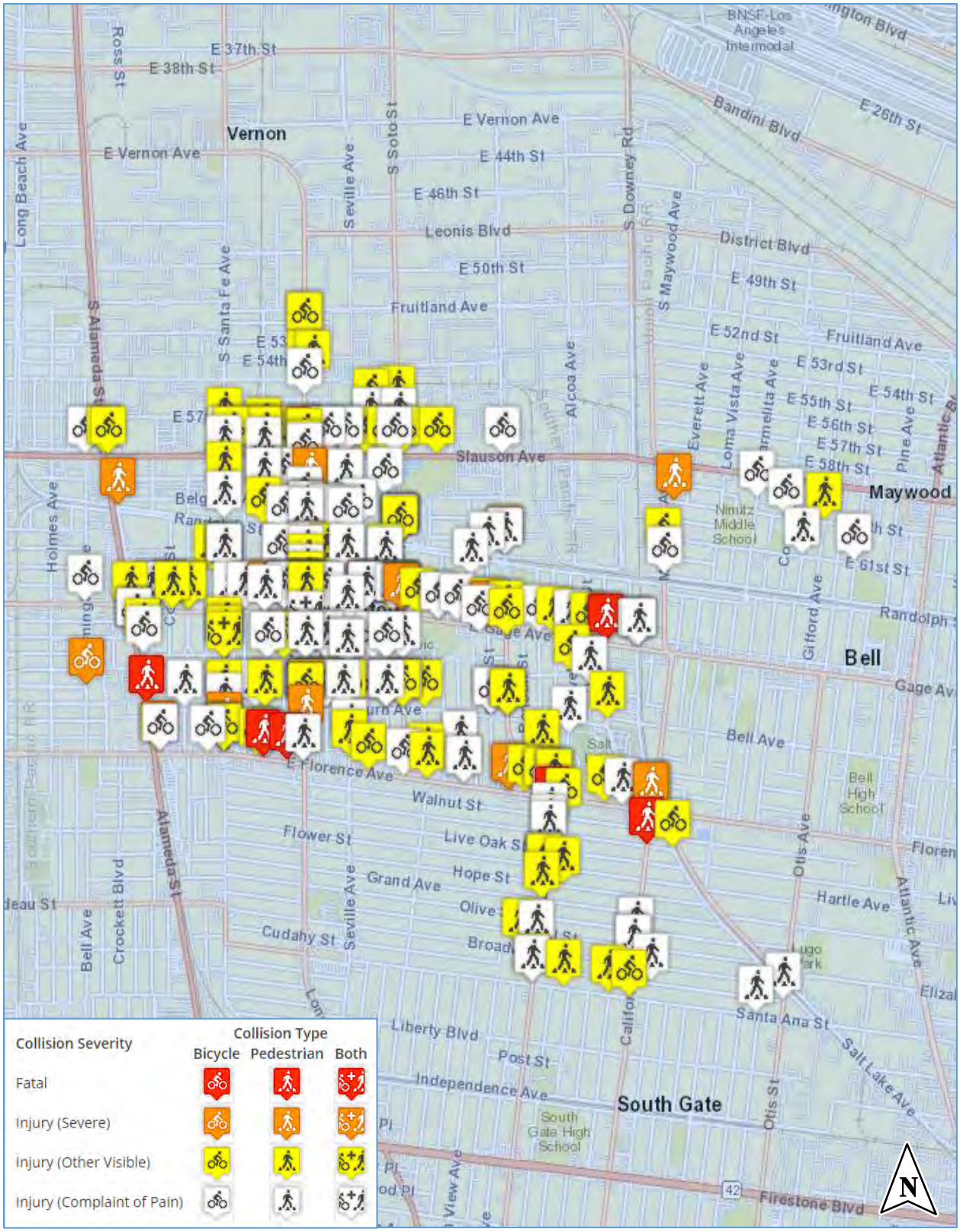



**Figure 17: City of Huntington Park Active Transportation Program Specific Collision Map**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

# 7. Emphasis Areas

The project team identified five major emphasis areas for the City by utilizing the aforementioned analysis that included primary collision factors. The Strategic Highway Safety Plan (SHSP) addresses the "5 Es" of traffic safety: Engineering, Enforcement, Education, Emergency Response, and Emerging Technologies. Each emphasis area utilizes the 5 Es addressed by SHSP, the following emphasis areas are discussed and analyzed in this section.

1. High Collision Intersections
2. High Collision Roadway Segments
3. Broadside Collisions Due to Automobile Right of Way
4. Rear End Collisions Due to Unsafe Speeds
5. Vehicle and Pedestrian Collisions Due to Pedestrian Right of Way & Pedestrian Violation.

## 7.1 High Collision Intersections


The most prominent emphasis area is high collision intersections since most of the collisions in the City of Huntington Park occurred on intersections. Each intersection has its own unique geometry therefore, an analysis of each of the prominent fourteen (14) intersections in the City of Huntington Park was concluded to understand the factors leading to collisions.

**Education**


- Conduct public information and education campaign for safety laws regarding a safe approach to an intersection.
- Raise awareness of the necessity of abiding by the traffic safety laws.


**Engineering**


- Identify and rank high collision intersections within the City every two to three years. Consider information obtained from public input and feedback regarding unreported collisions to supplement crash data.
- Evaluate the primary factors leading to collisions at high collision roadway segments.
- Develop and implement countermeasures to tackle those factors.
- Assess and report collision patterns before and after implementation of countermeasures and adjust as necessary.
- Maintain roadway signing and striping.
- Consider improving night time lighting.

**Enforcement**


- Prioritize patrol patterns at high risk intersections to monitor traffic law violations which include right of way violations, traffic signals and signs, unsafe speed, and DUI.
- When laws are enforced and awareness of abiding by traffic safety laws is raised, intersection collisions will reduce abundantly.

**Emergency Medical Services**


- Consider targeted training for responding to specific high collision intersections and immediate treatment of predominant injuries at those locations.

**Emerging Technologies**


- Upgrade to new methods of integrating multisource transportation data for developing different measurements of traffic safety for road users and identify safety issues associated with emerging electrical and automated vehicles.

## 7.2 High Collision Roadway Segments


Applying safety improvements to high collision roadway segments is also a necessity. Each roadway segment has its own unique geometry therefore, an analysis of each of the prominent six (6) roadway segments in the City of Huntington Park was concluded to understand the factors leading to collisions that occurred.

**Education**


- Conduct public information and education campaign for safety laws regarding safe speed, improper turning, unsafe lane change, and driving on the wrong side of the road.
- Raise awareness of the necessity of abiding by the traffic safety laws.


Source: Beverly Samperio, The Arrow

**Engineering**


- Identify and rank high collision roadway segments within the City every two to three years. Consider information obtained from public input and feedback regarding unreported collisions to supplement crash data.
- Evaluate the primary factors leading to collisions at high collision roadway segments.
- Develop and implement countermeasures to tackle those factors.
- Assess and report collision patterns before and after implementation of countermeasures and adjust as necessary.
- Maintain roadway signing and striping.
- Consider improving night time lighting.

**Enforcement**


- Prioritize patrol patterns at high collision roadway segments to monitor traffic law violations which include unsafe speed and improper turning.
- When laws are enforced and awareness of abiding by traffic safety laws is raised, roadway segment collisions will reduce abundantly.

**Emergency Medical Services**


- Consider targeted training for responding to specific high collision roadway segments and immediate treatment of predominant injuries at those locations.

**Emerging Technologies**


- Upgrade to new methods of integrating multisource transportation data for developing different measurements of traffic safety for road users and identify safety issues associated with emerging electrical and automated vehicles.

## 7.3 Broadside Collisions Due to Automobile Right of Way

Broadside collisions ranked the highest type of collisions with a total count of two hundred ten (210) collisions. Eighty percent (80%) of broadside collisions occurred due to the primary collision factor, automobile right of way. Most broadside and automobile right of way collisions occurred on intersections. Due to the abundant correspondence between broadside and automobile right of way collisions both broadside and automobile right of way collisions were analyzed simultaneously.


### Education


- Conduct public information and education campaign for safety laws regarding yielding to an automobile that has the right of way.
- Raise awareness of the necessity of abiding by the traffic safety laws to avoid broadside collisions that occur mostly due to not giving an automobile the right of way.

Source: Johnstone & Gabhart Lawfirm

### Engineering


- Identify locations where broadside collisions due to automobile right of way are occurring within the City every two to three years.
- Consider information obtained from public input and feedback regarding unreported collisions to supplement crash data.
- Develop and implement countermeasures to tackle broadside collisions due to automobile right of way.
- Assess and report collision patterns before and after implementation of countermeasures and adjust as necessary.
- Maintain roadway signing and striping.
- Consider improving night time lighting.

### Enforcement


- Prioritize patrol patterns at high collision intersections where broadside collisions due to automobile right of way are occurring mostly to monitor traffic law violations which include the failure of not yielding to an automobile when it has the right of way.
- When laws are enforced and awareness of abiding by traffic safety laws and signs is raised, broadside collisions due to automobile right of way will reduce abundantly.

### Emergency Medical Services


- Consider targeted training for responding to high collision intersections where broadside collisions due to automobile right of way are occurring mostly and immediate treatment of predominant injuries at those locations.

### Emerging Technologies


- Upgrade to new methods of integrating multisource transportation data for developing different measurements of traffic safety for road users and identify safety issues associated with emerging electrical and automated vehicles.

## 7.4 Rear End Collisions Due to Unsafe Speed


Rear End collisions ranked the second highest type of collisions with a total count of one hundred seventy-nine (179) collisions. Sixty-eight percent (68%) of rear end collisions occurred due to the primary collision factor, unsafe speed. Most rear end and unsafe speed collisions occurred on intersections while some unsafe speed collisions occurred on roadway segments. Due to the ample correspondence between rear end and unsafe speed collisions both rear end and unsafe speed collisions were analyzed simultaneously.

**Education**


- Conduct public information and education campaign for safety laws regarding maintaining a safe speed by driving at the posted speed limit.
- Raise awareness of the necessity of maintaining a safe speed while driving to avoid the consequences of rear end collisions.


Source: Atlanta Bicycle Coalition

**Engineering**


- Identify locations where rear end collisions due to unsafe speed are occurring within the City every two to three years.
- Consider information obtained from public input and feedback regarding unreported collisions to supplement crash data.
- Develop and implement countermeasures to tackle rear end collisions due to unsafe speed.
- Assess and report collision patterns before and after implementation of countermeasures and adjust as necessary.

**Enforcement**


- Prioritize patrol patterns at high speed locations specifically where rear end collisions due to unsafe speed are occurring to monitor traffic law violations which include the failure of not maintaining a safe speed while operating a vehicle.
- When laws are enforced and awareness of abiding by speed traffic safety laws and signs is raised, rear end collisions due to unsafe speed will reduce abundantly.

**Emergency Medical Services**

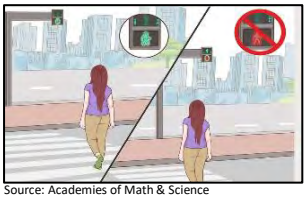

- Consider targeted training for responding to high speed locations specifically where rear end collisions are mostly occurring due to unsafe speed and immediate treatment of predominant injuries at those locations.

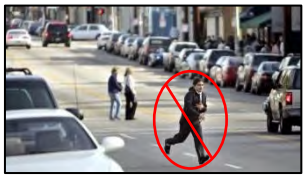
**Emerging Technologies**

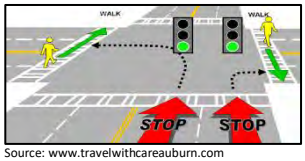

- Upgrade to new methods of integrating multisource transportation data for developing different measurements of traffic safety for road users and identify safety issues associated with emerging electrical and automated vehicles.

## 7.5 Vehicle and Pedestrian Collisions Due to Pedestrian Right of Way and Pedestrian Violation


Vehicle and Pedestrian collisions ranked the third highest type of collisions with a total count of one hundred twenty-seven (127) collisions. Forty-one percent (41%) of vehicle and pedestrian collisions occurred due to the primary collision factor, pedestrian right of way while twenty-eight percent (28%) occurred due to the primary collision factor, pedestrian violation. Most vehicle and pedestrian collisions occurred on intersections. Vehicle and pedestrian collisions along with pedestrian right of way and pedestrian violation collisions were analyzed simultaneously due to the ample correspondence between them.


Source: Academies of Math & Science


Source: Los Angeles Times



Source: www.travelwithcareauburn.com

**Education**


- Conduct public information and education campaign for safety laws and safety concepts regarding a safe active transportation system in the City.
- Raise awareness to the drivers to always watch for pedestrians and yield to them when they are permitted to utilize a pedestrian crosswalk even if the driver's corresponding traffic signal light is green.
- Raise awareness of the necessity of abiding by crossing a pedestrian crosswalk when permitted and not walking or crossing in a roadway that has traffic (jaywalking).

**Engineering**


- Identify locations where most vehicle and pedestrian collisions are occurring.
- Consider information obtained from public input and feedback regarding unreported collisions to supplement crash data.
- Develop and implement countermeasures to tackle vehicle and pedestrian collisions.
- Assess and report collision patterns before and after implementation of countermeasures and adjust as necessary.

**Enforcement**


- Prioritize patrol patterns at high vehicle and pedestrian collision locations to monitor traffic law violations such as not yielding to a pedestrian and jaywalking.
- When laws are enforced and awareness of abiding by pedestrian traffic safety laws is raised, vehicle and pedestrian collisions will reduce abundantly.

**Emergency Medical Services**


- Consider targeted training for responding to high vehicle and pedestrian collision locations and immediate treatment of predominant injuries at those locations.

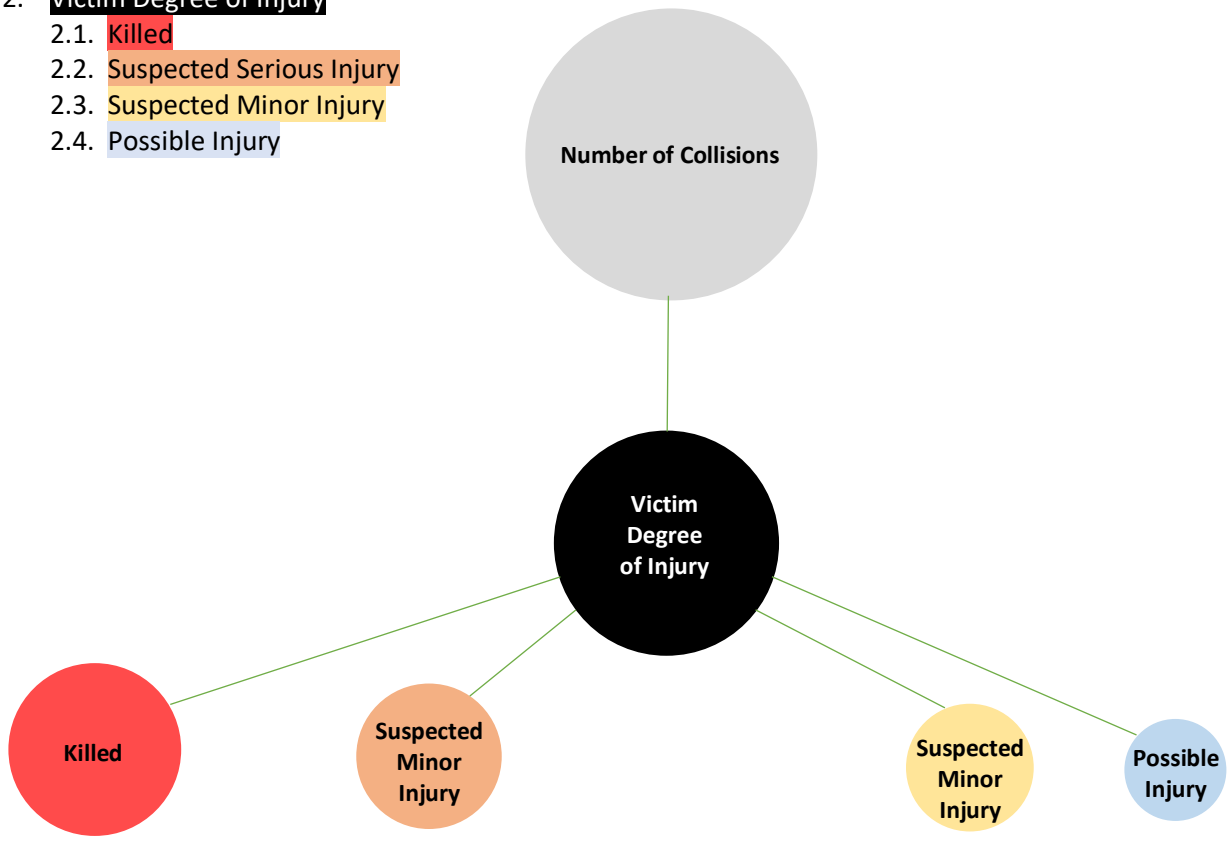
**Emerging Technologies**


- Upgrade to new methods of integrating multisource transportation data for developing different measurements of traffic safety for road users and identify safety issues associated with emerging electrical and automated vehicles.

# 8. High Collision Locations Identification, Pattern Analysis, and Recommended Improvements

***Minagar & Associates, Inc. has developed a list of fifty (50) intersections with the corresponding number of collisions and Victim Degree of Injury, the list is provided in Appendix A. However, as stated on Page 22 in the Caltrans Local Roadway Safety Manual, Version 1.5, April 2020, a list of the top 10 (or 20) intersections and roadway segments in a City should be developed; therefore, fourteen (14) intersections and six (6) roadway segments were identified as high collision locations.*** As part of the quantitative analysis, high collision intersections and roadway segments were identified and prioritized using the Crash Frequency methodology as described in the Local Roadway Safety Manual. Crash Frequency is defined as the number of crashes occurring within a determined study area. Minagar & Associates, Inc. took a further step and included the number of victims and their corresponding degree of injury for each intersection and roadway segment. As part of the qualitative analysis, Minagar & Associates, Inc. conducted a field assessment in the City of Huntington Park on November 1, 2021. The field visit mission, to study the characteristics and geometry of the existing roadway infrastructure, was accomplished successfully and conceptual plans were developed. For each of the identified high collision locations (intersections and roadway segments), prominent locations in the City were identified and ranked based on the following criteria:

1. Number of Collisions
2. Victim Degree of Injury
   - 2.1. Killed
   - 2.2. Suspected Serious Injury
   - 2.3. Suspected Minor Injury
   - 2.4. Possible Injury




Upon identifying and ranking prominent intersections and roadway segments, collisions were analyzed by identifying the Primary Collision Factor (PCF) that lead to the occurrence of each collision. Upon completion of the analysis, recommendations were developed as safety mitigation measures to

potentially mitigate similar collisions in the future. Countermeasures have been proposed in complaince with the California Manual on Uniform Traffic Control Devices (CAMUTCD).

It is important to utilize Crash Modification Factor (CMF) when identifying potential systemic safety improvements. The CMF method is found in Part D of the American Association of State Highway and Transportation Officials (AASHTO) Highway Safety Manual (HSM). CMFs are defined as the ratio of effectiveness of expected crashes with treatment in comparison to expected crashes without treatment. Furthermore, A CMF is a multiplicative factor used to determine the expected number of crashes after implementing the proposed countermeasures to ensure efficiency of utilizing and implementing the proposed countermeasures. Countermeasures with CMFs less than one are expected to reduce crashes. On the other hand, countermeasures with CMFs greater than one are expected to increase crashes. CMFs are calculated as follows:

$$CMF = \frac{\text{Expected Crashes WITH Treatment}}{\text{Expected Crashes WITHOUT Treatment}}$$

| | |
|---|---|
| CMF < 1.0 | Expected to reduce crashes |
| CMF = 1.0 | Expected to have no impact on safety |
| CMF > 1.0 | Expected to increase crashes |

A Crash Reduction Factor (CRF) is similar and related to a CMF but stated in different terms. A CRF is defined as a percentage of crash reduction that might be expected after the implementation of a given countermeasure at a specific site. CRFs are calculated as follows:

$$CRF = (1 - CMF) \times 100$$

Appropriate CMFs shall be used with caution. CMFs should be selected from the HSM Part D, the LRSM, or from the FHWA CMF Clearinghouse website (http://www.cmfclearinghouse.org). The following table displays the engineering countermeasure toolbox, it provides LRSM countermeasure identification or CMF ID, countermeasure name, crash type, CMF, CRF, and HSIP funding eligibility.

**Table 2: City of Huntington Park Engineering Countermeasure Toolbox**

| LRSM No. [1] | Countermeasure Name | Crash Type | | | CMF [2] | CRF [3] | HSIP Funding Eligibility |
|---|---|---|---|---|---|---|---|
| | | All | Night | Ped and Bike | | | |
| S02 | Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number | X | | | 0.85 | 15% | 100% |
| S03 | Improve signal timing (coordination, phases, red, yellow, or operation) | X | | | 0.85 | 15% | 50% |
| S10 | Install flashing beacons as advance warning | X | | | 0.70 | 30% | 100% |
| CMF ID: 9892 | Change permissive left turn phasing to protected/permissive | X | | | 0.67 | 33% | 100% |
| S21PB [4] | Modify signal phasing to implement a Leading Pedestrian Interval (LPI) | | | X | 0.4 | 60% | 100% |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| NS06 | Install/upgrade larger or additional stop signs or other intersection warning/regulatory signs | X | | | 0.85 | 15% | 100% |
| NS07 | Upgrade intersection pavement markings | X | | | 0.75 | 25% | 100% |
| NS14 | Install raised median on approaches | X | | | 0.75 | 25% | 90% |
| R-OS [5] | Other safety improvements (signing and striping) | X | | | 0.85 | 15% | 100% |

[1] Local Roadway Safety Manual Countermeasure Identification Number

- S: Signalized Intersection
- NS: Non-Signalized Intersection
- R: Roadway Segment

[2] Crash Modification Factor
[3] Crash Reduction Factor
[4] Crash Modification Factors Clearinghouse Countermeasure Identification Number
[5] Other safety improvements (signing and striping

## 8.1 High Collision Intersections

High collision intersections are critical intersections that require the most analytical focus since it is anticipated that many collisions will occur within a high collision intersection based on its crash history. Table 3 displays the fourteen (14) most prominent intersections in terms of number of collisions in the City of Huntington Park. Table 4 displays the fourteen (14) prominent intersections with their ranking methodology. ***Minagar & Associates, Inc. has developed a list of fifty (50) intersections with the corresponding number of collisions and Victim Degree of Injury, the list is provided in Appendix A. However, as stated on Page 22 in the Caltrans Local Roadway Safety Manual, Version 1.5, April 2020, a list of the top 10 (or 20) intersections and roadway segments in a City should be developed; therefore, fourteen (14) intersections and six (6) roadway segments were identified as high collision locations.***

**Table 3: List of High Collision Intersections**

| Intersection Ranking Number* | Intersection | Control | Number of Collisions** |
|---|---|---|---|
| 1 | California Ave/Salt Lake Ave & Florence Ave | Signalized | 22 |
| 2 | Gage Ave & Pacific Blvd | Signalized | 20 |
| 3 | Gage Ave & State St | Signalized | 17 |
| 4 | Miles Ave/Soto St & Slauson Ave | Signalized | 15 |
| 5 | Gage Ave & Miles Ave | Signalized | 14 |
| 6 | Gage Ave & Santa Fe Ave | Signalized | 14 |
| 7 | Pacific Blvd & Slauson Ave | Signalized | 14 |
| 8 | Gage Ave & Rugby Ave | Signalized | 14 |
| 9 | Florence Ave & State St | Signalized | 13 |
| 10 | Alameda St & Randolph St | Unsignalized | 12 |
| 11 | Hope St & State St | Signalized | 12 |
| 12 | Randolph St & Santa Fe Ave | Signalized | 12 |
| 13 | Florence Ave & Santa Fe Ave | Signalized | 12 |
| 14 | Saturn Ave & Miles Ave | Signalized | 12 |

* Intersection Ranking Number is based on the number of contiguous collisions in each intersection within a distance of 250 feet.
** Total Number of Collisions during the 5-year period between December 31, 2015 and December 31, 2020.

**Table 4: Intersection Number of Collisions and Ranking in the City of Huntington Park**

| Intersection Ranking Number* | Intersection | Number of Collisions** | Victim Degree of Injury | | | |
|---|---|---|---|---|---|---|
| | | | Killed | Suspected Serious Injury | Suspected Minor Injury | Possible Injury |
| 1 | California Ave/Salt Lake Ave & Florence Ave | 22 | 0 | 1 | 7 | 21 |
| 2 | Gage Ave & Pacific Blvd | 20 | 0 | 0 | 8 | 19 |
| 3 | Gage Ave & State St | 17 | 0 | 0 | 3 | 16 |
| 4 | Miles Ave/Soto St & Slauson Ave | 15 | 0 | 1 | 6 | 12 |
| 5 | Gage Ave & Miles Ave | 14 | 0 | 2 | 3 | 11 |
| 6 | Gage Ave & Santa Fe Ave | 14 | 0 | 2 | 2 | 12 |
| 7 | Pacific Blvd & Slauson Ave | 14 | 0 | 1 | 3 | 16 |
| 8 | Gage Ave & Rugby Ave | 14 | 0 | 1 | 3 | 15 |
| 9 | Florence Ave & State St | 13 | 0 | 0 | 3 | 13 |
| 10 | Alameda St & Randolph St | 12 | 1 | 2 | 3 | 10 |
| 11 | Hope St & State St | 12 | 1 | 0 | 3 | 14 |
| 12 | Randolph St & Santa Fe Ave | 12 | 0 | 2 | 8 | 13 |
| 13 | Florence Ave & Santa Fe Ave | 12 | 0 | 1 | 2 | 18 |
| 14 | Saturn Ave & Miles Ave | 12 | 0 | 1 | 7 | 21 |

* Intersection Ranking Number is based on the number of contiguous collisions in each intersection within a distance of 250 feet.
** Total Number of Collisions during the 5-year period between December 31, 2015 and December 31, 2020.

### 8.1.1 Intersection 1: California Ave and Florence Ave

**Table 5: Intersection 1 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 8 | | Unsafe Speed |
| 6 | | Traffic Signals and Signs |
| 3 | | Driving or Bicycling Under the Influence of Alcohol |
| 1 | | Wrong Side of the Road |
| 1 | | Automobile Right of Way |
| 1 | | Pedestrian Right of Way |
| 1 | | Other than Driver (or Pedestrian) |
| 1 | | Unknown |
| Total | 22 | |

Pattern: Eastbound and Westbound drivers are mostly at fault, failing to maintain a safe speed and stop at the traffic signal.

High Collision Recommendations:

1. Replace or upgrade signal back-plates with retroreflective border.
2. Install brand new 12” signal heads.
3. Install signal ahead sign (W3-3) supplemented with a flashing beacon.
4. Install R2-1 (35 MPH).
5. Repaint intersection pavement marking.
6. Restripe intersection traffic striping within 300 ft radius of intersection center.
7. Replace controller with 2070 and battery backup.
8. Install new 4” conduit.
9. Install new wiring.

Pedestrian and Bicyclist Recommendations:

10. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***According to the Transportation Impact Analysis Report included in the Draft Environmental Impact Report (EIR) (July 2021) for the West Santa Ana Branch Transit Corridor Project, this intersection is identified as one of the key intersections due to the potential adverse impact the future rail would have on the subject intersection.***

***How will these recommendations improve this intersection?***

A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. Installing a signal ahead sign supplemented with a flashing beacon will serve as an advance warning that a traffic signal is ahead. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries. The 2070 signal controller supports a variety of applications through modular design, it would upgrade this existing intersection to a higher performance platform without replacing cabinet hardware. A battery backup increases the public safety and reduces traffic congestion by allowing traffic lights to function even during a power failure. New 4” conduit and new wiring provide a waterproof and long life conduit wiring system. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7

seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.2 Intersection 2: Gage Ave & Pacific Blvd

**Table 6: Intersection 2 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 4 | | Traffic Signals and Signs |
| 4 | | Pedestrian Violation |
| 3 | | Pedestrian Right of Way |
| 3 | | Improper Turning |
| 2 | | Unsafe Speed |
| 2 | | Automobile Right of Way |
| 1 | | Wrong Side of the Road |
| 1 | | Other Equipment |
| Total | 20 | |

Pattern: Broadside collisions due to drivers not abiding by traffic signals and signs. Some pedestrians are not given the right of way while others are violating the automobile right of way.

High Collision Recommendations:

1. Review and update signal clearance timing as necessary.
2. Replace or upgrade signal back-plates with retroreflective border.
3. Install brand new 12” signal heads.
4. Repaint intersection pavement marking.
5. Restripe intersection traffic striping within 300 ft radius of intersection center.
6. Split phase based on 8-hour turning movement counts.
7. Replace controller with 2070 and battery backup.
8. Install new 4” conduit.
9. Install new wiring.
10. Replace video detection cameras.

Pedestrian Recommendations:

11. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***How will these recommendations improve this intersection?***

Certain timing, phasing, and control strategies can produce safer traffic travelling situations. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries. Split phasing eliminates conflicts between turning vehicles and pedestrians. The 2070 signal controller supports a variety of applications through modular design, it would upgrade this existing intersection to a higher performance platform without replacing cabinet hardware. A battery backup increases the public safety and reduces traffic congestion by allowing traffic lights to function even during a power failure. New 4” conduit and new wiring provide a waterproof and long life conduit wiring system. High performance

video detection cameras help monitor the traffic and help determine the lights' timing. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.3 Intersection 3: Gage Ave & State St

**Table 7: Intersection 3 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 5 | | Automobile Right of Way |
| 3 | | Traffic Signals and Signs |
| 3 | | Improper Turning |
| 2 | | Pedestrian Right of Way |
| 2 | | Unknown |
| 1 | | Unsafe Speed |
| 1 | | Driving or Bicycling Under the Influence of Alcohol or Drug |
| Total | 17 | |

Pattern: Broadside collisions due to drivers not yielding to oncoming traffic when making a left turn on Gage Ave & State St.

High Collision Recommendations:

1. Review and update signal clearance timing as necessary.
2. Install "Left Turn Yield on Green" (R10-12) on traffic signals.
3. Replace or upgrade signal back-plates with retroreflective border.
4. Install brand new 12" signal heads.
5. Repaint intersection pavement marking.
6. Restripe intersection traffic striping within 300 ft radius of intersection center.
7. Install new loops.
8. Replace/Upgrade signage to prohibit turns by trucks.

Pedestrian and Bicyclist Recommendations:

9. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***How will these recommendations improve this intersection?***

Certain timing, phasing, and control strategies can produce safer traffic travelling situations. A "Left Turn Yield on Green" sign will act as a cautious element that informs the driver to yield when turning left to enhance safety when the driver turns left. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8" signal heads, 12" signal heads also provide a better visibility of the intersection's traffic signals to the approaching driver. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries. High performance loops detect traffic and help traffic to flow better. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.4 Intersection 4: Miles Ave/Soto St & Slauson Ave

**Table 8: Intersection 4 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 7 | Unsafe Speed |
| 4 | Automobile Right of Way |
| 1 | Improper Turning |
| 1 | Traffic Signals and Signs |
| 1 | Wrong Side of the Road |
| 1 | Other Improper Driving |
| Total 15 | |

Pattern: Broadside and rear-end collisions due to drivers driving at an unsafe speed. Broadside collisions are also occurring due to road users not giving automobile the right of way.

High Collision Recommendations:

1. Install R2-1 (25 MPH)
2. Review and update traffic signal clearance timing.
3. Replace or upgrade signal back-plates with retroreflective border.
4. Install brand new 12” signal heads.
5. Convert to protected permissive phasing based on 8-hour turning movement counts.
6. Repaint intersection pavement marking.
7. Restripe intersection traffic striping within 300 ft radius of intersection center.

Pedestrian and Bicyclist Recommendations:

8. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***How will these recommendations improve this intersection?***

The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. Certain timing, phasing, and control strategies can produce safer traffic travelling situations. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. Protected permissive phasing increases the efficiency of traffic flow by permitting left turning movements through gaps in the opposing traffic. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries.
A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.5 Intersection 5: Gage Ave & Miles Ave

**Table 9: Intersection 5 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 5 | Pedestrian Right of Way |
| 2 | Driving or Bicycling Under the Influence of Alcohol or Drug |
| 2 | Other Hazardous Violation |
| 1 | Unsafe Speed |
| 1 | Traffic Signals and Signs |
| 1 | Automobile Right of Way |
| 1 | Pedestrian Violation |
| 1 | Unknown |
| Total 14 | |

Pattern: Drivers are not yielding to pedestrians.

High Collision Recommendations:

1. Replace or upgrade signal back-plates with retroreflective border.
2. Install brand new 12” signal heads.
3. Install signal ahead sign (W3-3) supplemented with a flashing beacon.
4. Install no turn on red during school and peak hours sign (R10-11 & R10-20aP).
5. Replace controller with 2070 and battery backup.
6. Convert to protected permissive phase based on 8-hour turning movement counts.
7. Repaint intersection pavement marking.

Pedestrian Recommendations:

8. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***How will these recommendations improve this intersection?***

A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. Installing a signal ahead sign supplemented with a flashing beacon will serve as an advance warning that a traffic signal is ahead. No turning on red improves pedestrian safety and reduces collisions. The 2070 signal controller supports a variety of applications through modular design, it would upgrade this existing intersection to a higher performance platform without replacing cabinet hardware. A battery backup increases the public safety and reduces traffic congestion by allowing traffic lights to function even during a power failure. Protected permissive phasing increases the efficiency of traffic flow by permitting left turning movements through gaps in the opposing traffic. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.6 Intersection 6: Gage Ave & Santa Fe Ave

**Table 10: Intersection 6 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 5 | Automobile Right of Way |
| 3 | Unsafe Speed |
| 3 | Improper Turning |
| 1 | Traffic Signals and Signs |
| 1 | Driving or Bicycling Under the Influence of Alcohol or Drug |
| 1 | Unknown |
| Total 14 | |

Pattern: Drivers are failing to give automobile right of way and maintain a safe speed. Drivers are also making improper turns.

High Collision Recommendations:

1. Replace or upgrade signal back-plates with retroreflective border.
2. Install brand new 12” signal heads.
3. Install R2-1 (30 MPH).
4. Replace video detection cameras.
5. Repaint intersection pavement marking.
6. Restripe intersection traffic striping within 300 ft radius of intersection center.
7. Prohibit right-turns by trucks.

Notes:

1. Minagar & Associates, Inc. conducted a truck turning template for this intersection and it was concluded that according to the truck turning templates provided in **Appendix B**, trucks do not have the sufficient spacing to make a right turn. Therefore, it is recommended to prohibit right turning for trucks at this intersection.

***How will these recommendations improve this intersection?***

A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. High performance video detection cameras help monitor the traffic and help determine the lights’ timing. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries.

### 8.1.7 Intersection 7: Pacific Blvd & Slauson Ave

**Table 11: Intersection 7 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 5 | Unsafe Speed |
| 3 | Traffic Signals and Signs |
| 2 | Driving or Bicycling Under the Influence of Alcohol |
| 1 | Wrong Side of Road |
| 1 | Unsafe Lane Change |
| 1 | Automobile Right of Way |
| 1 | Pedestrian Right of Way |
| Total 14 | |

Pattern: Drivers are failing to maintain a safe speed and abide by traffic signals and signs

High Collision Recommendations:

1. Replace or upgrade signal back-plates with retroreflective border.
2. Install brand new 12” signal heads.
3. Install R2-1 (35 MPH).
4. Install R2-1 (25 MPH).
5. Convert to protected permissive phasing based on 8-hour turning movement counts.
6. Replace video detection cameras.

Pedestrian and Bicyclist Recommendations:

7. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***How will these recommendations improve this intersection?***

A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. Protected permissive phasing increases the efficiency of traffic flow by permitting left turning movements through gaps in the opposing traffic. High performance video detection cameras help monitor the traffic and help determine the lights’ timing. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.8 Intersection 8: Gage Ave & Rugby Ave

**Table 12: Intersection 8 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 4 | | Traffic Signals and Signs |
| 4 | | Unknown |
| 3 | | Unsafe Speed |
| 1 | | Pedestrian Violation |
| 1 | | Other Hazardous Material |
| 1 | | Unsafe Starting or Backing |
| Total | 14 | |

Pattern: Drivers are failing to yield to oncoming traffic and are not maintaining a safe speed.

High Collision Recommendations:

1. Replace or upgrade signal back-plates with retroreflective border.
2. Install brand new 12” signal heads.
3. Install R2-1 (30 MPH).
4. Install R2-1 (25 MPH).
5. Review and update traffic signal clearance timing (increase all red to 2 seconds).

***How will these recommendations improve this intersection*?**

A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. Certain timing, phasing, and control strategies can produce safer traffic travelling situations.

### 8.1.9 Intersection 9: Florence Ave & State St

**Table 13: Intersection 9 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 7 | Unsafe Speed |
| 3 | Improper Turning |
| 1 | Automobile Right of Way |
| 1 | Pedestrian Right of Way |
| 1 | Traffic Signals and Signs |
| Total 13 | |

Pattern: Drivers are not maintaining a safe speed and are making improper turning.

High Collision Recommendations:

1. Review and update signal clearance timing as necessary.
2. Replace or upgrade signal back-plates with retroreflective border.
3. Install R2-1 (35 MPH).
4. Install R2-1 (30 MPH).

Pedestrian and Bicyclist Recommendations:

5. Modify signal phasing to implement a Leading Pedestrian Interval (LPI)

***How will these recommendations improve this intersection?***

Certain timing, phasing, and control strategies can produce safer traffic travelling situations. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

## 8.1.10 Intersection 10: Alameda St & Randolph St

**Table 14: Intersection 10 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 8 | | Traffic Signals and Signs |
| 2 | | Driving or Bicycling Under the Influence of Alcohol |
| 1 | | Pedestrian Right of Way |
| 1 | | Improper Turning |
| Total | 12 | |

Pattern: Northbound and Southbound drivers are mostly at fault failing to stop or yield to the Eastbound and Westbound traffic on Randolph Street.

High Collision Recommendations:

1. Remove existing traffic control device.
2. Remove existing crosswalk.
3. Install raised median.
4. Install "One Way" sign R6-1 (R).
5. Install "Right Turn Only" sign below existing R1-1 sign.
6. Install type I 18'-0" arrow.
7. Install type IV (R) arrow.
8. Remove pedestrian ramp.
9. Install "No Pedestrian Crossing" sign (R9-3a) & "Use Crosswalk" plaque (R9-3bp)
10. Install "Keep Clear" legend.
11. Install white traffic striping.
12. Repaint intersection pavement.
13. Restripe intersection traffic striping within 300 ft radius of intersection center.

Pedestrian and Bicyclist Recommendations:

14. Modify signal phasing to implement a Leading Pedestrian Interval (LPI)

***According to the Transportation Impact Analysis Report included in the Draft Environmental Impact Report (EIR) (July 2021) for the West Santa Ana Branch Transit Corridor Project, this intersection is identified as one of the key intersections due to the potential adverse impact the future rail would have on the subject intersection.***

***How will these recommendations improve this intersection?***

All twelve (12) collisions occurred on the eastern section of the intersection because northbound and southbound drivers were mostly at fault by failing to stop or yield to eastbound and westbound traffic therefore, the eastern section of the intersection is mainly emphasized. Minagar & Associates, Inc. recommends installing a raised median along Randolph St to prevent northbound and southbound Alameda St drivers from driving straight (north or south) onto the intersection. In other words, northbound and southbound Alameda St drivers will have the only option of turning right onto Randolph St and not proceeding straight. Two signs in addition to the raised median would prevent the northbound and southbound Alameda St drivers from driving straight into the raised median. The first is the "One Way" sign, it shall serve as an indication that this street (Randolph St) is one way. The second is the "Right Turn Only" sign, it shall inform the driver that

only a right turn can be made. Furthermore, three elements would prevent northbound and southbound drivers from driving straight, those are the raised median, “One Way” sign, and “Right Turn Only” sign. As part of changing the intersection’s geometry and installing a raised median, existing traffic control devices such as signs, pavements, and striping need to be removed accordingly. Conversely, proposed traffic control devices such as signs, pavements, and striping need to be installed accordingly. Due to the future West Santa Ana Branch Transit Corridor Project which is forecasted to open in year 2041, the pedestrian crosswalk as well as the pedestrian ramp along Alameda St on the eastern section of the intersection shall be removed to eliminate potential fatalities as a result of pedestrians utilizing the subject crosswalk. Installing “No Pedestrian Crossing” sign and “Use Crosswalk” plaque informs the pedestrian with the intent to cross to not cross the subject crosswalk and instead use the crosswalk along Alameda St on the western section of the intersection. Installing a “Keep Clear” pavement legend can improve the traffic flow by not blocking the intersection as westbound Randolph St drivers approach the intersection. The installation of the white striping as a continuous striping lane would enhance safety to the traveling eastbound Randolph St traffic and the northbound Alameda St right turning traffic. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.11 Intersection 11: Hope St & State St

**Table 15: Intersection 11 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 5 | Automobile Right of Way |
| 2 | Unsafe Speed |
| 1 | Improper Turning |
| 1 | Pedestrian Right of Way |
| 1 | Traffic Signals and Signs |
| 1 | Other Hazardous Violation |
| 1 | Unknown |
| Total 12 | |

Pattern: Road users are not giving the automobile the right of way and other drivers are not maintaining a safe speed.

High Collision Recommendations:

1. Review and update signal clearance timing as necessary.
2. Install "Left Turn Yield on Green" (R10-12) on traffic signals.
3. Install R2-1 (35 MPH).
4. Replace or upgrade signal back-plates with retroreflective border.
5. Upgrade 8" signal heads to 12" signal heads.
6. Split phase based on 8-hour turning movement counts.
7. Replace controller with 2070 and battery backup.
8. Install new wiring.

Pedestrian and Bicyclist Recommendations:

9. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***How will these recommendations improve this intersection?***

Certain timing, phasing, and control strategies can produce safer traffic travelling situations. A "Left Turn Yield on Green" sign will act as a cautious element that informs the driver to yield when turning left to enhance safety when the driver turns left. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8" signal heads, 12" signal heads also provide a better visibility of the intersection's traffic signals to the approaching driver. Split phasing eliminates conflicts between turning vehicles and pedestrians. The 2070 signal controller supports a variety of applications through modular design, it would upgrade this existing intersection to a higher performance platform without replacing cabinet hardware. A battery backup increases the public safety and reduces traffic congestion by allowing traffic lights to function even during a power failure. New 4" conduit and new wiring provide a waterproof and long life conduit wiring system. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

## 8.1.12 Intersection 12: Randolph St & Santa Fe Ave

**Table 16: Intersection 12 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 4 | | Traffic Signals & Signs |
| 3 | | Driving or Bicycling Under the Influence of Alcohol |
| 2 | | Automobile Right of Way |
| 1 | | Pedestrian Right of Way |
| 1 | | Unsafe Speed |
| 1 | | Unknown |
| Total | 12 | |

Pattern: Drivers are not abiding by traffic signals and signs and are not giving automobile right of way.

High Collision Recommendations:

1. Review and update signal clearance timing as necessary.
2. Install R2-1 (35 MPH).
3. Replace or upgrade signal back-plates with retroreflective border.
4. Install brand new 12” signal heads.
5. Repaint intersection pavement.
6. Restripe intersection traffic striping within 300 ft radius of intersection center.
7. Replace controller with 2070 and battery backup.
8. Install new 4” Conduit.
9. Install new wiring.

Pedestrian and Bicyclist Recommendations:

10. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***According to the Transportation Impact Analysis Report included in the Draft Environmental Impact Report (EIR) (July 2021) for the West Santa Ana Branch Transit Corridor Project, this intersection is identified as one of the key intersections due to the potential adverse impact the future rail would have on the subject intersection.***

***How will these recommendations improve this intersection?***

Certain timing, phasing, and control strategies can produce safer traffic travelling situations. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. When compared to 8” signal heads, 12” signal heads also provide a better visibility of the intersection’s traffic signals to the approaching driver. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries. The 2070 signal controller supports a variety of applications through modular design, it would upgrade this existing intersection to a higher performance platform without replacing cabinet hardware. A battery backup increases the public safety and reduces traffic congestion by allowing traffic lights to function even during a power failure. New 4” conduit and new wiring provide a waterproof and long life conduit wiring system. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

### 8.1.13 Intersection 13: Florence Ave & Santa Fe Ave

**Table 17: Intersection 13 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 4 | Automobile Right of Way |
| 3 | Traffic Signals and Signs |
| 2 | Unknown |
| 1 | Unsafe Speed |
| 1 | Improper Turning |
| 1 | Pedestrian Right of Way |
| Total 12 | |

Pattern: Failure to give automobile right of way and abide by traffic signals and signs.

High Collision Recommendations:

1. Review and upgrade signal clearance timing as necessary.
2. Install R2-1 (35 MPH).
3. Replace or upgrade signal back-plates with retroreflective border.
4. Repaint intersection pavement.
5. Restripe intersection traffic striping within 300 ft radius of intersection center.

Pedestrian and Bicyclist Recommendations:

6. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***It is to be noted that 50% of this intersection is shared with the County of Los Angeles; therefore, Los Angeles County coordination is needed to upgrade to LA County standard.***

***How will these recommendations improve this intersection?***

Certain timing, phasing, and control strategies can produce safer traffic travelling situations. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. Repainting pavement and striping enhances safety by offering more visibility of pavement markings and lane boundaries. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

## 8.1.14 Intersection 14: Saturn Ave & Miles Ave

**Table 18: Intersection 14 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 5 | | Traffic Signals and Signs |
| 3 | | Unsafe Speed |
| 1 | | Improper Turning |
| 1 | | Automobile Right of Way |
| 1 | | Pedestrian Right of Way |
| 1 | | Pedestrian Violation |
| Total | 12 | |

Pattern: Drivers are not abiding by traffic signals and are not maintaining a safe speed.

High Collision Recommendations:

1. Review and upgrade signal clearance timing as necessary.
2. Install "Left Turn Yield on Green" (R10-12) on traffic signals.
3. Install R2-1 (35 MPH).
4. Replace or upgrade signal back-plates with retroreflective border.
5. Install no turn on red during school and peak hours sign (R10-11 & R10-20aP).

Pedestrian and Bicyclist Recommendations:

6. Modify signal phasing to implement a Leading Pedestrian Interval (LPI).

***How will these recommendations improve this intersection*?**

Certain timing, phasing, and control strategies can produce safer traffic travelling situations. A "Left Turn Yield on Green" sign will act as a cautious element that informs the driver to yield when turning left to enhance safety when the driver turns left. The speed limit sign is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. A clear retroreflective border provides a better visibility of intersection traffic signals as the driver tends to approach the intersection. No turning on red improves pedestrian safety and reduces collisions. A leading pedestrian interval gives pedestrians the opportunity to enter an intersection 3-7 seconds before vehicles are given a green indication. Therefore, a leading pedestrian interval enhances the safety of pedestrians by reducing conflicts between pedestrians and vehicles.

## 8.2 High Collision Roadway Segments

High collision roadway segments are critical segments that require focus since it is anticipated that many collisions will occur within a high collision roadway segment based its crash history. The following table displays the six (6) most prominent roadway segments in the City of Huntington Park. ***As stated on Page 22 in the Caltrans Local Roadway Safety Manual, Version 1.5, April 2020, a list of the top 10 (or 20) intersections and roadway segments in a City should be developed; therefore, fourteen (14) intersections and six (6) roadway segments were identified as high collision locations.***

**Table 19: List of High Collision Roadway Segments**

| Roadway Segment Ranking Number* | Roadway Segment** | Number of Collisions*** |
|---|---|---|
| 1 | Pacific Blvd from Slauson Ave to Belgrave Ave | 5 |
| 2 | Alameda St from E 67th St to Hawkins Cir | 4 |
| 3 | Slauson Ave from Miles Ave/Soto St to Bickett St | 4 |
| 4 | Slauson Ave from Alameda St to Santa Fe Ave | 3 |
| 5 | Slauson Ave from Bickett St to State St/Boyle Ave | 3 |
| 6 | Pacific Blvd from Gage Ave to Clarendon Ave | 2 |

* Roadway Segment Ranking Number is based on the number of collisions that occurred on a roadway segment.
** The average length of a roadway segment in the City of Huntington Park is approximately 1,000 feet.
*** Total Number of Collisions during the 5-year period between December 31, 2015 and December 31, 2020.

**Table 20: Roadway Segment Number of Collisions and Ranking in the City of Huntington Park**

| Roadway Segment Ranking Number* | Roadway Segment | Number of Collisions** | Victim Degree of Injury | | | |
|---|---|---|---|---|---|---|
| | | | Killed | Suspected Serious Injury | Suspected Minor Injury | Possible Injury |
| 1 | Pacific Blvd from Slauson Ave to Belgrave Ave | 5 | 0 | 0 | 0 | 10 |
| 2 | Alameda St from E 67th St to Hawkins Cir | 4 | 2 | 0 | 0 | 4 |
| 3 | Slauson Ave from Miles Ave/Soto St to Bickett St | 4 | 0 | 0 | 2 | 2 |
| 4 | Slauson Ave from Alameda St to Santa Fe Ave | 3 | 1 | 0 | 0 | 2 |
| 5 | Slauson Ave from Bickett St to State St/Boyle Ave | 3 | 0 | 0 | 0 | 5 |
| 6 | Pacific Blvd from Gage Ave to Clarendon Ave | 2 | 0 | 0 | 1 | 1 |

* Roadway Segment Ranking Number is based on the number of collisions that occurred on a roadway segment.
** Total Number of Collisions during the 5-year period between December 31, 2015 and December 31, 2020.

### 8.2.1 Roadway Segment 1: Pacific Blvd from Slauson Ave to Belgrave Ave

**Table 21: Roadway Segment 1 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 2 | Improper Turning |
| 2 | Automobile Right of Way |
| 1 | Unknown |
| Total 5 | |

Pattern: This roadway segment is a two-way roadway with a two-way left turn lane (TWLT) left turn center lane which is causing collisions to occur as a result of mistakes committed by drivers.

High Collision Recommendations:

1. Remove roadway segment center lane traffic striping.
2. Install double yellow traffic striping.
3. Install type IV (L) arrow.
4. Install speed limit pavement marking (25).

***How will these recommendations improve this roadway segment?***

Many collisions occurred as a result of drivers making left turns. Is it recommended that traffic limitations to be set on some of the left turning approaches to reduce broadside collisions. The proposed geometric change is shown on the conceptual plan for this intersection. The speed limit pavement marking is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly.

### 8.2.2 Roadway Segment 2: Alameda St from E 67th St to Hawkins Cir

**Table 22: Roadway Segment 2 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | Primary Collision Factor |
|---|---|
| 1 | Wrong Side of Road |
| 1 | Other Hazardous Violation |
| 1 | Pedestrian Violation |
| 1 | Driving or Bicycling Under the Influence of Alcohol or Drug |
| Total 4 | |

Pattern: Predominately, drivers either drove on the wrong side of the road or stopped on the road.

High Collision Recommendations:

1. Install R2-1 (40 MPH).
2. Install speed limit pavement marking (40).

***How will these recommendations improve this roadway segment?***

The speed limit sign and pavement marking is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly.

### 8.2.3 Roadway Segment 3: Slauson Ave from Miles Ave/Soto St to Bickett St

**Table 23: Roadway Segment 3 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 3 | | Unsafe Speed |
| 1 | | Unknown |
| Total | 4 | |

Pattern: Drivers are not maintaining a safe speed.

High Collision Recommendations:

1. Install R2-1 (35 MPH).
2. Install speed limit pavement marking (35).

***How will these recommendations improve this roadway segment?***

The speed limit sign and pavement marking is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly.

### 8.2.4 Roadway Segment 4: Slauson Ave from Alameda St to Santa Fe Ave

**Table 24: Roadway Segment 4 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 2 | | Unsafe Lane Change |
| 1 | | Improper Turning |
| Total | 3 | |

Pattern: Rear end collisions as a result of drivers changing lanes and colliding into parked vehicles.

High Collision Recommendations:

1. Install R2-1 (35 MPH).
2. Install speed limit pavement marking (35).
3. Repaint pavement marking.

***How will these recommendations improve this roadway segment?***

The speed limit sign and pavement marking is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. Repainting pavement marking enhances safety by offering more visibility of pavement markings.

### 8.2.5 Roadway Segment 5: Slauson Ave from Bickett St to State St/Boyle Ave

**Table 25: Roadway Segment 5 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 2 | | Automobile Right of Way |
| 1 | | Unsafe Speed |
| Total | 3 | |

Pattern: Drivers are either not waiting for a safe gap by stopping on the stop bar or speeding.

High Collision Recommendations:

1. Remove existing damaged stop sign
2. Install a new R1-1 stop sign.
3. Install R2-1 (35 MPH).
4. Install speed limit pavement marking (35).
5. Repaint pavement marking.
6. Restripe traffic striping.

***How will these recommendations improve this roadway segment?***

The replacement of the existing damaged stop sign with a brand new stop sign will enhance safety by allowing more visibility to the driver. The speed limit sign and pavement marking is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly. Repainting pavement marking and traffic striping enhances safety by offering more visibility of pavement markings and traffic striping.

### 8.2.6 Roadway Segment 6: Pacific Blvd from Gage Ave to Clarendon Ave

**Table 26: Roadway Segment 6 Number of Collisions and Corresponding Primary Collision Factor**

| Number of Collisions | | Primary Collision Factor |
|---|---|---|
| 1 | | Unsafe Speed |
| 1 | | Improper Turning |
| Total | 2 | |

Pattern: Driver did not maintain a safe speed.

High Collision Recommendations:

1. Install speed limit pavement marking (25).

***How will these recommendations improve this roadway segment?***

The speed limit pavement marking is designated to inform the driver not to exceed the speed limit. When drivers drive at the designated safe speed, collisions will reduce abundantly.

# 9. Collision Diagrams, Preliminary Conceptual Plans for Recommended Improvements at High Collision Intersections and High Collision Roadway Segments, Cost Estimates, and Benefit Cost Ratios

At each of the aforementioned high collision intersections and roadway segments, the collision patterns have been evaluated and countermeasures to those patterns have been developed through a preliminary conceptual plan and the preliminary cost of those measures has been estimated. This section of this report summarize those results.

This Local Safety Plan is funded through a Highway Safety Improvement Program (HSIP) grant from the California Department of Transportation (Caltrans). HSIP grant funding is prioritized and awarded based on the grant funding's economic effectiveness, which is established by a benefit to cost ratio. Under the current HSIP call for projects, the minimum Benefit to Cost Ratio is 3.5. A summary of the benefit to cost ratios is provided in this section. Project cost estimates are calculated on a line item basis using the Caltrans Contract Cost Database. In some cases, recent construction bids and benefit values are calculated based on Caltrans established countermeasure values.

Depending on the City’s priorities, it is highly recommended that multiple projects as provided below are grouped into one HSIP application to maximize potential funding allocations.

## 9.1 High Collision Intersections

### 9.1.1 Intersection 1: California Ave/Salt Lake Ave & Florence Ave


**Figure 18: Intersection 1 Collision Diagram (22 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
2. INSTALL BRAND NEW 12" SIGNAL HEADS.
3. INSTALL SIGNAL AHEAD SIGN (W3-3) SUPPLEMENTED WITH A FLASHING BEACON.
4. INSTALL R2-1 (35 MPH).
5. REPAINT INTERSECTION PAVEMENT MARKING.
6. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.
7. REPLACE CONTROLLER WITH 2070 AND BATTERY BACKUP.
8. INSTALL NEW 4" CONDUIT.
9. INSTALL NEW WIRING (NOT SHOWN).

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

10. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

SALT LAKE AVENUE

FLORENCE AVE

CALIFORNIA AVE

EX. SIGN R2-1

EX. SIGN W15-1

EX. SIGN W10-1

## EXISTING SIGNS:

W10-1

W15-1

R2-1

## TRAFFIC SIGNS RECOMMENDATIONS:


W3-3

R2-1

N
W
E
S

# Intersection 1: Florence Ave and California Ave/Salt Lake Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.1.1.1 Intersection 1 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 27: Intersection 1 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S10)* | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Flashing beacon | EA | 2 | $17,250.00 | $34,500.00 | 100% | 0% | 0% | 0% |
| 2 | Upgrade signal backplate | EA | 16 | $316.00 | $5,056.00 | 0% | 100% | 0% | 0% |
| 3 | Install brand new 12" signal heads | EA | 14 | $1,150.00 | $16,100.00 | 0% | 100% | 0% | 0% |
| 4 | Install signs | EA | 4 | $575.00 | $2,300.00 | 0% | 0% | 0% | 100% |
| 5 | Repaint intersection pavement marking | SQFT | 673 | $14.00 | $9,422.00 | 0% | 0% | 0% | 100% |
| 6 | Restripe intersection traffic striping | LF | 7096 | $3.50 | $24,836.00 | 0% | 0% | 0% | 100% |
| 7 | 2070 controller | EA | 1 | $6,500.00 | $6,500.00 | 0% | 0% | 0% | 50% |
| 8 | Battery backup and cabinet | EA | 1 | $6,000.00 | $6,000.00 | 0% | 0% | 0% | 50% |
| 9 | 4" conduit | LF | 528 | $16.00 | $8,448.00 | 0% | 0% | 0% | 50% |
| 10 | Signal wiring | LS | 1 | $10,000.00 | $10,000.00 | 0% | 0% | 0% | 50% |
| 11 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 0% | 100% | 0% |
| | Weighted Average (%) | | | | | 27% | 17% | 2% | 54% |
| | Total ($) | | | | $126,162.00 | | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)
** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $25,232.40 |
| Total Construction Cost (Including Contengencies): | | $151,395.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $151,395 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,409,288 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 9.31.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 9.31 the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,404,980 |
| Travel Time | $3,822 |
| Vehicle Operating Cost | $ 397 |
| Emissions | $ 89 |
| **Total Benefits** | **$ 1,409,288** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $151,395 |
| Present Value Benefits ($ Dollars) | $1,409,288 |
| Net Present Value ($ Dollars) | $1,257,893 |
| Benefit / Cost Ratio | 9.31 |

## 9.1.2 Intersection 2: Gage Ave & Pacific Blvd


**Figure 19: Intersection 2 Collision Diagram (20 Collisions)**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REVIEW AND UPDATE SIGNAL CLEARANCE TIMING AS NECESSARY.
2. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
3. INSTALL BRAND NEW 12" SIGNAL HEAD.
4. REPAINT INTERSECTION PAVEMENT MARKING.
5. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.
6. SPLIT PHASE.
7. REPLACE CONTROLLER WITH 2070 AND BATTERY BACKUP.
8. INSTALL NEW 4" CONDUIT.
9. INSTALL NEW WIRING (NOT SHOWN).
10. REPLACE VIDEO DETECTION CAMERAS.

## PEDESTRIAN RECOMMENDATIONS:

11. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

GAGE AVE

PACIFIC BLVD

EX. SIGN R2-1 (25 MPH)

EX. SIGN R2-1 (30 MPH)

EX. SIGN R2-1 (25 MPH)

## EXISTING SIGNS:


R2-1


R2-1

N

W E

S

Intersection 2: Gage Ave and Pacific Blvd - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.1.2.1 Intersection 2 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 28: Intersection 2 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Upgrade signal backplate | EA | 14 | $316.00 | $4,424.00 | 100% | 0% | 0% |
| 2 | Install brand new 12" signal heads | EA | 3 | $1,150.00 | $3,450.00 | 100% | 0% | 0% |
| 3 | Repaint intersection pavement marking | SQFT | 869 | $14.00 | $12,166.00 | 0% | 0% | 100% |
| 4 | Restripe intersection traffic striping | LF | 7244 | $3.50 | $25,354.00 | 0% | 0% | 100% |
| 5 | 2070 controller | EA | 1 | $6,500.00 | $6,500.00 | 0% | 0% | 50% |
| 6 | Battery backup and cabinet | EA | 1 | $6,000.00 | $6,000.00 | 0% | 0% | 50% |
| 7 | 4" conduit | LF | 455 | $16.00 | $7,280.00 | 0% | 0% | 50% |
| 8 | Signal wiring | LS | 1 | $10,000.00 | $10,000.00 | 0% | 0% | 50% |
| 9 | Video detection camera | EA | 4 | $15,000.00 | $60,000.00 | 0% | 0% | 50% |
| 10 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% |
| | | | | Weighted Average (%) | | 6% | 2% | 92% |
| | | | | Total ($) | $138,174.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $27,634.80 |
| Total Construction Cost (Including Contengencies): | | $165,809.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $165,809 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,782,409 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 10.75.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 10.75 the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,777,517 |
| Travel Time | $4,368 |
| Vehicle Operating Cost | $454 |
| Emissions | $71 |
| **Total Benefits** | **$1,782,409** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $165,809 |
| Present Value Benefits ($ Dollars) | $1,782,409 |
| Net Present Value ($ Dollars) | $1,616,600 |
| Benefit / Cost Ratio | 10.75 |

### 9.1.3 Intersection 3: Gage Ave & State St

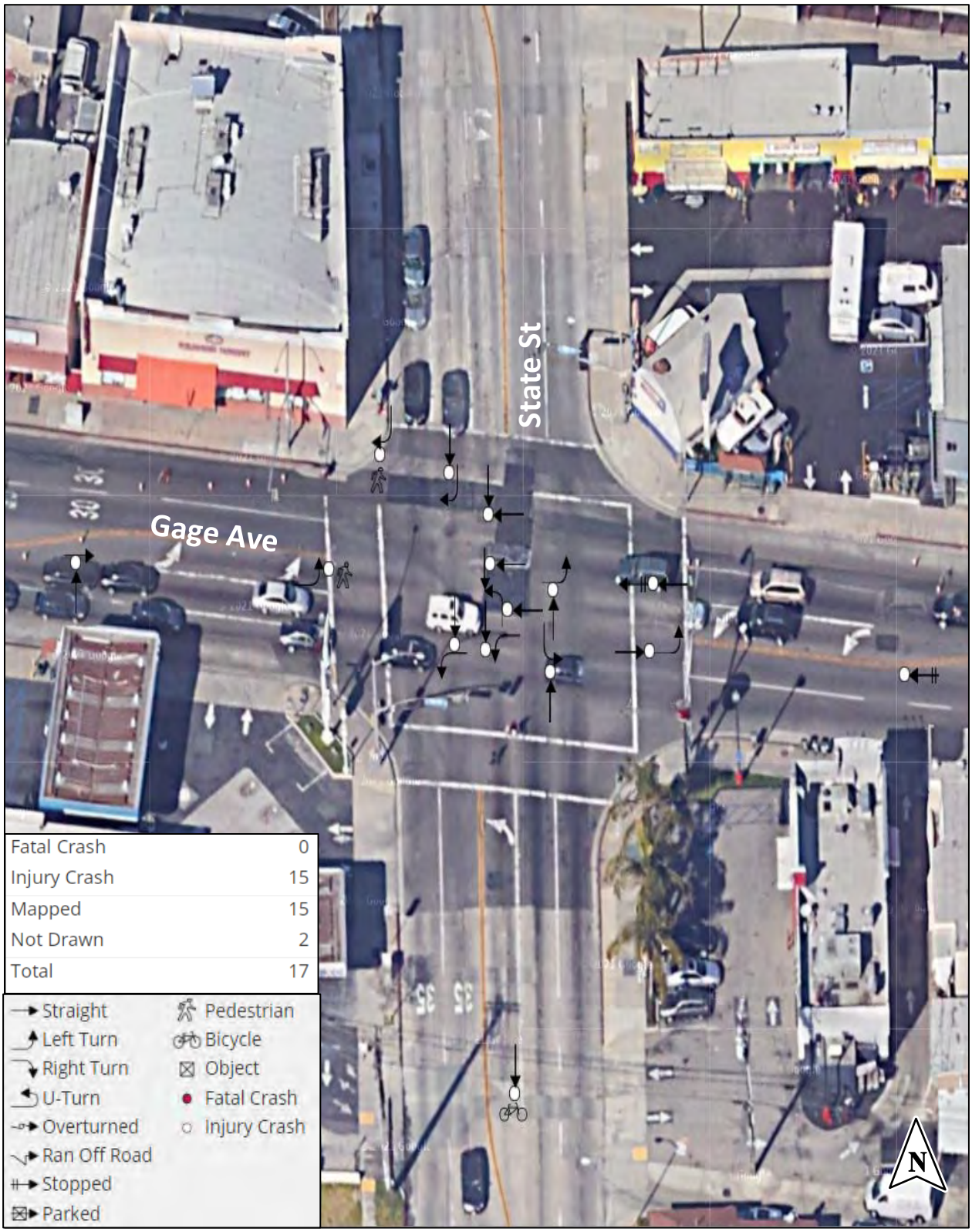



**Figure 20: Intersection 3 Collision Diagram (17 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REVIEW AND INCREASE SIGNAL CLEARANCE TIMING AS NECESSARY.
2. INSTALL "LEFT TURN YIELD ON GREEN" (R10-12) ON TRAFFIC SIGNALS.
3. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
4. INSTALL BRAND NEW 12” SIGNAL HEADS.
5. REPAINT INTERSECTION PAVEMENT MARKING.
6. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.
7. INSTALL NEW LOOPS (NOT SHOWN).
8. REPLACE/UPGRADE SIGNAGE TO PROHIBIT TURNS BY TRUCKS.

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

9. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

EX. SIGN R2-1 (30 MPH)

GAGE AVE

EX. SIGN R2-1 (35 MPH)

EX. SIGN R2-1 (30 MPH)

STATE ST

## EXISTING SIGNS:


R2-1


R2-1

## TRAFFIC SIGNS RECOMMENDATIONS:


R10-12

N

W

E

S

Intersection 3: Gage Ave and State St - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.1.3.1 Intersection 3 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 29: Intersection 3 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Install signs | EA | 7 | $575.00 | $4,025.00 | 0% | 0% | 100% |
| 2 | Upgrade signal backplate | EA | 12 | $316.00 | $3,792.00 | 100% | 0% | 0% |
| 3 | Install brand new 12" signal heads | EA | 12 | $1,150.00 | $13,800.00 | 100% | 0% | 0% |
| 4 | Repaint intersection pavement marking | SQFT | 374 | $14.00 | $5,236.00 | 0% | 0% | 100% |
| 5 | Restripe intersection traffic striping | LF | 6536 | $3.50 | $22,876.00 | 0% | 0% | 100% |
| 6 | Install new loops | LS | 1 | $24,000.00 | $24,000.00 | 0% | 0% | 100% |
| 7 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% |
| | | | | Weighted Average (%) | | 23% | 4% | 73% |
| | | | | Total ($) | $76,729.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aforementioned Total Construction Cost: | 20% | $15,345.80 |
| Total Construction Cost (Including Contengencies): | | $92,075.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $92,075 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,264,327 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 13.73.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 13.73 the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,261,295 |
| Travel Time | $2,730 |
| Vehicle Operating Cost | $283 |
| Emissions | $18 |
| **Total Benefits** | **$1,264,327** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $92,075 |
| Present Value Benefits ($ Dollars) | $1,264,327 |
| Net Present Value ($ Dollars) | $1,172,252 |
| Benefit / Cost Ratio | 13.73 |

### 9.1.4 Intersection 4: Miles Ave/Soto St & Slauson Ave

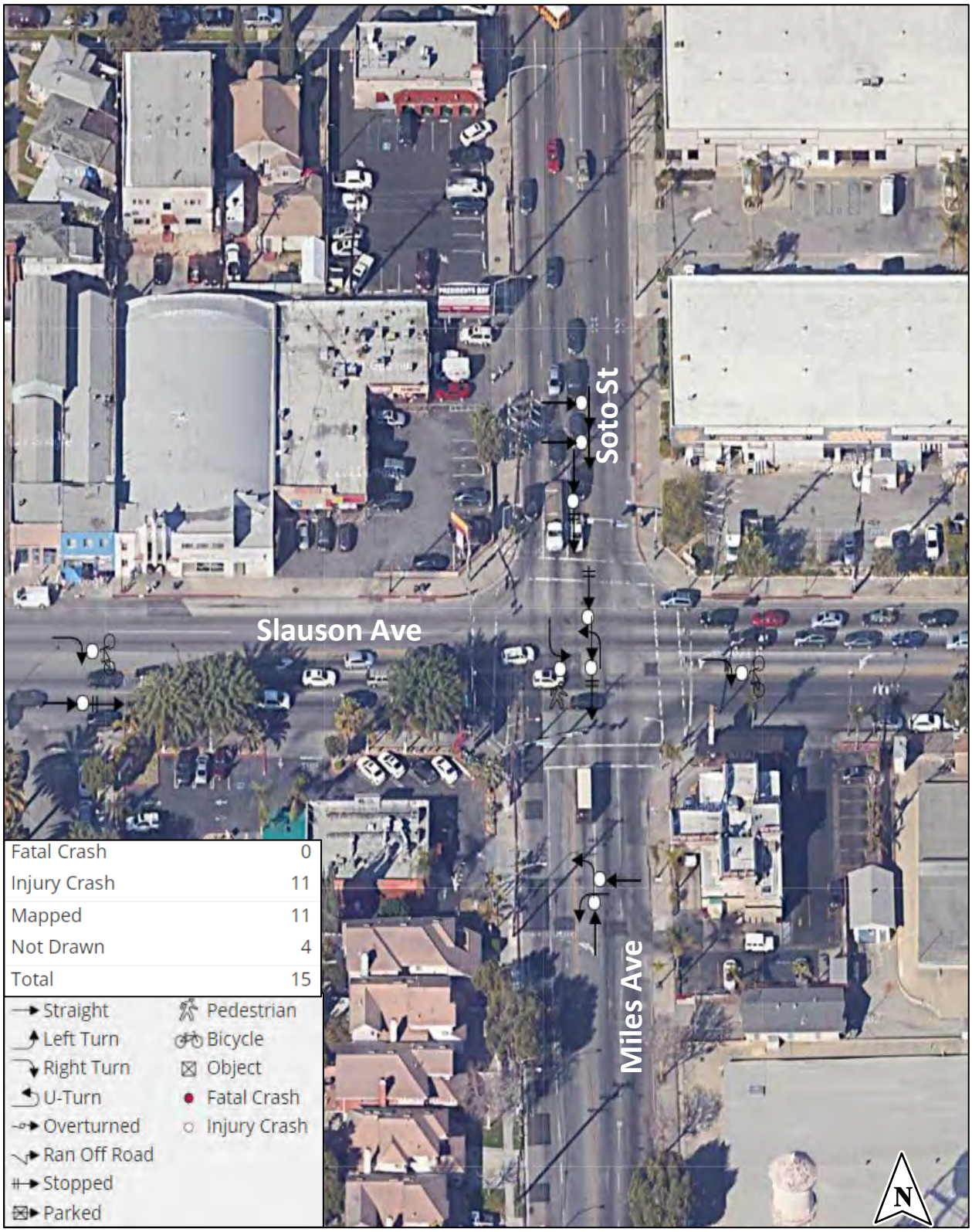



**Figure 21: Intersection 4 Collision Diagram (15 Collisions)**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. INSTALL R2-1 (25 MPH)
2. REVIEW AND UPDATE SIGNAL CLEARANCE TIMING AS NECESSARY.
3. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
4. INSTALL BRAND NEW 12" SIGNAL HEADS.
5. CONVERT TO PROTECTED PERMISSIVE PHASING BASED ON 8-HOUR TURNING MOVEMENT COUNTS.
6. REPAINT INTERSECTION PAVEMENT MARKING.
7. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

8. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

EX. SIGN R2-1 (25 MPH)

EX. SIGN R2-1 (35 MPH)

EX. SIGN S4-3P, R2-1 (25 MPH), & S4-2P

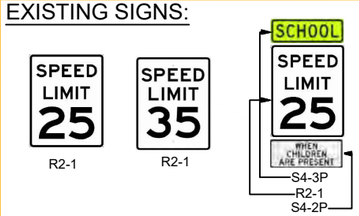
EX. SIGN R2-1 (25 MPH)

SOTO ST

SLAUSON AVE

MILES AVE

## EXISTING SIGNS:




## TRAFFIC SIGNS RECOMMENDATIONS


N

W E

S

Intersection 4: Miles Ave/Soto St & Slauson Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING

23282 MILL CREEK DRIVE

SUITE 120

LAGUNA HILLS, CA 92653

TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.1.4.1 Intersection 4 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 30: Intersection 4 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | CMF ID No. 9892** | OS*** |
| 1 | Install signs | EA | 2 | $575.00 | $1,150.00 | 0% | 0% | 0% | 100% |
| 2 | Upgrade signal backplate | EA | 20 | $316.00 | $6,320.00 | 100% | 0% | 0% | 0% |
| 3 | Install brand new 12" signal heads | EA | 18 | $1,150.00 | $20,700.00 | 100% | 0% | 0% | 0% |
| 4 | Install protected permissive phasing | EA | 2 | $50,000.00 | $100,000.00 | 0% | 0% | 100% | 0% |
| 5 | Repaint intersection pavement marking | SQFT | 190 | $14.00 | $2,660.00 | 0% | 0% | 0% | 100% |
| 6 | Restripe intersection traffic striping | LF | 6373 | $3.50 | $22,305.50 | 0% | 0% | 0% | 100% |
| 7 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% | 0% |
| | Weighted Average (%) | | | | | 17% | 2% | 64% | 17% |
| | Total ($) | | | | $156,135.50 | | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** Crash Modification Factors Clearinghouse Countermeasure Identification Number

*** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aforementioned Total Construction Cost: | 20% | $31,227.10 |
| Total Construction Cost (Including Contengencies): | | $187,363.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $187,363 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,658,070 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 8.85.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 8.85 the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,653,624 |
| Travel Time | $3,975 |
| Vehicle Operating Cost | $413 |
| Emissions | $58 |
| **Total Benefits** | **$1,658,070** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $187,363 |
| Present Value Benefits ($ Dollars) | $1,658,070 |
| Net Present Value ($ Dollars) | $1,470,707 |
| Benefit / Cost Ratio | 8.85 |

## 9.1.5 Intersection 5: Gage Ave & Miles Ave

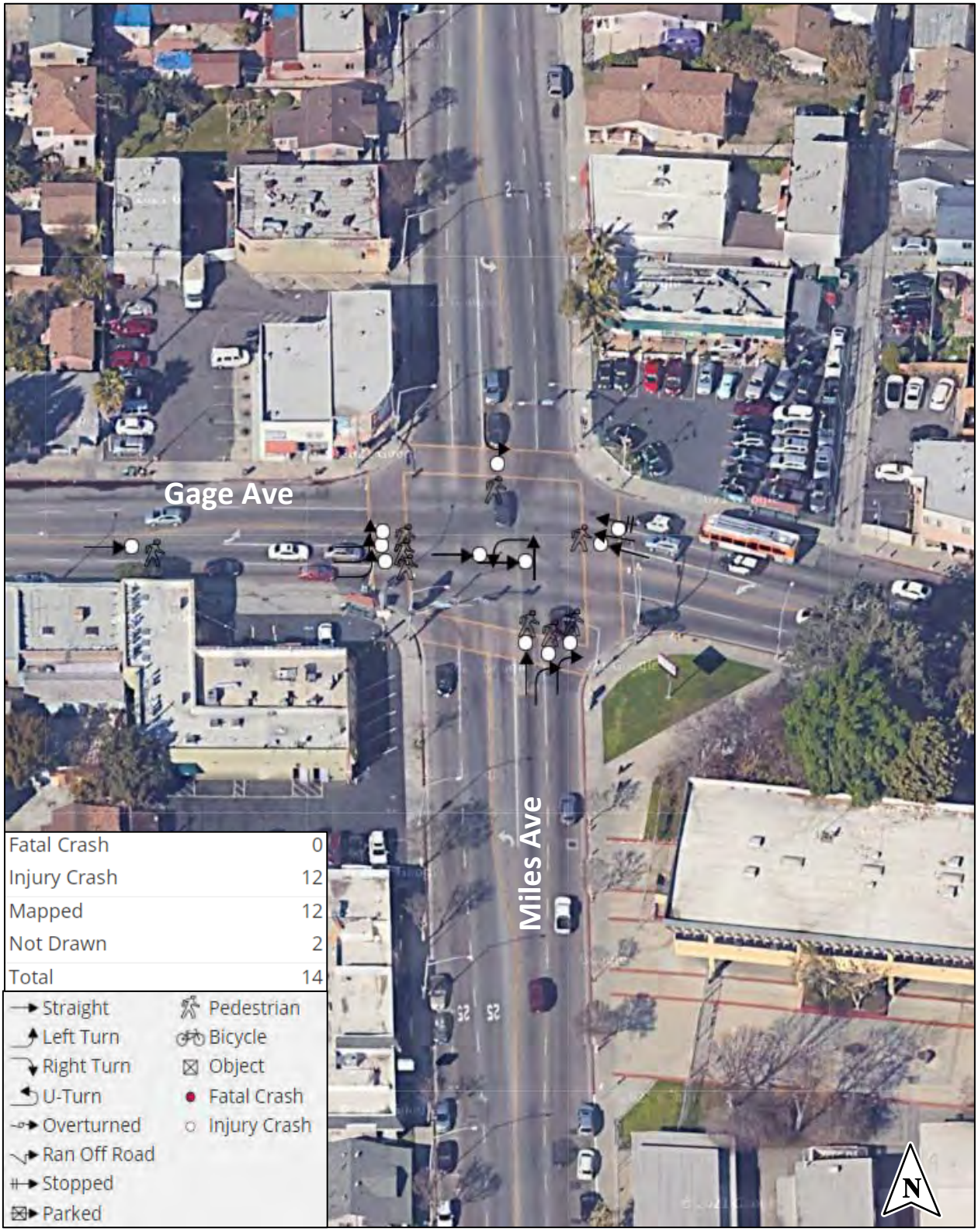



**Figure 22: Intersection 5 Collision Diagram (14 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
2. INSTALL BRAND NEW 12” SIGNAL HEADS.
3. INSTALL SIGNAL AHEAD SIGN (W3-3) SUPPLEMENTED WITH A FLASHING BEACON.
4. INSTALL NO TURN ON RED DURING SCHOOL AND PEAK HOURS SIGN (R10-11 & R10-20aP).
5. REPLACE CONTROLLER WITH 2070 AND BATTERY BACKUP.
6. CONVERT TO PROTECTED PERMISSIVE PHASE BASED ON 8-HOUR TURNING MOVEMENT COUNTS.
7. REPAINT INTERSECTION PAVEMENT MARKING.

## PEDESTRIAN RECOMMENDATIONS:

8. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

EX. SIGN R2-1 (30 MPH)

GAGE AVE

MILES AVE

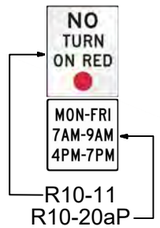
EX. SIGN R2-1 (30 MPH)

## EXISTING SIGNS:


R2-1

## TRAFFIC SIGNS RECOMMENDATIONS:

W3-3




R10-11
R10-20aP

N
W
E
S

Intersection 5: Gage Ave and Miles Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.1.5.1 Intersection 5 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 31: Intersection 5 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S10)* | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | CMF ID No. 9892** | OS*** |
| 1 | Flashing beacon | EA | 1 | $17,250.00 | $17,250.00 | 100% | 0% | 0% | 0% | 0% |
| 2 | Upgrade signal backplate | EA | 17 | $316.00 | $5,372.00 | 0% | 100% | 0% | 0% | 0% |
| 3 | Install brand new 12" signal heads | EA | 17 | $1,150.00 | $19,550.00 | 0% | 100% | 0% | 0% | 0% |
| 4 | Install signs | EA | 5 | $575.00 | $2,875.00 | 0% | 0% | 0% | 0% | 100% |
| 5 | 2070 controller | EA | 1 | $6,500.00 | $6,500.00 | 0% | 0% | 0% | 0% | 50% |
| 6 | Battery backup and cabinet | EA | 1 | $6,000.00 | $6,000.00 | 0% | 0% | 0% | 0% | 50% |
| 7 | Install protected permissive phasing | EA | 2 | $50,000.00 | $100,000.00 | 0% | 0% | 0% | 100% | 0% |
| 8 | Repaint intersection pavement marking | SQFT | 60 | $14.00 | $840.00 | 0% | 0% | 0% | 0% | 100% |
| 9 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 0% | 100% | 0% | 0% |
| | Weighted Average (%) | | | | | 11% | 15% | 2% | 62% | 10% |
| | Total ($) | | | | $161,387.00 | | | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** Crash Modification Factors Clearinghouse Countermeasure Identification Number

*** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $32,277.40 |
| Total Construction Cost (Including Contengencies): | | $193,665.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $193,665 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,175,258 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 6.06.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 6.06, the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,175,258 |
| Travel Time | $2,457 |
| Vehicle Operating Cost | $255 |
| Emissions | $9 |
| **Total Benefits** | **$1,177,980** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $193,665 |
| Present Value Benefits ($ Dollars) | $1,177,980 |
| Net Present Value ($ Dollars) | $984,315 |
| Benefit / Cost Ratio | 6.06 |

## 9.1.6 Intersection 6: Gage Ave & Santa Fe Ave

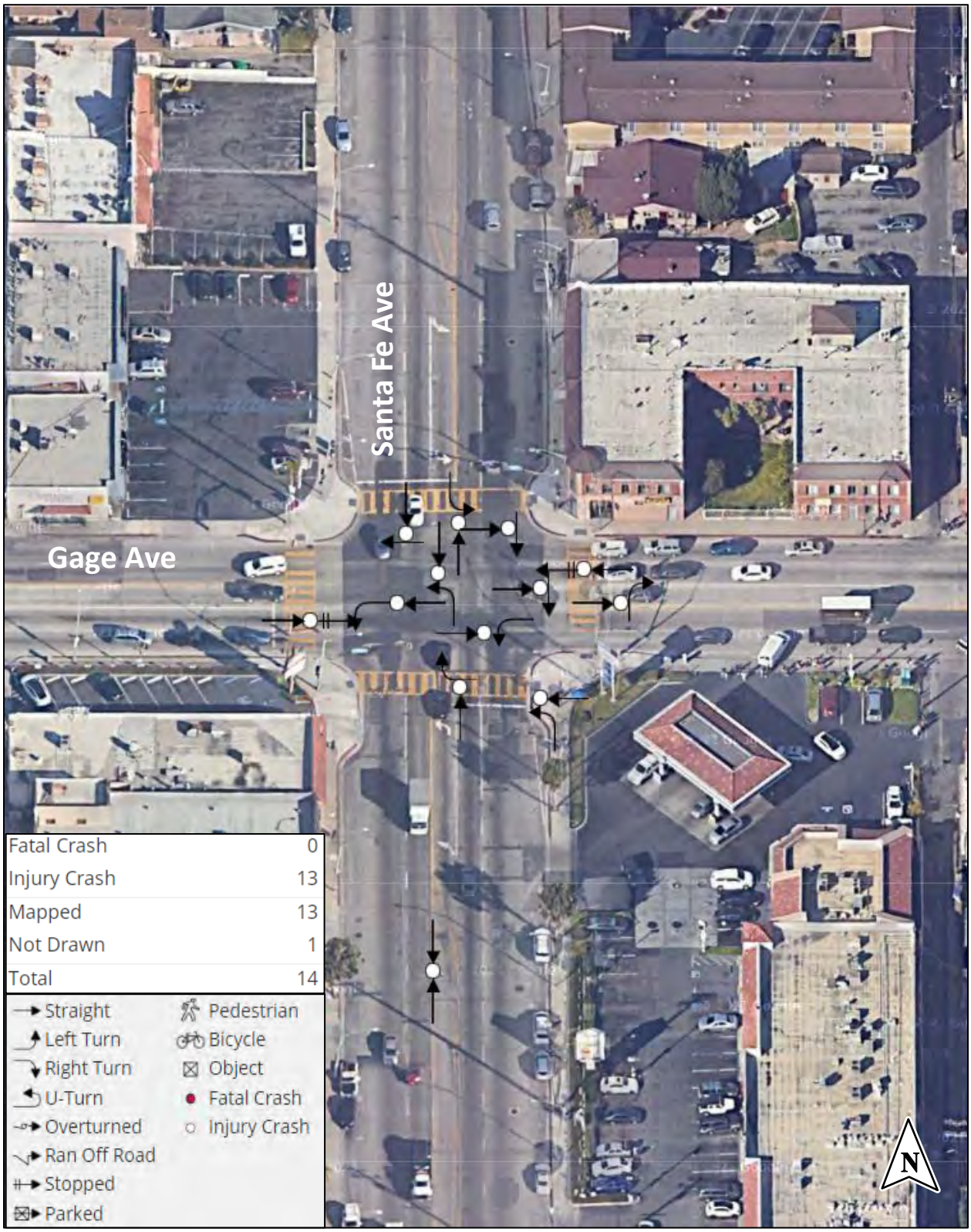



**Figure 23: Intersection 6 Collision Diagram (14 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
2. INSTALL BRAND NEW 12” SIGNAL HEADS.
3. INSTALL R2-1 (30 MPH).
4. REPLACE VIDEO DETECTION CAMERAS.
5. REPAINT INTERSECTION PAVEMENT MARKING.
6. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.
7. PROHIBIT RIGHT-TURNS BY TRUCKS.

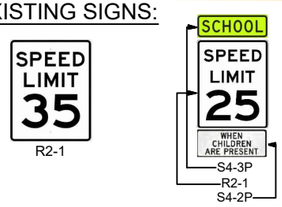
EX. SIGN R2-1 (35 MPH)

EX. SIGN S4-3P, R2-1 (25 MPH), & S4-2P

GAGE AVE

SANTA FE AVE

## EXISTING SIGNS:




## TRAFFIC SIGNS RECOMMENDATIONS:


N

W

E

Intersection 6: Gage Ave and Santa Fe Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING

23282 MILL CREEK DRIVE

SUITE 120

LAGUNA HILLS, CA 92653

TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.1.6.1 Intersection 6 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 32: Intersection 6 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | |
|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | OS** |
| 1 | Upgrade signal backplate | EA | 18 | $316.00 | $5,688.00 | 100% | 0% |
| 2 | Install brand new 12" signal heads | EA | 18 | $1,150.00 | $20,700.00 | 100% | 0% |
| 3 | Install signs | EA | 6 | $575.00 | $3,450.00 | 0% | 100% |
| 4 | Video detection camera | EA | 2 | $15,000.00 | $30,000.00 | 0% | 50% |
| 5 | Repaint intersection pavement marking | SQFT | 2393 | $14.00 | $33,502.00 | 0% | 100% |
| 6 | Restripe intersection traffic striping | LF | 6280 | $3.50 | $21,980.00 | 0% | 100% |
| | | | | Weighted Average (%) | | 23% | 77% |
| | | | | Total ($) | $115,320.00 | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $23,064.00 |
| Total Construction Cost (Including Contengencies): | | $138,384.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $138,384 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,181,835 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 8.54.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 8.54 the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,179,781 |
| Travel Time | $1,820 |
| Vehicle Operating Cost | $189 |
| Emissions | $44 |
| **Total Benefits** | **$1,181,835** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $138,384 |
| Present Value Benefits ($ Dollars) | $1,181,835 |
| Net Present Value ($ Dollars) | $1,043,451 |
| Benefit / Cost Ratio | 8.54 |

## 9.1.7 Intersection 7: Pacific Blvd & Slauson Ave


**Figure 24: Intersection 7 Collision Diagram (14 Collisions)**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
2. INSTALL BRAND NEW 12” SIGNAL HEADS.
3. INSTALL R2-1 (35 MPH).
4. INSTALL R2-1 (25 MPH).
5. CONVERT TO PROTECTED PERMISSIVE PHASING BASED ON 8-HOUR TURNING MOVEMENT COUNTS.
6. REPLACE VIDEO DETECTION CAMERAS.

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

7. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

SLAUSON AVE

PACIFIC BLVD

EX. SIGN R2-1 (35 MPH)

EX. SIGN R2-1 (25 MPH)

EX. SIGN R2-1 (35 MPH)

EX. SIGN R2-1 (25 MPH)

## EXISTING SIGNS:


R2-1 (35 MPH)


R2-1 (25 MPH)

## TRAFFIC SIGNS RECOMMENDATIONS:


R2-1 (35 MPH)


R2-1 (25 MPH)

N

W

E

S

Intersection 7: Pacific Blvd & Slauson Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING

23282 MILL CREEK DRIVE

SUITE 120

LAGUNA HILLS, CA 92653

TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.1.7.1 Intersection 7 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 33: Intersection 7 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | CMF ID No. 9892** | OS*** |
| 1 | Upgrade signal backplate | EA | 20 | $316.00 | $6,320.00 | 100% | 0% | 0% |
| 2 | Install brand new 12" signal heads | EA | 20 | $1,150.00 | $23,000.00 | 100% | 0% | 0% |
| 3 | Install signs | EA | 4 | $575.00 | $2,300.00 | 0% | 0% | 100% |
| 4 | Install protected permissive phasing | EA | 2 | $50,000.00 | $100,000.00 | 0% | 100% | 0% |
| 5 | Video detection camera | EA | 5 | $15,000.00 | $75,000.00 | 0% | 0% | 50% |
| | Weighted Average (%) | | | | | 14% | 48% | 37% |
| | Total ($) | | | | $206,620.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** Crash Modification Factors Clearinghouse Countermeasure Identification Number

*** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $41,324.00 |
| Total Construction Cost (Including Contengencies): | | $247,944.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $247,944 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,236,593 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 4.99.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 25.81 the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,232,906 |
| Travel Time | $3,276 |
| Vehicle Operating Cost | $340 |
| Emissions | $71 |
| **Total Benefits** | **$1,236,593** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $247,944 |
| Present Value Benefits ($ Dollars) | $1,236,593 |
| Net Present Value ($ Dollars) | $988,649 |
| Benefit / Cost Ratio | 4.99 |

## 9.1.8 Intersection 8: Gage Ave & Rugby Ave

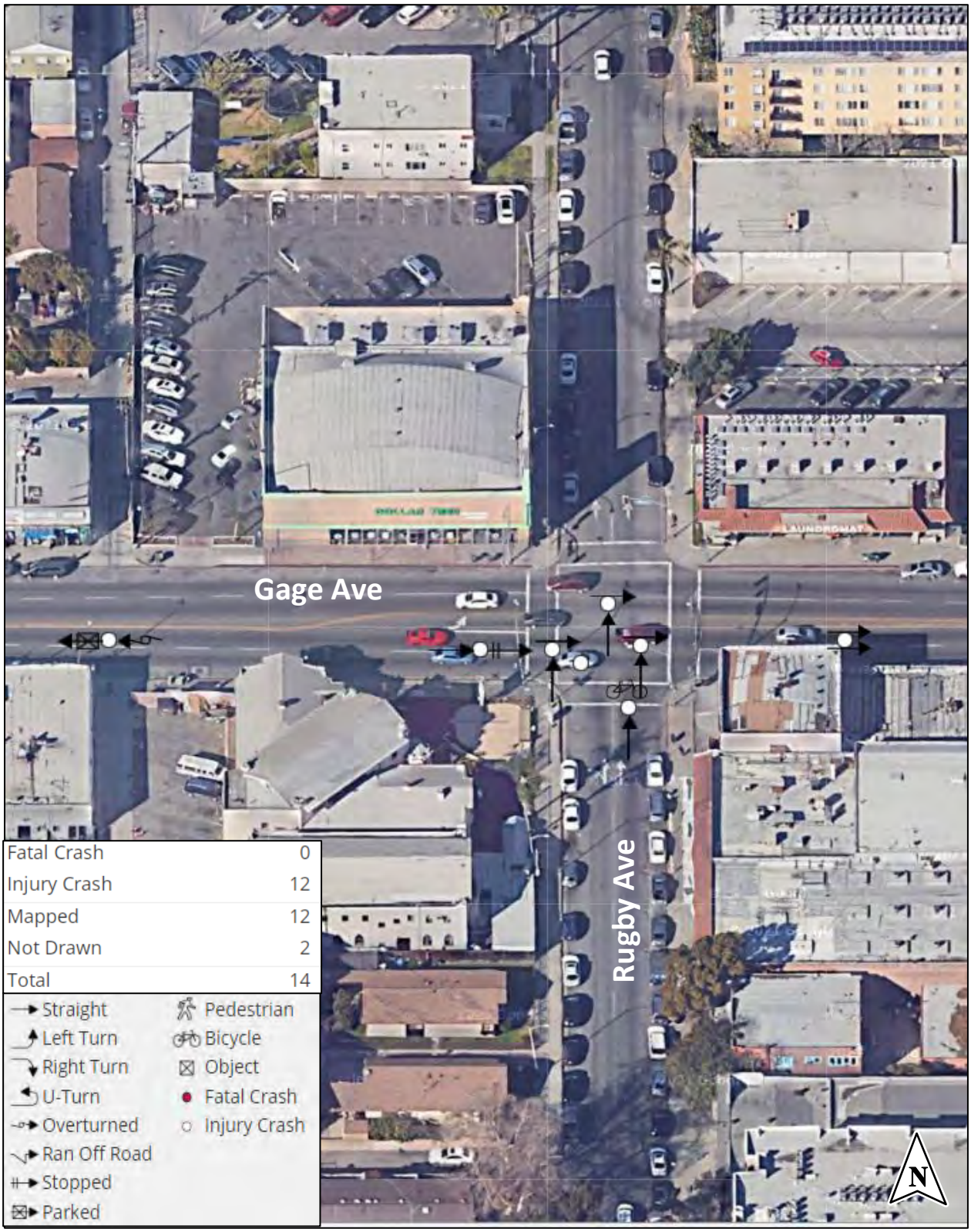



**Figure 25: Intersection 8 Collision Diagram (14 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
2. INSTALL BRAND NEW 12” SIGNAL HEADS.
3. INSTALL R2-1 (30 MPH).
4. INSTALL R2-1 (25 MPH).
5. REVIEW AND UPDATE TRAFFIC SIGNAL CLEARANCE TIMING (INCREASE ALL RED TO 2 SECONDS).

GAGE AVE

RUGBY AVE

EX. SIGN S4-3P, R2-1 (25 MPH), & S4-2P

## EXISTING SIGNS:


## TRAFFIC SIGNS RECOMMENDATIONS:


R2-1 (30 MPH)


R2-1 (25 MPH)

N
W
E
S

Intersection 8: Gage Ave & Rugby Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.1.8.1 Intersection Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 34: Intersection 8 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | |
|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | OS** |
| 1 | Upgrade signal backplate | EA | 12 | $316.00 | $3,792.00 | 100% | 0% |
| 2 | Install brand new 12" signal heads | EA | 10 | $1,150.00 | $11,500.00 | 100% | 0% |
| 3 | Install signs | EA | 3 | $575.00 | $1,725.00 | 0% | 100% |
| | Weighted Average (%) | | | | | 90% | 10% |
| | Total ($) | | | | $17,017.00 | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $3,403.40 |
| Total Construction Cost (Including Contengencies): | | $20,421.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $20,421 which does not include the design and engineering costs. The estimated benefit of these improvements is $759,208 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 37.18.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 37.18 the proposed intersection improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $757,985 |
| Travel Time | $1,092 |
| Vehicle Operating Cost | $113 |
| Emissions | $18 |
| **Total Benefits** | **$759,208** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $20,421 |
| Present Value Benefits ($ Dollars) | $759,208 |
| Net Present Value ($ Dollars) | $738,787 |
| Benefit / Cost Ratio | 37.18 |

## 9.1.9 Intersection 9: Florence Ave & State St

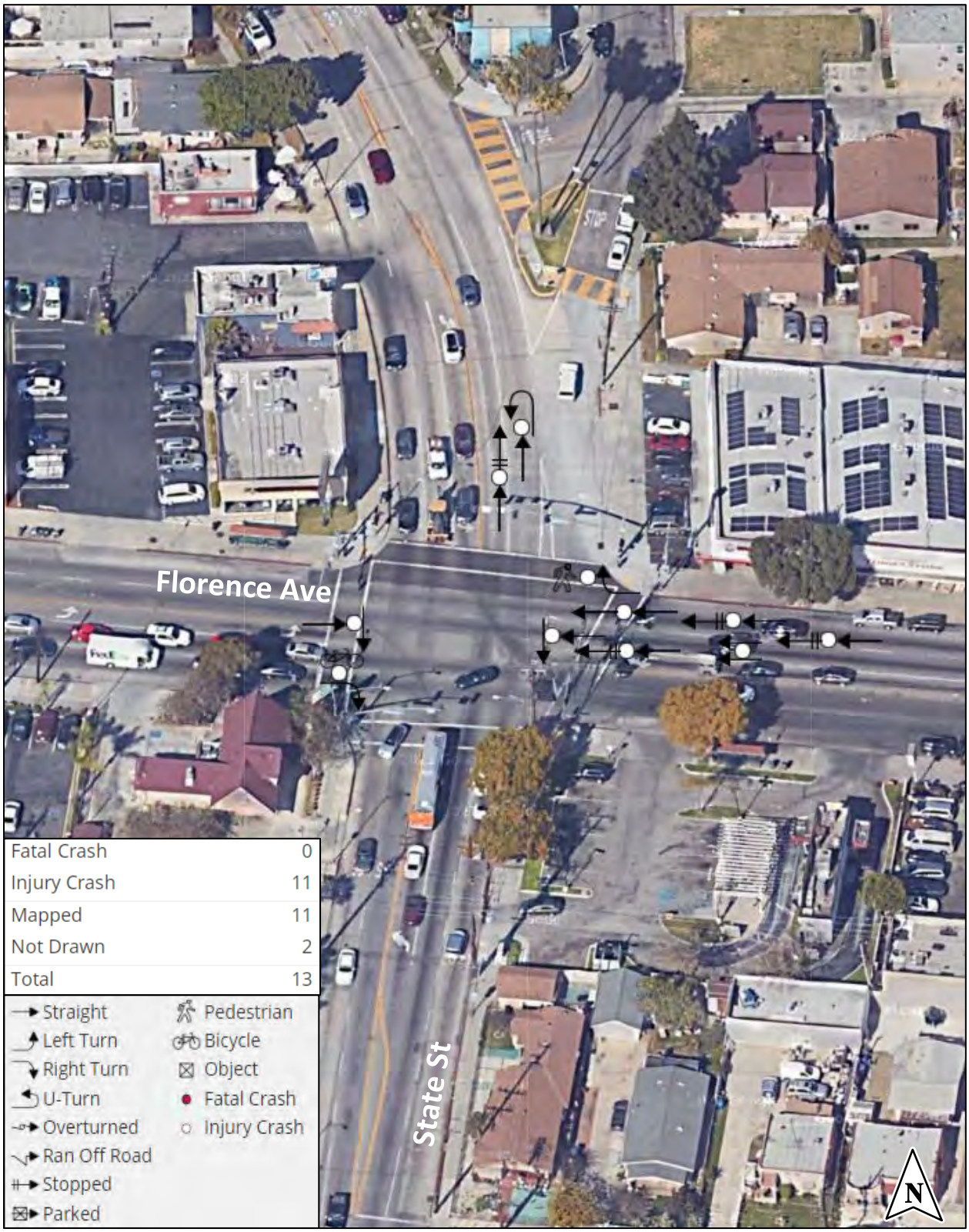
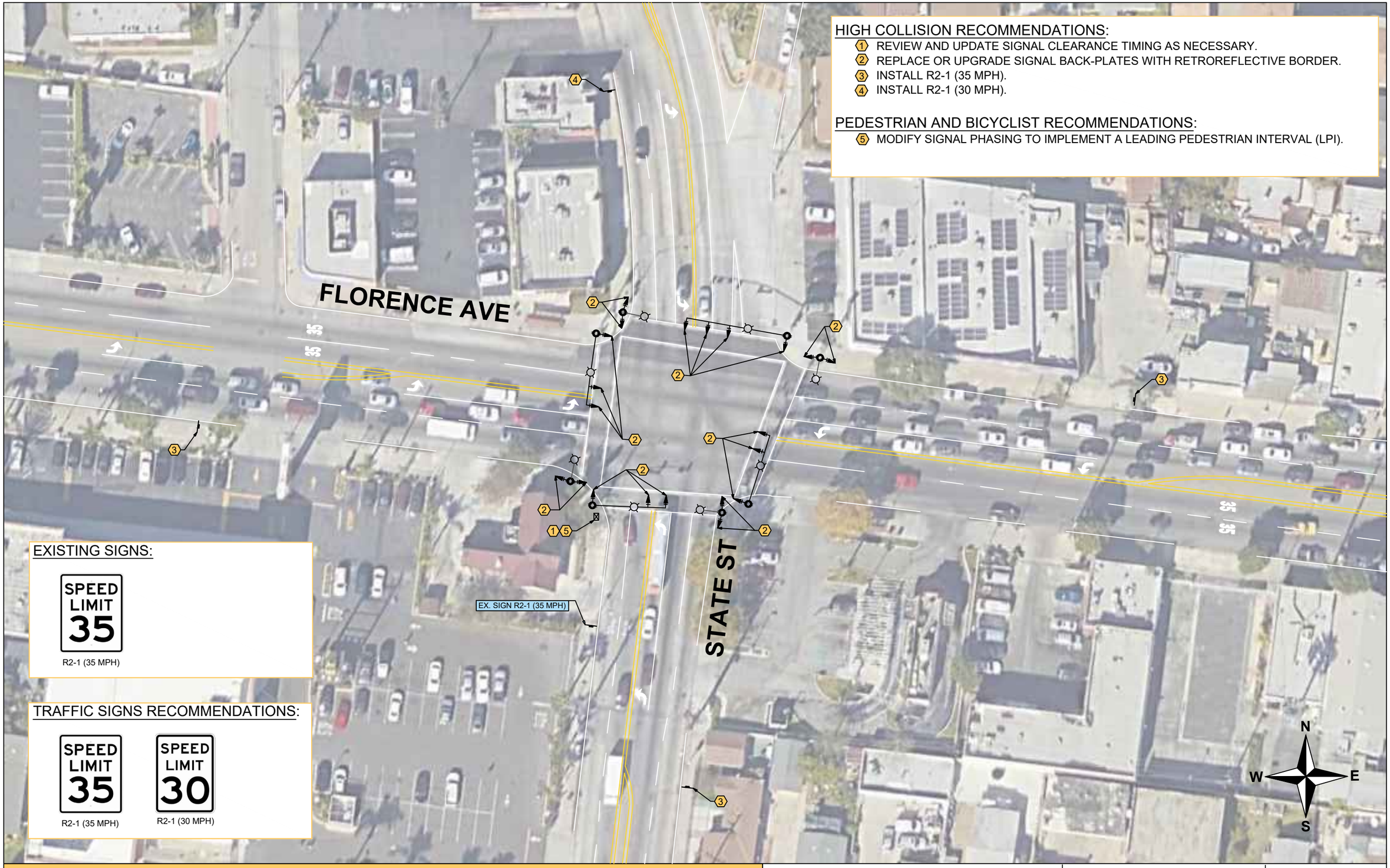



**Figure 26: Intersection 9 Collision Diagram (13 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)




HIGH COLLISION RECOMMENDATIONS:

1. REVIEW AND UPDATE SIGNAL CLEARANCE TIMING AS NECESSARY.
2. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
3. INSTALL R2-1 (35 MPH).
4. INSTALL R2-1 (30 MPH).

PEDESTRIAN AND BICYCLIST RECOMMENDATIONS:

5. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

EXISTING SIGNS:




R2-1 (35 MPH)

TRAFFIC SIGNS RECOMMENDATIONS:




R2-1 (35 MPH)




R2-1 (30 MPH)

Intersection 9: Florence Ave & State St - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.1.9.1 Intersection 9 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 35: Intersection 9 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Upgrade signal backplate | EA | 21 | $316.00 | $6,636.00 | 100% | 0% | 0% |
| 3 | Install signs | EA | 4 | $575.00 | $2,300.00 | 0% | 0% | 100% |
| 3 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% |
| | Weighted Average (%) | | | | | 56% | 25% | 19% |
| | Total ($) | | | | $11,936.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $2,387.20 |
| Total Construction Cost (Including Contengencies): | | $14,324.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $14,324 which does not include the design and engineering costs. The estimated benefit of these improvements is $963,685 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 67.28.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 67.28 the proposed intersection improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

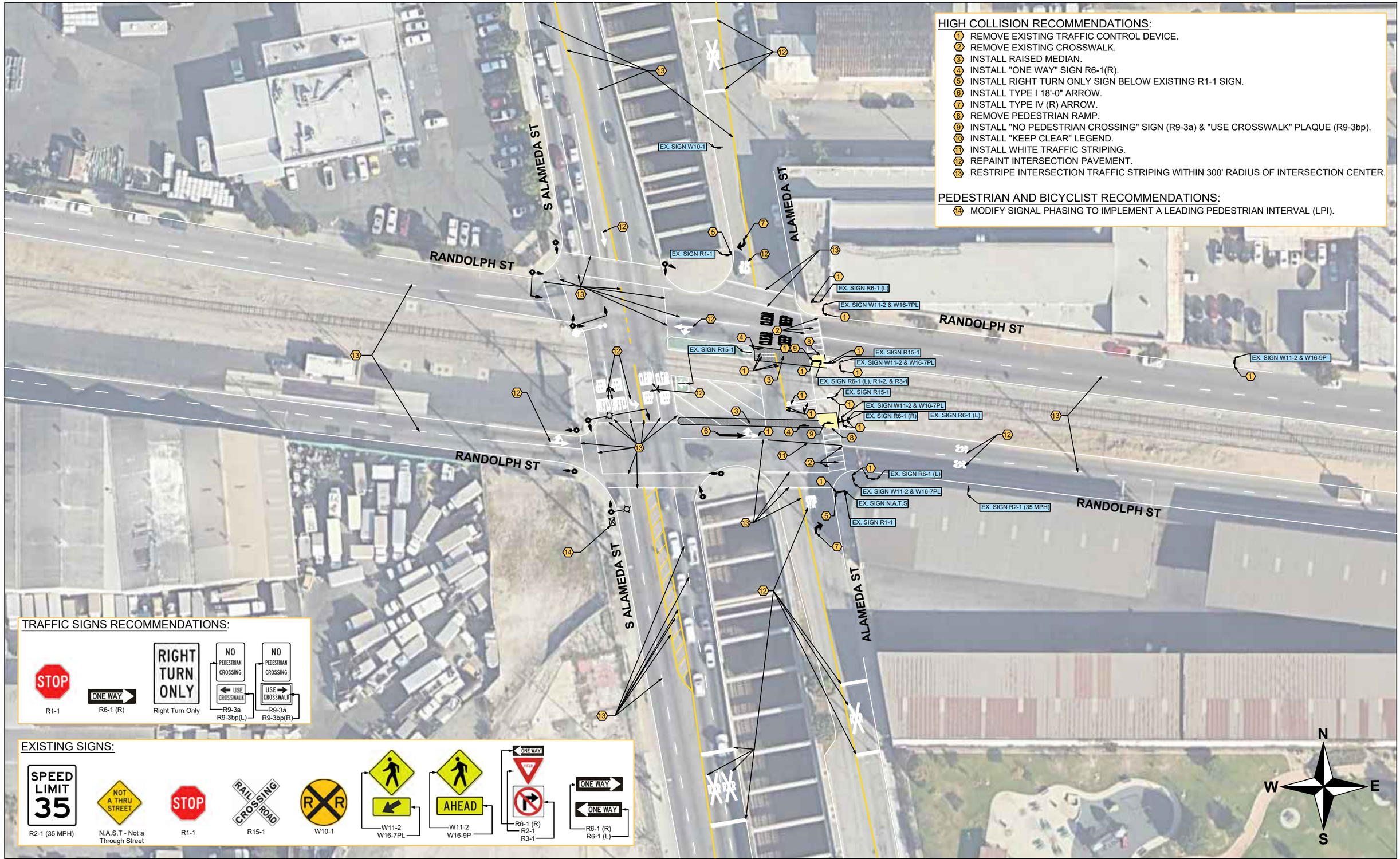
| Itemized Benefits | |
|---|---|
| Safety | $960,601 |
| Travel Time | $2,730 |
| Vehicle Operating Cost | $283 |
| Emissions | $71 |
| **Total Benefits** | **$963,685** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $14,324 |
| Present Value Benefits ($ Dollars) | $963,685 |
| Net Present Value ($ Dollars) | $949,361 |
| Benefit / Cost Ratio | 67.28 |

## 9.1.10 Intersection 10: S Alameda St & Randolph St


**Figure 27: Intersection 10 Collision Diagram (12 Collision)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)




## HIGH COLLISION RECOMMENDATIONS:

1. REMOVE EXISTING TRAFFIC CONTROL DEVICE.
2. REMOVE EXISTING CROSSWALK.
3. INSTALL RAISED MEDIAN.
4. INSTALL "ONE WAY" SIGN R6-1(R).
5. INSTALL RIGHT TURN ONLY SIGN BELOW EXISTING R1-1 SIGN.
6. INSTALL TYPE I 18'-0" ARROW.
7. INSTALL TYPE IV (R) ARROW.
8. REMOVE PEDESTRIAN RAMP.
9. INSTALL "NO PEDESTRIAN CROSSING" SIGN (R9-3a) & "USE CROSSWALK" PLAQUE (R9-3bp).
10. INSTALL "KEEP CLEAR" LEGEND.
11. INSTALL WHITE TRAFFIC STRIPING.
12. REPAINT INTERSECTION PAVEMENT.
13. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.

## PEDESTRIAN AND BICYCLIST RECOMMENDATIONS:

14. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

## TRAFFIC SIGNS RECOMMENDATIONS:




## EXISTING SIGNS:




Intersection 10: Alameda St & Randolph St - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.1.10.1 Intersection 10: Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 36: Intersection 10 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (NS14)* | LRSM CM No. (NS06)* | LRSM CM No. (NS07)* | LRSM CM No. (S21PB)** |
| 1 | Install raised median | SQFT | 892 | $44.00 | $39,248.00 | 90% | 0% | 0% | 0% |
| 2 | Install signs | EA | 8 | $575.00 | $4,600.00 | 0% | 100% | 0% | 0% |
| 3 | Install pavement marking | SQFT | 157 | $14.00 | $2,198.00 | 0% | 0% | 100% | 0% |
| 4 | Install white traffic striping | LF | 53 | $3.50 | $185.50 | 0% | 0% | 100% | 0% |
| 5 | Repaint intersection pavement marking | SQFT | 663 | $14.00 | $9,282.00 | 0% | 0% | 100% | 0% |
| 6 | Restripe intersection traffic striping | LF | 7214 | $3.50 | $25,249.00 | 0% | 0% | 100% | 0% |
| 7 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 0% | 0% | 100% |
| | Weighted Average (%) | | | | | 47% | 5% | 44% | 4% |
| | Total ($) | | | | $83,762.50 | | | | |

* Non-Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $16,752.50 |
| Total Construction Cost (Including Contengencies): | | $100,515.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $100,515 which does not include the design and engineering costs. The estimated benefit of these improvements is $14,124,588 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 140.52.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 140.52 the proposed intersection improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $14,116,284 |
| Travel Time | $7,962 |
| Vehicle Operating Cost | $297 |
| Emissions | $44 |
| **Total Benefits** | **$14,124,588** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $100,515 |
| Present Value Benefits ($ Dollars) | $14,124,588 |
| Net Present Value ($ Dollars) | $14,024,073 |
| Benefit / Cost Ratio | 140.52 |

## 9.1.11 Intersection 11: Hope St & State St


**Figure 28: Intersection 11 Collision Diagram (12 Collisions)**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REVIEW AND UPDATE SIGNAL CLEARANCE TIMING AS NECESSARY.
2. INSTALL "LEFT TURN YIELD ON GREEN" (R10-12) ON TRAFFIC SIGNALS.
3. INSTALL R2-1 (35 MPH) .
4. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
5. UPGRADE 8” SIGNAL HEADS TO 12” SIGNAL HEADS.
6. SPLIT PHASE BASED ON 8-HOUR TURNING MOVEMENT COUNTS.
7. REPLACE CONTROLLER WITH 2070 AND BATTERY BACKUP.
8. INSTALL NEW WIRING (NOT SHOWN).

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

9. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).


## TRAFFIC SIGNS RECOMMENDATIONS:




R10-12




R2-1

Intersection 11: Hope St & State St - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.1.11.1 Intersection Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 37: Intersection 11 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Upgrade signal backplate | EA | 10 | $316.00 | $3,160.00 | 100% | 0% | 0% |
| 2 | Install brand new 12" signal heads | EA | 8 | $1,150.00 | $9,200.00 | 100% | 0% | 0% |
| 3 | Install signs | EA | 4 | $575.00 | $2,300.00 | 0% | 0% | 100% |
| 4 | 2070 controller | EA | 1 | $6,500.00 | $6,500.00 | 0% | 0% | 50% |
| 5 | Battery backup and cabinet | EA | 1 | $6,000.00 | $6,000.00 | 0% | 0% | 50% |
| 6 | Signal wiring | LS | 1 | $10,000.00 | $10,000.00 | 0% | 0% | 50% |
| 7 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% |
| | Weighted Average (%) | | | | | 31% | 7% | 62% |
| | Total ($) | | | | $40,160.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $8,032.00 |
| Total Construction Cost (Including Contengencies): | | $48,192.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $48,192 which does not include the design and engineering costs. The estimated benefit of these improvements is $618,297 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 12.83.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 12.83 the proposed intersection improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $616,453 |
| Travel Time | $1,638 |
| Vehicle Operating Cost | $170 |
| Emissions | 35 |
| **Total Benefits** | **$618,297** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $48,192 |
| Present Value Benefits ($ Dollars) | $618,297 |
| Net Present Value ($ Dollars) | $570,105 |
| Benefit / Cost Ratio | 12.83 |

## 9.1.12 Intersection 12: Randolph St & Santa Fe Ave


**Figure 29: Intersection 12 Collision Diagram (12 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REVIEW AND UPDATE SIGNAL CLEARANCE TIMING AS NECESSARY.
2. INSTALL R2-1 (35 MPH).
3. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
4. INSTALL BRAND NEW 12” SIGNAL HEADS.
5. REPAINT INTERSECTION PAVEMENT MARKING.
6. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.
7. REPLACE CONTROLLER WITH 2070 AND BATTERY BACKUP.
8. INSTALL NEW 4" CONDUIT.
9. INSTALL NEW WIRING (NOT SHOWN).

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

10. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

SANTA FE AVE

RANDOLPH ST

EX. SIGN (W15-1)

EX. SIGN (W15-1)

EX. SIGN R2-1 (35 MPH)

## EXISTING SIGNS:


W15-1


R2-1

## TRAFFIC SIGNS RECOMMENDATIONS:


R2-1

N
W
E
S

# Intersection 12: Randolph St & Santa Fe Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.1.12.1 Intersection Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 38: Intersection 12 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Upgrade signal backplate | EA | 21 | $316.00 | $6,636.00 | 100% | 0% | 0% |
| 2 | Install brand new 12" signal heads | EA | 12 | $1,150.00 | $13,800.00 | 100% | 0% | 0% |
| 3 | Repaint intersection pavement marking | SQFT | 30 | $14.00 | $420.00 | 0% | 0% | 100% |
| 4 | Restripe intersection traffic striping | LF | 304 | $3.50 | $1,064.00 | 0% | 0% | 100% |
| 5 | Install signs | EA | 2 | $575.00 | $1,150.00 | 0% | 0% | 100% |
| 6 | 2070 controller | EA | 1 | $6,500.00 | $6,500.00 | 0% | 0% | 50% |
| 7 | Battery backup and cabinet | EA | 1 | $6,000.00 | $6,000.00 | 0% | 0% | 50% |
| 8 | 4" conduit | LF | 516 | $16.00 | $8,256.00 | 0% | 0% | 50% |
| 9 | Signal wiring | LS | 1 | $10,000.00 | $10,000.00 | 0% | 0% | 50% |
| 10 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% |
| | | | | Weighted Average (%) | | 36% | 5% | 59% |
| | | | | Total ($) | $56,826.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $11,365.20 |
| Total Construction Cost (Including Contengencies): | | $68,192.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $68,192 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,898,020 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 27.83.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 27.83 the proposed intersection improvement project is eligible for HSIP funding.

| Itemized Benefits | |
|---|---|
| Safety | $1,894,962 |
| Travel Time | $2,730 |
| Vehicle Operating Cost | $283 |
| Emissions | $44 |
| **Total Benefits** | **$1,898,020** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $68,192 |
| Present Value Benefits ($ Dollars) | $1,898,020 |
| Net Present Value ($ Dollars) | $1,829,828 |
| Benefit / Cost Ratio | 27.83 |

## 9.1.13 Intersection 13: Florence Ave & Santa Fe Ave

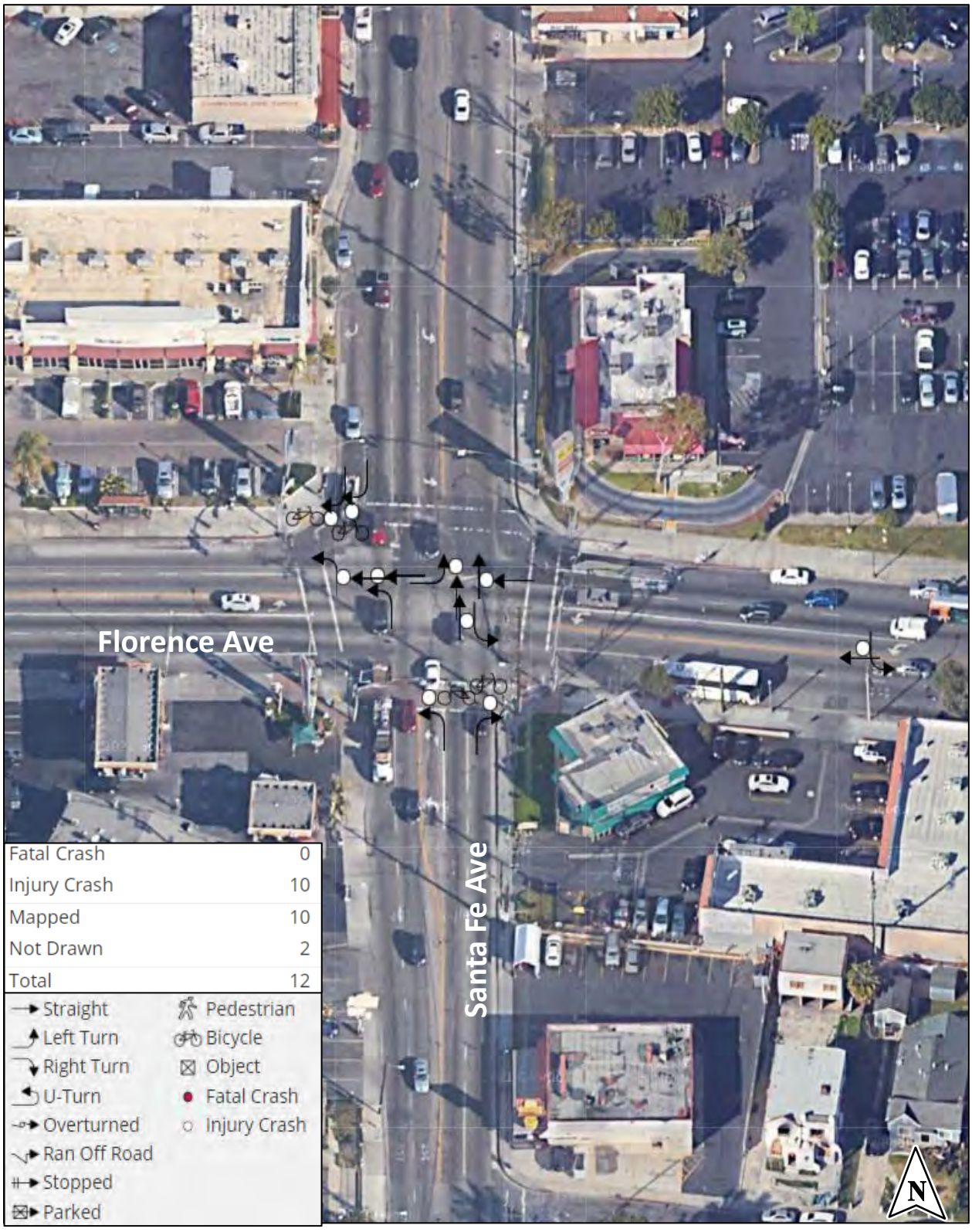



**Figure 30: Intersection 13 Collision Diagram (12 Collisions)**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REVIEW AND UPDATE SIGNAL CLEARANCE TIMING AS NECESSARY.
2. INSTALL R2-1 (35 MPH).
3. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
4. REPAINT INTERSECTION PAVEMENT MARKING.
5. RESTRIPE INTERSECTION TRAFFIC STRIPING WITHIN 300' RADIUS OF INTERSECTION CENTER.

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

6. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

EX. SIGN R2-1 (35 MPH)

FLORENCE AVE

SANTA FE AVE

EX. SIGN R2-1 (35 MPH)

## EXISTING SIGNS:


R2-1

## TRAFFIC SIGNS RECOMMENDATIONS:


R2-1

N
W
E
S

# Intersection 13: Florence Ave & Santa Fe Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.1.13.1 Intersection Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 39: Intersection 13 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Upgrade signal backplate | EA | 14 | $316.00 | $4,424.00 | 100% | 0% | 0% |
| 2 | Repaint intersection pavement marking | SQFT | 246 | $14.00 | $3,444.00 | 0% | 0% | 100% |
| 3 | Restripe intersection traffic striping | LF | 6842 | $3.50 | $23,947.00 | 0% | 0% | 100% |
| 4 | Install signs | EA | 2 | $575.00 | $1,150.00 | 0% | 0% | 100% |
| 5 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% |
| | | | | Weighted Average (%) | | 12% | 8% | 79% |
| | | | | Total ($) | $35,965.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $7,193.00 |
| Total Construction Cost (Including Contengencies): | | $43,158.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $43,158 which does not include the design and engineering costs. The estimated benefit of these improvements is $891,205 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 20.65.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 20.65 the proposed intersection improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $888,758 |
| Travel Time | $2,184 |
| Vehicle Operating Cost | $227 |
| Emissions | $35 |
| **Total Benefits** | **$891,205** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $43,158 |
| Present Value Benefits ($ Dollars) | $891,205 |
| Net Present Value ($ Dollars) | $848,047 |
| Benefit / Cost Ratio | 20.65 |

## 9.1.14 Intersection 14: Saturn Ave & Miles Ave


**Figure 31: Intersection 14 Collision Diagram (12 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. REVIEW AND UPDATE SIGNAL CLEARANCE TIMING AS NECESSARY.
2. INSTALL "LEFT TURN YIELD ON GREEN" (R10-12) ON TRAFFIC SIGNALS.
3. INSTALL R2-1 (25 MPH).
4. REPLACE OR UPGRADE SIGNAL BACK-PLATES WITH RETROREFLECTIVE BORDER.
5. INSTALL NO TURN ON RED DURING SCHOOL AND PEAK HOURS SIGN (R10-11 & R10-20aP).

## PEDESTRIAN AND BICYCLISTS RECOMMENDATIONS:

6. MODIFY SIGNAL PHASING TO IMPLEMENT A LEADING PEDESTRIAN INTERVAL (LPI).

SATURN AVE

MILES AVE

EX. SIGN R2-1 (25 MPH)

N

W

E

S

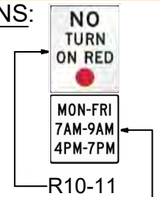
## EXISTING SIGNS:


R2-1

## TRAFFIC SIGNS RECOMMENDATIONS:


R10-12


R2-1




R10-11
R10-20aP

Intersection 14: Saturn Ave & Miles Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.1.14.1 Intersection Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 40: Intersection 14 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | LRSM CM No. (S02)* | LRSM CM No. (S21PB)* | OS** |
| 1 | Upgrade signal backplate | EA | 12 | $316.00 | $3,792.00 | 100% | 0% | 0% |
| 2 | Install signs | EA | 10 | $575.00 | $5,750.00 | 0% | 0% | 100% |
| 3 | Implement a Leading Pedestrian Interval | LS | 1 | $3,000.00 | $3,000.00 | 0% | 100% | 0% |
| | | | | Weighted Average (%) | | 30% | 24% | 46% |
| | | | | Total ($) | $12,542.00 | | | |

* Signalized Countermeasure Identification of Local Roadway Safety Manual (Version 1.5, April 2020)

** OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $2,508.40 |
| Total Construction Cost (Including Contengencies): | | $15,051.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $15,051 which does not include the design and engineering costs. The estimated benefit of these improvements is $1,100,139 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 73.09.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 73.09 the proposed intersection improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $1,096,753 |
| Travel Time | $3,003 |
| Vehicle Operating Cost | $312 |
| Emissions | $71 |
| **Total Benefits** | **$1,100,139** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $15,051 |
| Present Value Benefits ($ Dollars) | $1,100,139 |
| Net Present Value ($ Dollars) | $1,085,088 |
| Benefit / Cost Ratio | 73.09 |

## 9.2 High Collision Roadway Segments

### 9.2.1 Roadway Segment 1: Pacific Blvd from Slauson Ave to Belgrave Ave


**Figure 32: Roadway Segment 1 Collision Diagram (5 Collisions)**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)


HIGH COLLISION RECOMMENDATIONS:

1. REMOVE ROADWAY SEGMENT CENTER LANE TRAFFIC STRIPING.
2. INSTALL DOUBLE YELLOW TRAFFIC STRIPING.
3. INSTALL TYPE IV (L) ARROW.
4. INSTALL SPEED LIMIT PAVEMENT MARKING (25).

EXISTING SIGNS:




R2-1

Roadway Segment 1: Pacific Blvd from Slauson Ave to Belgrave Ave - Recommended Improvements

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.2.1.1 Roadway Segment 1 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 41: Roadway Segment 1 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility OS* |
|---|---|---|---|---|---|---|
| 1 | Traffic striping | LF | 1416 | $3.50 | $4,956.00 | 100% |
| 2 | Pavement marking | SQFT | 148 | $14.00 | $2,072.00 | 100% |
| | Weighted Average (%) | | | | | 100% |
| | Total ($) | | | | $7,028.00 | |

* OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $1,405.60 |
| Total Construction Cost (Including Contengencies): | | $8,434.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $8,434 which does not include the design and engineering costs. The estimated benefit of these improvements is $259,041 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 30.71.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 30.71 the proposed roadway segment improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $258,111 |
| Travel Time | $819 |
| Vehicle Operating Cost | $85 |
| Emissions | $27 |
| **Total Benefits** | **$259,041** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $8,434 |
| Present Value Benefits ($ Dollars) | $259,041 |
| Net Present Value ($ Dollars) | $250,607 |
| Benefit / Cost Ratio | 30.71 |

## 9.2.2 Roadway Segment 2: S Alameda St from E 67th St to Hawkins Cir


**Figure 33: Roadway Segment 2 Collision Diagram (4 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

## HIGH COLLISION RECOMMENDATIONS:

1. INSTALL R2-1 (40 MPH).
2. INSTALL SPEED LIMIT PAVEMENT MARKING (40).

S ALAMEDA ST

E 67TH ST

HAWKINS CIR

EX. SIGN R2-1

## EXISTING SIGNS:


R2-1

## TRAFFIC SIGNS RECOMMENDATIONS:


R2-1

N E S W

Roadway Segment 2: S Alameda St from E 67th St to Hawkins Cir - Recommended Improvements

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 12/30/2021

### 9.2.2.1 Roadway Segment 2 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 42: Roadway Segment 2 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility |
|---|---|---|---|---|---|---|
| | | | | | | OS* |
| 1 | Pavement marking | SQFT | 78 | $14.00 | $1,092.00 | 100% |
| 2 | Install signs | EA | 2 | $575.00 | $1,150.00 | 100% |
| | Weighted Average (%) | | | | | 100% |
| | Total ($) | | | | $2,242.00 | |

* OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $448.40 |
| Total Construction Cost (Including Contengencies): | | $2,691.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $2,691 which does not include the design and engineering costs. The estimated benefit of these improvements is $7,765,652 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 2885.79.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 2885.79 the proposed roadway segment improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $7,761,901 |
| Travel Time | $3,685 |
| Vehicle Operating Cost | $65 |
| Emissions | $0 |
| **Total Benefits** | **$7,765,652** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $2,691 |
| Present Value Benefits ($ Dollars) | $7,765,652 |
| Net Present Value ($ Dollars) | $7,762,961 |
| Benefit / Cost Ratio | 2885.79 |

## 9.2.3 Roadway Segment 3: Slauson Ave from Miles Ave/Soto St to Bickett St

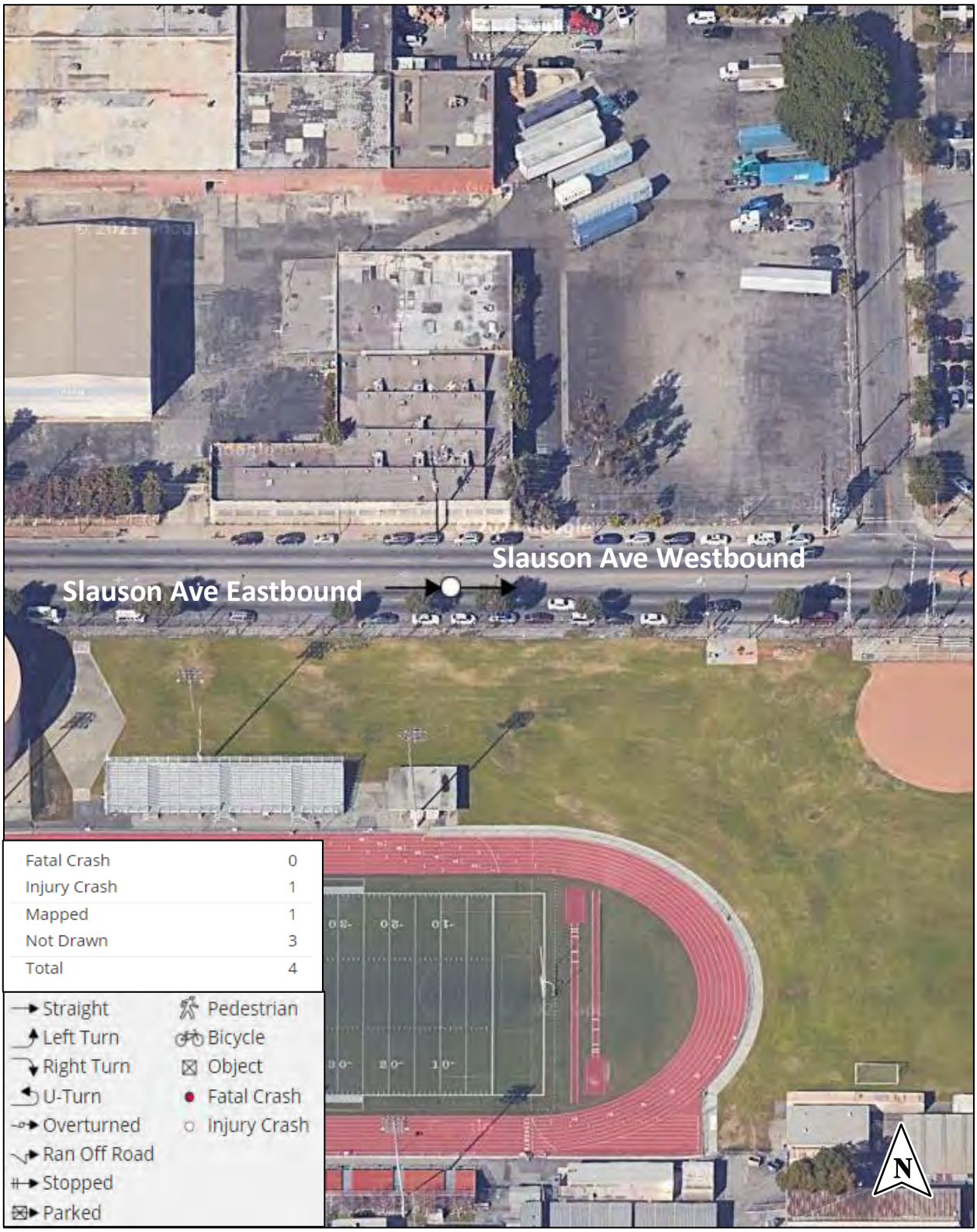



**Figure 34: Roadway Segment 3 Collision Diagram (4 Collisions)**
Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)

HIGH COLLISION RECOMMENDATIONS:

1. INSTALL R2-1 (35 MPH).
2. INSTALL SPEED LIMIT PAVEMENT MARKING (35).

SOTO ST

SLAUSON AVE

BICKETT ST

MILES AVE

TRAFFIC SIGNS RECOMMENDATIONS:


R2-1 (35 MPH)

N

W E

S

Roadway Segment 3: Slauson Ave from Miles Ave/Soto St to Bickett St - Recommended Improvements

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.2.3.1 Roadway Segment 3 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 43: Roadway Segment 3 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility |
|---|---|---|---|---|---|---|
| | | | | | | OS* |
| 1 | Pavement marking | SQFT | 33 | $14.00 | $462.00 | 100% |
| 2 | Install signs | EA | 1 | $575.00 | $575.00 | 100% |
| | Weighted Average (%) | | | | | 100% |
| | Total ($) | | | | $1,037.00 | |

* OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $207.40 |
| Total Construction Cost (Including Contengencies): | | $1,245.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $1,245 which does not include the design and engineering costs. The estimated benefit of these improvements is $136,454 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 109.60.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 109.60 the proposed roadway segment improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $136,153 |
| Travel Time | $273 |
| Vehicle Operating Cost | $28 |
| Emissions | $0 |
| **Total Benefits** | **$136,454** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $1,245 |
| Present Value Benefits ($ Dollars) | $136,453 |
| Net Present Value ($ Dollars) | $135,209 |
| Benefit / Cost Ratio | 109.60 |

## 9.2.4 Roadway Segment 4: Slauson Ave from Alameda St & Santa Fe Ave

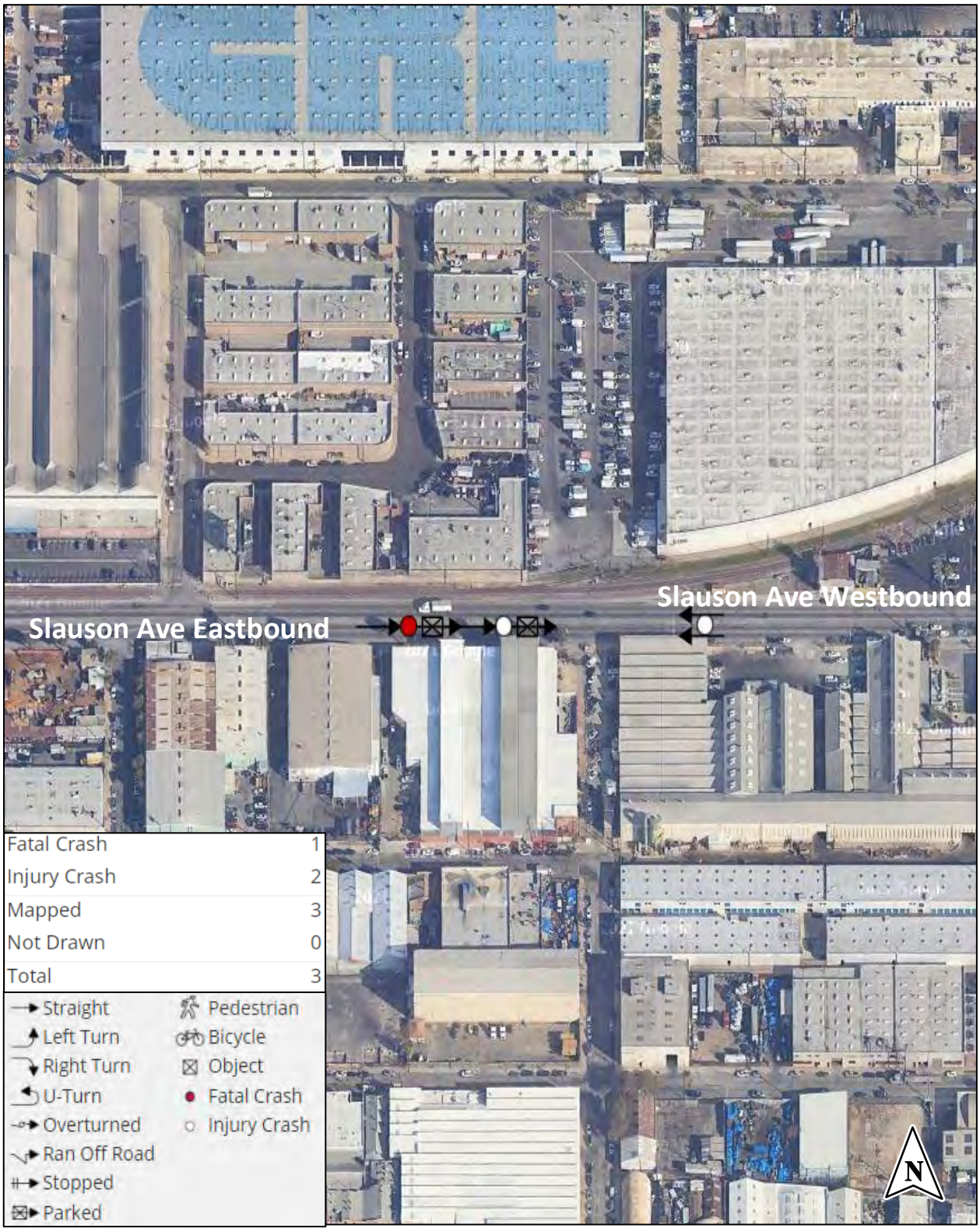



**Figure 35: Roadway Segment 4 Collision Diagram (3 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)


Roadway Segment 4: Slauson Ave from Alameda St to Santa Fe Ave - Recommended Improvements

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.2.4.1 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 44: Roadway Segment 4 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility OS* |
|---|---|---|---|---|---|---|
| 1 | Pavement marking | SQFT | 132 | $14.00 | $1,848.00 | 100% |
| 2 | Install signs | EA | 3 | $575.00 | $1,725.00 | 100% |
| | Weighted Average (%) | | | | | 100% |
| | Total ($) | | | | $3,573.00 | |

* OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $714.60 |
| Total Construction Cost (Including Contengencies): | | $4,288.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $4,288 which does not include the design and engineering costs. The estimated benefit of these improvements is $12,942,753 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 3018.37.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 3018.37 the proposed roadway segment improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $12,936,502 |
| Travel Time | $6,142 |
| Vehicle Operating Cost | $108 |
| Emissions | $0 |
| **Total Benefits** | **$12,942,753** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $4,288 |
| Present Value Benefits ($ Dollars) | $12,942,753 |
| Net Present Value ($ Dollars) | $12,938,465 |
| Benefit / Cost Ratio | 3018.37 |

## 9.2.5 Roadway Segment 5: Slauson Ave from Bickett St to State St/Boyle Ave

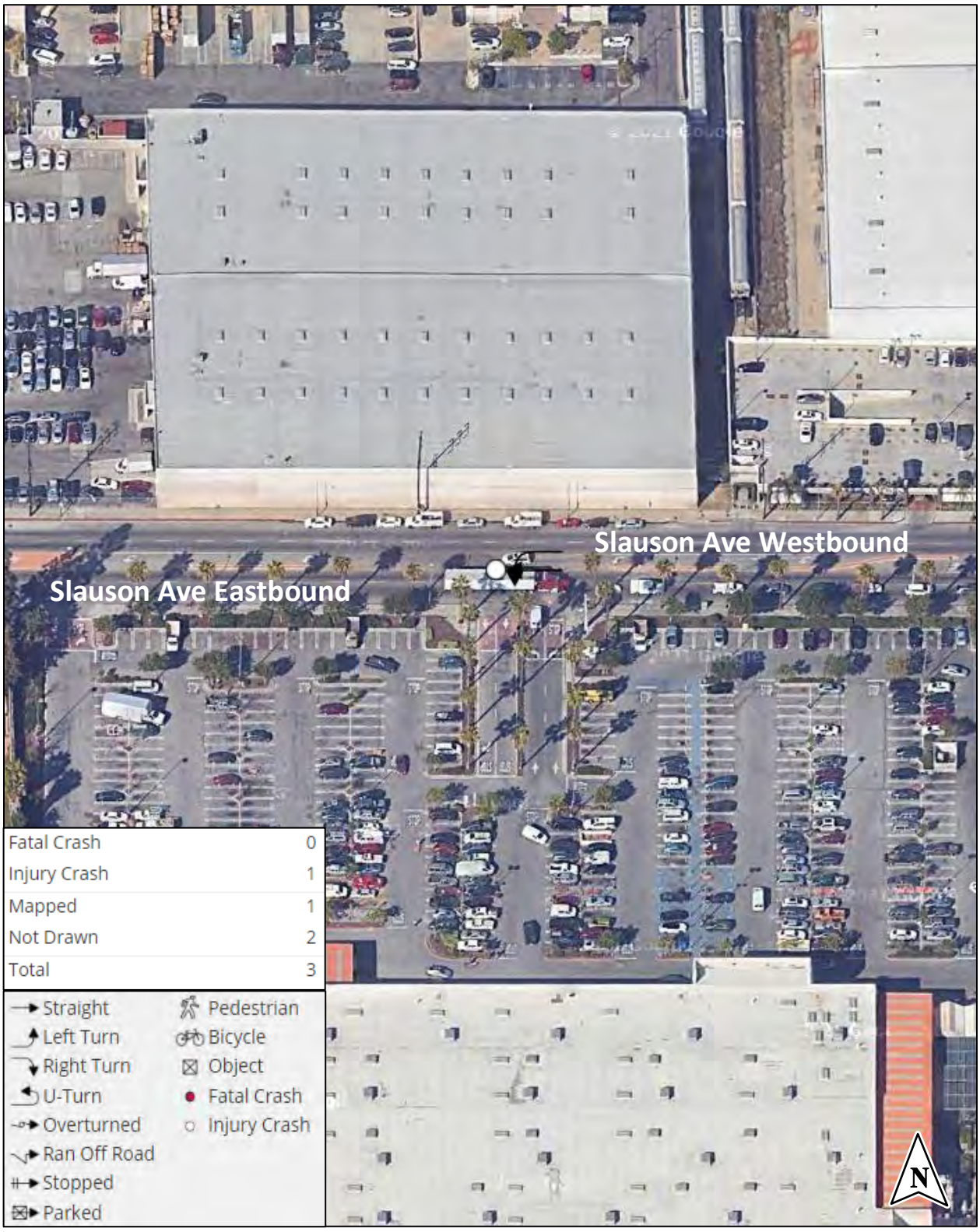
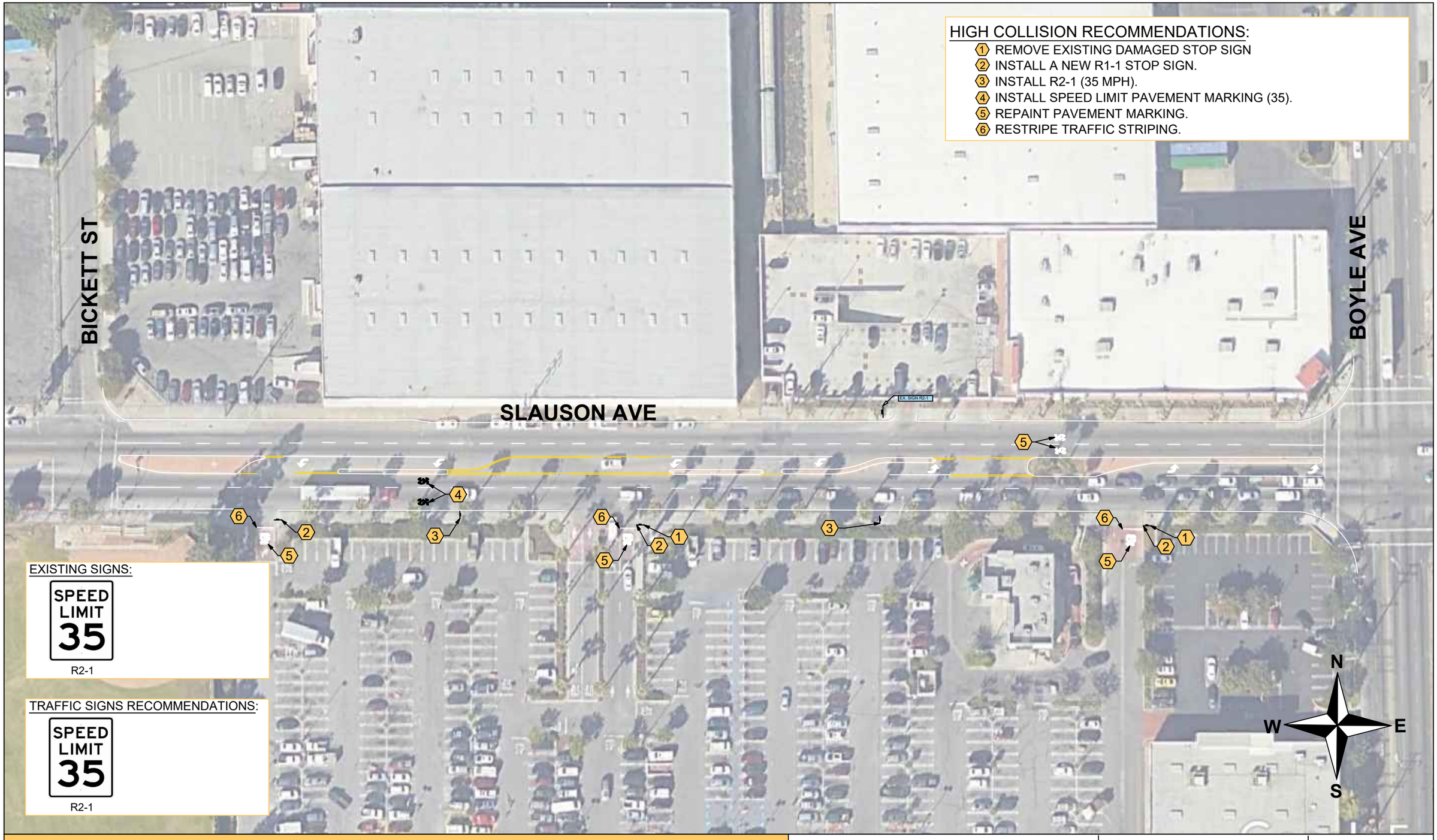



**Figure 36: Roadway Segment 5 Collision Diagram (3 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)




Roadway Segment 5: Slauson Ave from Bickett St to Boyle Ave - Recommended Improvements

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.2.5.1 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 45: Roadway Segment 5 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility OS* |
|---|---|---|---|---|---|---|
| 1 | Pavement marking | SQFT | 132 | $14.00 | $1,848.00 | 100% |
| 2 | Traffic striping | LF | 39 | $3.50 | $136.50 | 100% |
| 3 | Install signs | EA | 4 | $575.00 | $2,300.00 | 100% |
| | Weighted Average (%) | | | | | 100% |
| | Total ($) | | | | $4,284.50 | |

* OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $856.90 |
| Total Construction Cost (Including Contengencies): | | $5,142.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $5,142 which does not include the design and engineering costs. The estimated benefit of these improvements is $172,694 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 33.59.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 33.59 the proposed roadway segment improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $172,074 |
| Travel Time | $546 |
| Vehicle Operating Cost | $57 |
| Emissions | $18 |
| **Total Benefits** | **$172,694** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $3,869 |
| Present Value Benefits ($ Dollars) | $172,694 |
| Net Present Value ($ Dollars) | $167,552 |
| Benefit / Cost Ratio | 33.59 |

## 9.2.6 Roadway Segment 6: Pacific Blvd from Gage Ave to Clarendon Ave

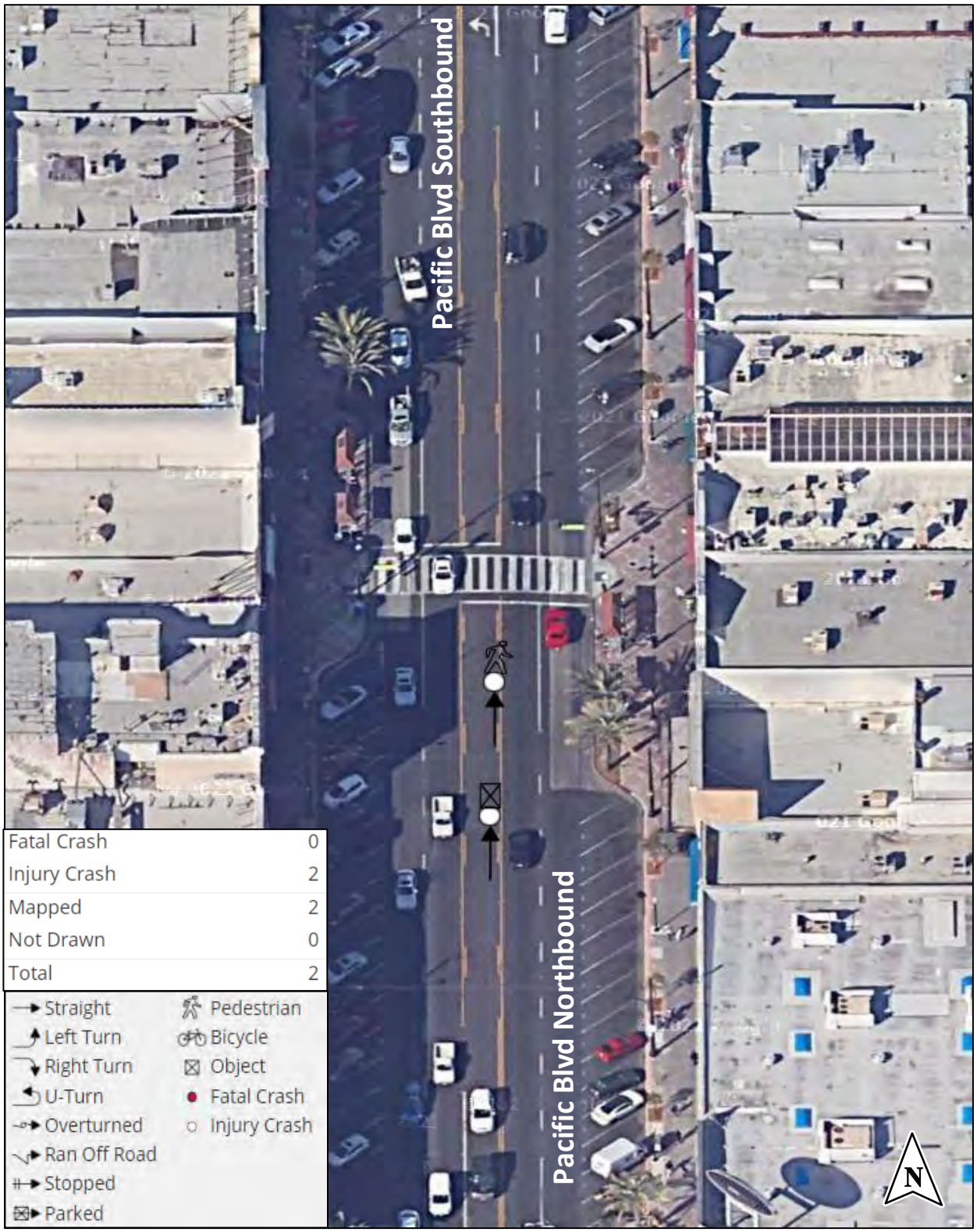
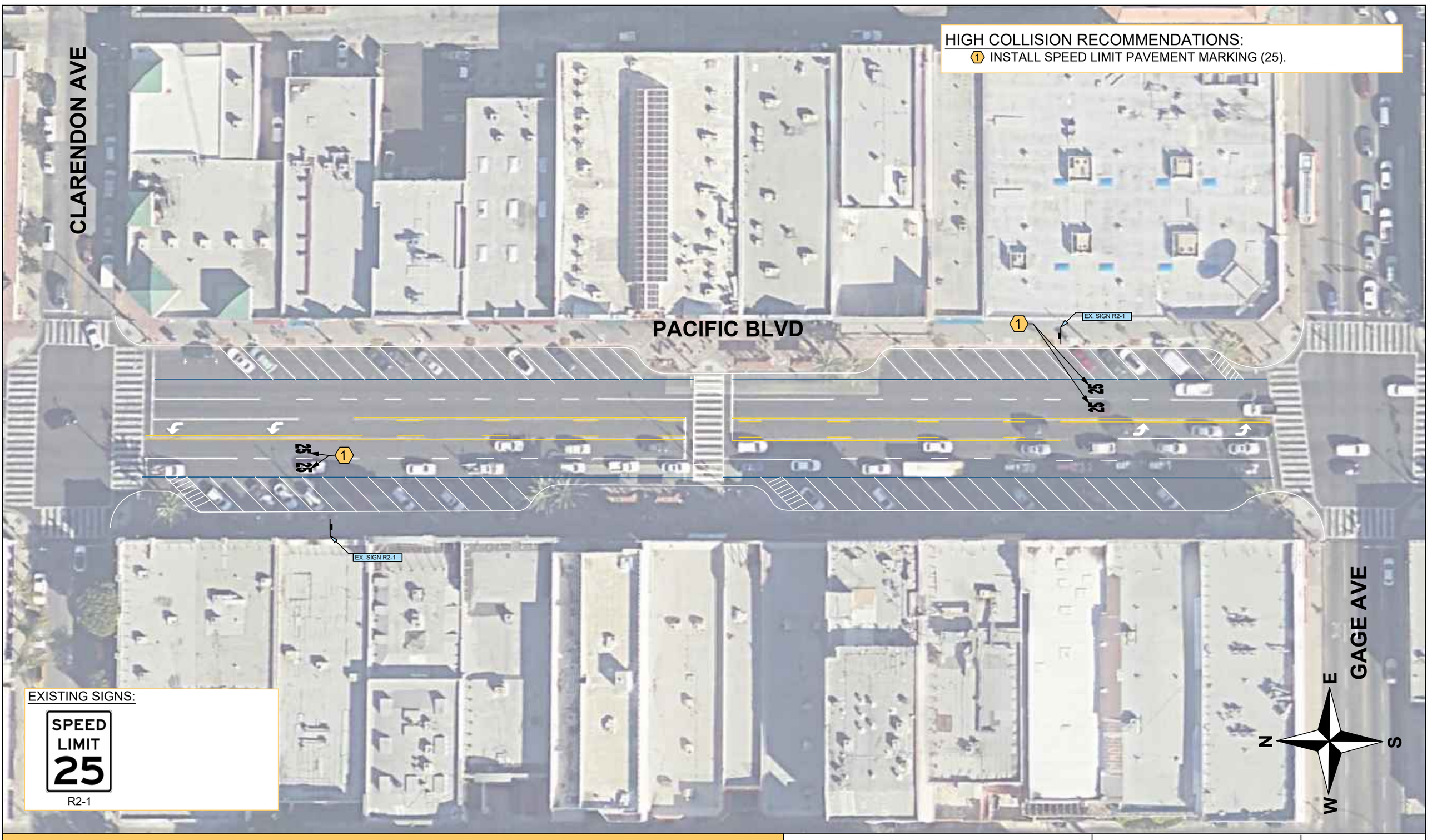



**Figure 37: Roadway Segment 6 Collision Diagram (2 Collisions)**

Source: University of California, Berkeley Transportation Injury Mapping System (TIMS)




Roadway Segment 6: Pacific Blvd from Gage Ave to Clarendon Ave - Recommended Improvements

ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

### 9.2.6.1 Cost Estimate and Cost/Benefit Analysis

**Construction Cost Estimate:**

The following table represents the preliminary line-item cost for the proposed countermeasures.

**Table 46: Roadway Segment 6 Cost Estimate**

| No. | Item Description | Unit | Quantity | Unit Cost | Total | HSIP Funding Eligibility OS* |
|---|---|---|---|---|---|---|
| 1 | Pavement marking | SQFT | 70 | $14.00 | $980.00 | 100% |
| | Weighted Average (%) Total ($) | | | | $980.00 | 100% |

* OS: Other Safety-Related Improvements

| | | |
|---|---|---|
| Contingencies percentage of the aformentioned Total Construction Cost: | 20% | $196.00 |
| Total Construction Cost (Including Contengencies): | | $1,176.00 |

**Total Cost & Benefit**

The project's total cost is estimated at $1,176 which does not include the design and engineering costs. The estimated benefit of these improvements is $136,454 based on the Highway Safety Benefit-Cost Analysis Model (Version 2.0). The resulting Benefit-Cost ratio is 116.03.

The current HSIP Cycle 10 program has a required minimum B/C ratio (BCR) of 3.5 for a BCR Application. With a B/C ratio of 116.03 the proposed roadway segment improvement project is eligible for HSIP funding and is considered a competitive HSIP project.

| Itemized Benefits | |
|---|---|
| Safety | $136,153 |
| Travel Time | $273 |
| Vehicle Operating Cost | $28 |
| Emissions | $0 |
| **Total Benefits** | **$136,454** |

| Summary of Total Cost & Benefit | |
|---|---|
| Present Value Costs ($ Dollars) | $1,176 |
| Present Value Benefits ($ Dollars) | $136,454 |
| Net Present Value ($ Dollars) | $135,278 |
| Benefit / Cost Ratio | 116.03 |

# Appendix A. List of Fifty (50) Intersections with Corresponding Number of Collisions and Victim Degree of Injury

## Intersection Collisions and Ranking in the City of Huntington Park (December 31, 2015 – December 31, 2020)

| Intersection Ranking Number [1] | Intersection Location | Number of Collisions | Victim Degree of Injury | | | |
|---|---|---|---|---|---|---|
| | | | Killed | Suspected Serious Injury | Suspected Minor Injury | Possible Injury |
| 1 | California Ave/Salt Lake Ave & Florence Ave | 22 | 0 | 1 | 7 | 21 |
| 2 | Gage Ave & Pacific Blvd | 20 | 0 | 0 | 8 | 19 |
| 3 | Gage Ave & State St | 17 | 0 | 0 | 3 | 16 |
| 4 | Miles Ave/Soto St & Slauson Ave | 15 | 0 | 1 | 6 | 12 |
| 5 | Gage Ave & Miles Ave | 14 | 0 | 2 | 3 | 11 |
| 6 | Gage Ave & Santa Fe Ave | 14 | 0 | 2 | 2 | 12 |
| 7 | Pacific Blvd & Slauson Ave | 14 | 0 | 1 | 3 | 16 |
| 8 | Gage Ave & Rugby Ave | 14 | 0 | 1 | 3 | 15 |
| 9 | Florence Ave & State St | 13 | 0 | 0 | 3 | 13 |
| 10 | Alameda St & Randolph St | 12 | 1 | 2 | 3 | 10 |
| 11 | Hope St & State St | 12 | 1 | 0 | 3 | 14 |
| 12 | Randolph St & Santa Fe Ave | 12 | 0 | 2 | 8 | 13 |
| 13 | Florence Ave & Santa Fe Ave | 12 | 0 | 1 | 2 | 18 |
| 14 | Saturn Ave & Miles Ave | 12 | 0 | 0 | 3 | 14 |
| 15 | Slauson Ave & Santa Fe Ave | 11 | 1 | 1 | 2 | 9 |
| 16 | Randolph St & Rugby Ave | 11 | 0 | 0 | 7 | 10 |
| 17 | Slauson Ave & Malabar St | 11 | 0 | 0 | 6 | 12 |
| 18 | Saturn Ave & Pacific Blvd | 10 | 0 | 3 | 5 | 6 |
| 19 | Alameda St & Gage Ave | 10 | 0 | 1 | 3 | 13 |
| 20 | Broadway St & State St | 10 | 0 | 0 | 8 | 11 |
| 21 | Santa Ana St & California Ave | 9 | 0 | 1 | 4 | 10 |
| 22 | Gage Ave & Stafford Ave | 9 | 0 | 1 | 3 | 6 |
| 23 | Zoe Ave & Alameda St | 9 | 0 | 0 | 4 | 13 |
| 24 | Slauson Ave & Alameda St | 9 | 0 | 0 | 2 | 10 |
| 25 | Zoe Ave & Santa Fe Ave | 9 | 0 | 0 | 1 | 11 |
| 26 | Florence Ave & Mountain View Ave | 8 | 0 | 1 | 3 | 10 |
| 27 | Gage Ave & Malabar St | 8 | 0 | 1 | 0 | 7 |
| 28 | California St & State St | 8 | 0 | 0 | 2 | 13 |
| 29 | Florence Ave & Pacific Blvd | 8 | 0 | 0 | 1 | 12 |
| 30 | Randolph St & Rita Ave | 8 | 0 | 0 | 1 | 8 |
| 31 | Florence Ave & Marconi St | 8 | 0 | 0 | 0 | 11 |
| 32 | Walnut St & State St | 7 | 1 | 0 | 3 | 7 |
| 33 | Clarendon Ave & Santa Fe Ave | 7 | 0 | 1 | 1 | 8 |
| 34 | Broadway St & California Ave | 7 | 0 | 0 | 3 | 8 |
| 35 | Saturn Ave & State St | 7 | 0 | 0 | 3 | 7 |
| 36 | Santa Ana St & State St | 7 | 0 | 0 | 2 | 8 |
| 37 | 65th St & Alameda St | 6 | 0 | 4 | 1 | 7 |
| 38 | Gage Ave & Salt Lake Ave | 6 | 0 | 1 | 1 | 4 |
| 39 | Florence Ave & Bissell St | 6 | 0 | 0 | 1 | 9 |
| 40 | Olive St & State St | 6 | 0 | 0 | 1 | 8 |
| 41 | Gage Ave & Wilmington Ave | 6 | 0 | 0 | 1 | 5 |

| Intersection Ranking Number [1] | Intersection Location | Number of Collisions | Victim Degree of Injury | | | |
|---|---|---|---|---|---|---|
| | | | Killed | Suspected Serious Injury | Suspected Minor Injury | Possible Injury |
| 42 | 56th St & Pacific Blvd | 6 | 0 | 0 | 0 | 7 |
| 43 | Gage Ave & Bissell St | 5 | 1 | 1 | 2 | 1 |
| 44 | Gage Ave & Newell St | 5 | 1 | 0 | 1 | 4 |
| 45 | Florence Ave & Alameda St | 5 | 0 | 1 | 1 | 5 |
| 46 | Florence Ave & Mission Pl | 5 | 0 | 1 | 1 | 3 |
| 47 | Saturn Ave & Seville Ave | 5 | 0 | 0 | 3 | 5 |
| 48 | Gage Ave & Middleton St | 5 | 0 | 0 | 1 | 12 |
| 49 | Gage Ave & Rita Ave | 5 | 0 | 0 | 1 | 8 |
| 50 | Florence Ave & Marbrisa Ave | 5 | 0 | 0 | 1 | 4 |

[1] Intersection Ranking Number is based on the number of contiguous collisions in each intersection within a distance of 250 feet.

# Appendix B. Truck Turning Templates

HEAVY TRUCK RIGHT TURNING TEMPLATE FOR
WB - 67 (53-FOOT TRAILER) FOR
1. NORTHBOUND RIGHT TURN
2. EASTBOUND RIGHT TURN
3. SOUTHBOUND RIGHT TURN
4. WESTBOUND RIGHT TURN

GAGE AVE

SANTA FE AVE

N
W
E
S

Intersection 6: Gage Ave and Santa Fe Ave - Truck Right Turning Template

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

HEAVY TRUCK LEFT TURNING TEMPLATE FOR
WB - 67 (53-FOOT TRAILER) FOR

1. NORTHBOUND LEFT TURN
2. EASTBOUND LEFT TURN
3. SOUTHBOUND LEFT TURN
4. WESTBOUND LEFT TURN

GAGE AVE

SANTA FE AVE

N
W
E
S

Intersection 6: Gage Ave and Santa Fe Ave - Truck Left Turning Template

**MINAGAR & ASSOCIATES, INC.**
ITS-TRAFFIC/CIVIL/ELECTRICAL/ ENGINEERING TRANSPORTATION PLANNING
23282 MILL CREEK DRIVE
SUITE 120
LAGUNA HILLS, CA 92653
TEL: (949) 707-1199

City of Huntington Park
Local Roadway Safety Plan
High Collision Locations

Date: 11/9/2021

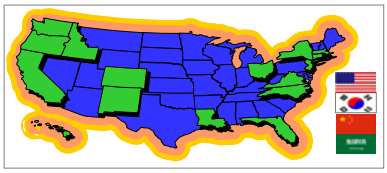
# MINAGAR & ASSOCIATES, INC.

ITS - Traffic/Civil/Electrical Engineering - Transportation Planning - Homeland Security - CEM

| | |
|---|---|
| 2019 | Winner of the Orange County Engineering Council's Outstanding Service Award |
| 2016 | Winner of the ASCE's Outstanding Civil Engineer in the Private Sector Award in the State of California |
| 2016 | Winner of the ASCE Los Angeles Section's Outstanding Civil Engineer in the Private Sector Award |
| 2016 | Winner of the ASCE Orange County Chapter's Outstanding Civil Engineer in the Private Sector Award |
| 2016 | Certificate of Recognition for Dedication to Support the ELTP Program by Los Angeles County MTA/Metro |
| 2016 | Winner of the Orange County Engineering Council's Outstanding Engineering Service Award |
| 2015 | Orange County Business Journal's 2015 Excellence in Entrepreneurship Award Nominee |
| 2014 | Orange County Business Journal's 2014 Excellence in Entrepreneurship Award Nominee |
| 2012 | Winner of Cal-EPA/California Air Resources Board's Cool California Climate Leader |
| 2011 | Award of Excellence in Service by Los Angeles County MTA/Metro in the County of Los Angeles |
| 2011 | Award of Excellence in Service by Los Angeles County MTA/Metro in the County of Los Angeles |
| 2010 | Award of Excellence in Service by Los Angeles County MTA/Metro in the County of Los Angeles |
| 2009 | Winner of the ASCE's Outstanding Private Sector Civil Engineering Project in Metropolitan Los Angeles |
| 2009 | Winner of the Caltrans' 2009 Excellence in Transportation Award in the State of California |
| 2007 | Winner of the ASCE's Outstanding Public/Private Sector Civil Engineering Project in Metropolitan Los Angeles |
| 2005 | Winner of the APWA's Best Traffic Congestion Mitigation Project of the Year in Southern California |
| 2004 | Top Nominee of Transportation Foundation's Highway Management Program in the State of California |
| 2003 | Winner of the PTI's Best Transportation Technology Solutions Award in the United States |
| 2002 | Winner of the ITS-CA's Best Return on Investment Project Award in the State of California |
| 2000 | Award of Excellence in Service by Los Angeles County MTA/Metro in the County of Los Angeles |

Celebrating 28 Years of Planning & Engineering Excellence

- **Traffic Engineering**
- **Transportation Planning**
- **ITS (Intelligent Transportation Systems)**
- **Civil/Electrical Engineering**
- **Homeland Security**
- **Construction Engineering Management**




**MINAGAR & ASSOCIATES, INC.**
23282 Mill Creek Drive, Suite 120
Laguna Hills, CA 92653

Tel: (949)707-1199
Web: **www.minagarinc.com**


28 Years of Engineering & Planning Excellence