City of Glendora

Local Road Safety Plan

Final Report
8 June 2022

GTS

Acknowledgements

Executive Summary

In 2021, the City of Glendora was awarded a state grant from Caltrans to develop a Local Road Safety Plan (LRSP). The LRSP is a requirement for grant funding from Cycle 11 of the Highway Safety Improvement Program (HSIP). The application due date will be Monday, September 12, 2022. The LRSP development process took place from November 2021 to June 2022.

Development of the LRSP was a collaborative process involving stakeholders from the City administration, the Glendora police, the Los Angeles County fire department, Los Angeles County Public Works, Metro, the San Gabriel Valley Council of Governments (SGVCOG), and Acti veSGV (a nonprofit organization). A Working Group consisting of members from these stakeholder organizations was formed. In addition, there was an extensive public involvement process including an interactive website, a survey, and three meetings that were open to the community.

The LRSP contains a citywide analysis of road safety issues in the City of Glendora and a systematic analysis of collisions that occurred in the City during a five-year period, from January 1, 2016 to December 31 ,200. The analysis does not include crashes that occurred on Interstate 210 and State Route 27, which are Caltrans facilities.

Patterns revealed through analysis of the crash data informed the identification of high-injury intersections and high-injury corridors in the City, to be prioritized for safety measures. Further analysis, combined with information provided by stakeholders, resulted in the development of proven countermeasures that are recommended to be implemented to improve safety at specific locations, as well as systemically, in the City of Glendora. Recommended countermeasures include engineering improvements, as well as strategies for education, enforcement, and emergency management.

The California Strategic Highway Safety Plan identifies 16 Challenge Areas on which to focus resources and efforts for road safety. Through input from the LRSP Working Group meetings, the following SHSP Challenge Areas were identified as being particularly important for Glendora.

1. Active Transportation: Pedestrians & Bicyclists
2. Impaired Driving
3. Intersections
4. Speed Management/Aggressive Driving

The countermeasures recommended as engineering strategies for specific intersections and corridors in the City of Glendora are listed in below.

Priority Intersections and Recommended Countermeasures

Primary Road	Secondary Road	Recommended Countermeasures
Foothill Blvd	Barranca Ave	Upgrade signing and striping [SI]
		Police enforcement [SI]
		Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]
		High visibility crosswalks [SI]
		Note intersection was upgraded mid 2019 / Along FLM Corridor
Gladstone St	Barranca Ave	Provide protected left turn phase (left tur n lane already exists) [SI]
		Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]
		High visibility crosswalks [SI]
Lone Hill Ave	Gladstone St	Upgrade signing and striping [SI]
		Police enforcement [SI]
		High visibility crosswalks [SI]
		Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number
Gladstone St	Sunflower Ave	Upgrade signing and striping [SI]
		High visibility crosswalks [SI]
		Improve pavement friction (High Friction Surface Treatments)
		Provide protected left turn phase (left turn lane already exists) [SI]
		Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]
Baseline Rd	Grand Ave	Police enforcement [SI]
		Upgrade signing and striping [SI]
		Convert signal to mast arm (from pedestal-mounted) [SI]
Fleetwood Pl (NS)	Grand Ave	Upgrade signing and striping [SI]
		Install/upgrade pedestrian crossing at uncontrolled locations (with enhanced safety features)
Dawson Ave (NS)	Glendora Ave	Upgrade signing and striping [SI]
		Add intersection lighting (NS.I.)
		Consider adding bike lanes
Bennett Ave (NS)	Wabash Ave	Upgrade signing and striping [SI]
		Install pedestrian crossing at uncontrolled locations (new signs and markings only)
		Install Rectangular Rapid Flashing Beacon (RRFB)
Route 66	Barranca Ave	Police enforcement [SI]
		Upgrade signing and striping [SI]
		Convert signal to mast arm (from pedestal-mounted)
Saratoga Ln (NS)	Amelia Ave	Upgrade signing and striping [SI]
		Install/upgrade pedestrian crossing at uncontrolled locations (with enhanced safety features)
Juanita Ave	Sunflower Ave	Provide protected left turn phase (left turn lane already exists) [SI]
		Upgrade signing and striping [SI]
		High visibility crosswalks [SI]
Gladstone St	Valley Center Ave	Provide protected left turn phase (left turn lane already exists) [SI]
		High visibility crosswalks [SI]
		Add intersection lighting (S.I.)
		Upgrade signing and striping [SI]

Priority Corridors and Recommended Countermeasures

Primary Road	Begin – End Segment	Recommended Countermeasures
Lone Hill Ave	Route 66 – Gladstone St	Install delineators, reflectors and/or object markers
		Upgrade signing and striping [SI]
		Install/upgrade pedestrian crossing (with enhanced safety features)
		Improve pavement friction (High Friction Surface Treatments)
		Enhance Bike Facilities
Gladstone St	Sunflower Ave – Lone Hill Ave	Upgrade signing and striping [SI]
		Enhance Bike Facilities
Grand Ave	Baseline Rd – Arrow Hwy	Install delineators, reflectors and/or object markers
		Upgrade signing and striping [SI]
		Install/upgrade pedestrian crossing (with enhanced safety features)
Sunflower Ave	Gladstone St – Arrow Hwy	Upgrade signing and striping [SI]
Route 66	Glendora Ave – Loraine Ave	Install delineators, reflectors and/or object markers
		Upgrade signing and striping [SI]
		Install Bike Facilities
Gladstone	Barranca Ave – Grand Ave	Upgrade signing and striping [SI]
		Add segment lighting
		Install Bike Facilities
Barranca Ave	Baseline Rd – Gladstone St	Upgrade signing and striping [SI]
		Add segment lighting
		Install Bike Facilities
Route 66	Loraine Ave – Amelia Ave	Install delineators, reflectors and/or object markers
		Upgrade signing and striping [SI]
		Install bike facilities
		Improve pavement friction (High Friction Surface Treatments)
Foothill Blvd	Citrus Ave – Grand Ave –	Upgrade signing and striping [SI]
		Install/upgrade pedestrian crossing (with enhanced safety features)
Gladstone St	Glendora Ave Sunflower Ave	Install delineators, reflectors and/or object markers
		Upgrade signing and striping [SI]
		Improve pavement friction (High Friction Surface Treatments)
		Upgrade signing and striping [SI]
		Improve pavement friction (High Friction Surface Treatments)

Systemic Engineering Countermeasures

In addition to the countermeasures recommended for specific intersections and corridors, the following engineering countermeasures were recommended for system-wide implementation.

1. Upgrade signing and striping

2. High-visibility pedestrian crosswalks

3. Install bike lanes

4. Signal upgrades (to include converting signals to mast arm from pedestal-mounted)

5. Provide Advanced Dilemma-Zone Detection for high-speed approaches

Systemic Non-engineering Countermeasures

In addition to the engineering countermeasures, this LRSP includes countermeasures in the areas of education, enforcement, and emergency response that were identified as appropriate for the City of Glendora in the LRSP Working Group meetings.

Education

- Continue bicycle, pedestrian, and FLM safety campaigns
- Continue Safe Routes to School maps and outreach at schools
- Social media blasts with quick education tools for all users
- Dangers of speeding/speed management campaigns
- Partnering with agencies such as LA County Health, Bicycle Coalitions, and others for public education

Enforcement

- Targeted speed enforcement (school zones, areas of concern)
- DUI saturation patrols
- Increasing number of traffic enforcement officers (possible through grants/OTS funding)
- Distracted driving enforcement

Emergency Response

- Review existing emergency vehicle pre-emption at signalized intersections
- Evaluate improvements to roadways to increase access and potentially shorten response times

This LRSP is considered a living document. It is intended to guide the City's safety actions for the next five years, and to be updated as needed.

Contents

1. Introduction

The Local Road Safety Plan (LRSP) for the City of Glendora, California is the outcome of a systematic approach to analyze and identify traffic safety problems and provide prioritized solutions for the City's unique road safety needs. Through this systematic framework, the plan provides proven countermeasures that the City can implement to reduce and prevent traffic injuries and fatalities on local roads. The recommended countermeasures were identified through a planning process that included participation by key stakeholders, public outreach, and data analysis. The resulting countermeasures are intended to address the unique safety needs of this community. The countermeasures include engineering strategies (modifications to traffic signals, striping, signs, and other infrastructure) and also non-engineering strategies (enforcement and education). Most of the countermeasures are associated with specific locations (intersections and corridors) while some represent citywide improvements.

In addition to providing the City with a strategy for the reduction of traffic injuries and fatalities, this plan will allow eligibility for project funding through the Highway Safety Improvement Program (HSIP). The LRSP identifies the unique road safety issues of this community, while also contributing to the success of the statewide Strategic Highway Safety Plan (SHSP) by reducing injuries and fatalities at the local level.

The LRSP was developed following the process established by the Federal Highway Administration (FHWA), outlined in Figure 1.


Figure 1. LRSP Development Process

2. Background

2.1. Purpose and Need

Glendora, California (2020 Census population: 52,558) is located in eastern Los Angeles County, in the foothills of the San Gabriel Mountains. The City's population grew by 5% from 2010 to 2020. Although the land in Glendora is almost completely developed, more population growth can still be expected with the upcoming completion of the Foothill Gold Line light rail service, as well as overall growth in the Los Angeles metro area.

During the 5-year period between January 1, 2016 through December 31, 2020, there were 2,746 reported crashes on local roads in the City of Glendora (excluding those occurring on Interstate 210 and State Route 27, which are Caltrans facilities). Two crashes resulted in fatalities and 38 (1.4%) resulted in severe injuries. As population continues to grow, the importance of mitigating traffic collisions will continue to be paramount. Moreover, countermeasures identified by the FHWA have been shown to address the most common collision factors identified (unsafe speed, right-of-way violation, and improper turning), as well as other less common collision factors.

2.2. Guiding Documents and Principles

2.2.1. California Strategic Highway Safety Plan

The FHWA requires each state to have a Strategic Highway Safety Plan (SHSP). The California 2020-2024 SHSP provides a framework for the reduction of fatal and severe injury collisions. This LRSP will complement California's SHSP, with a focus on the following recommended SHSP challenge areas:

High Priority Areas

- Active Transportation: Pedestrians & Bicyclists
- Impaired Driving
- Intersections
- Lane Departures
- Speed Management/Aggressive Driving

Focus Areas

- Aging Drivers (equal to>65)
- Commercial Vehicles
- Distracted Driving
- Driver Licensing
- Emergency Response
- Emerging Technologies
- Motorcyclists
- Occupant Protection
- Work Zones
- Young Drivers (15–20)

2.2.2. Los Angeles County Vision Zero

Vision Zero is an international movement that aims to eliminate traffic-related fatalities. First implemented in Sweden in the 1990s, Vision Zero emphasizes a new approach to traffic safety, acknowledging that people make mistakes and focusing on system-wide practices, policies, and designs to reduce collision severity. Agencies that adopt a Vision Zero initiative commit to the systematic elimination of traffic deaths and severe injuries for all roadway users. To achieve success, this approach requires data-driven decision making, an understanding of health equity, multi-disciplinary collaboration within and outside of government, and regular communication with the public.

Los Angeles County Vision Zero is a county-wide initiative to eliminate traffic-related fatalities. Although the Vision Zero Plan is focused on reducing traffic deaths and severe injuries on unincorporated County roadways, the plan also includes a wide range of action items that will have a regional impact across jurisdictional boundaries once they are implemented. This presents an opportunity for cross-jurisdictional collaboration and partnership. Therefore, the strategies outlined in this LRSP were developed in alignment with the actions listed in the Vision Zero Plan for Los Angeles County.

2.2.3. City of Glendora General Plan

Glendora's General Plan, known as "Community Plan 2025," is the primary land use policy document for the community. Required by state law, the General Plan serves as a blueprint for future development and creates a vision how Glendora will develop in the years to come. This LRSP incorporates policies from the General Plan relating to traffic circulation and road safety. The Glendora General Plan contains the following goals and policies relevant to transportation safety.

Goal	CIR-1	Safety for motorists and pedestrians on local roadways.
Policies	CIR-1.1	Determine appropriate design of local roadway system considering all potential users including automobile, bicycle, and pedestrian users.
	CIR-1.2	Based on traffic counts, add audible and "countdown" signals to enhance pedestrian safety.
	CIR-1.3	Initiate public education programs that address the following components: - Pedestrian rights, legal movements. - Location of bike lanes and routes. - Youth involvement/programs with Police (e.g. bike rodeos, etc.).
	CIR-1.4	Improve public directional and safety signage.
	CIR-1.5	Enforce speeds and traffic laws on all City streets.
	CIR-1.6	Employ traffic calming measures where appropriate to deter speeding.
	CIR-1.7	Explore opportunities to fund sidewalk safety enhancements through the Safe Routes to School program.

	SAF-11	Reduced traffic safety hazards.
	SAF-11.1	Minimize the potential for accidents involving railways, automobiles, pedestrians, and cyclists by working closely with the Glendora Police Department, Los Angeles County Metropolitan Transportation Authority, California Highway Patrol, and all applicable transportation and/or railroad companies to identify safety problems and implement corrective measures.
	SAF-11.2	Use technology to improve safety at grade crossings that cause the least environmental harm (e.g., automated horn systems).
	SAF-11.3	Ensure new infrastructure and development projects are designed according to accepted traffic engineering principles.

2.2.4. Safe System Approach

The Safe System Approach focuses on designing transportation systems in a way that anticipates human error and accommodates human tolerances with a goal of reducing fatal and serious injuries. Although human behavior is still part of the picture, the Safe System Approach places emphasis on vehicle and roadway design.

The Institute of Transportation Engineers (ITE) defines the Safe System Approach and framework as the following:

The Safe System approach differs from conventional safety practice by being human-centered, i.e. seeking safety through a more aggressive use of vehicle or roadway design and operational changes rather than relying primarily on behavioral changes – and by fully integrating the needs of all users (pedestrians, bicyclists, older, younger, disabled, etc.) of the transportation system. Safe Systems provide a safety-net for the user by:

1. Anticipating Human Error – A Safe System is designed to anticipate and accommodate errors by drivers and other road users.

Example: Even a momentary distraction can prevent a driver from seeing vulnerable road users or vice-versa. Separating vulnerable road users, such as pedestrians and bicyclists, from traffic wherever possible reduces the likelihood that such predictable errors will lead to a deadly collision.

Example: On rural highways, the application of rumble strips can recapture the driver's attention when they drift out of the lane due to distraction or fatigue. In newer vehicles, lane-keeping technologies can provide similar benefit.

2. Accommodating Human Injury Tolerance – A Safe System is designed to reduce or eliminate opportunities for crashes resulting in forces beyond human endurance.

Example: Where pedestrians and vehicles need to occupy the same space – such as urban crosswalks – reducing vehicle speeds through the use of lower speed limits combined with road design changes can reduce the likelihood of fatal collisions with pedestrians or bicyclists.

Example: Breakaway designs on traffic control devices installed in the right-of-way can reduce the force of impact when struck by an errant vehicle.

2.2.5. Standards and Guidance

In the development of the City of Glendora LRSP, the following standards and guidelines were followed:

- Caltrans. Local Roadway Safety: A Manual for California's Local Road Owners. Version 1.5, April 2020.
- Caltrans. California Safe Roads: 2020-2024 Strategic Highway Safety Plan.
- Federal Highway Administration. Developing Safety Plans: A Manual for Local Rural Road Owners. 2012.
- Federal Highway Administration. Local and Rural Road Safety Briefing Sheets: Local Road Safety Plans.
- American Association of State Highway Officials (AASHTO). Highway Safety Manual, 1st Edition, 2014 supplement.
- Caltrans. California Manual of Uniform Traffic Control Devices (CA MUTCD), Revision 5, 2014.

2.3. Methodology

The LRSP methodology followed the FHWA's LRSP development process, as shown in Figure 2, and also followed the methods outlined in the Caltrans Local Roadway Safety Manual document.

The primary steps used to create this plan were as follows:

1. Identify Stakeholders

A LRSP Working Group was formed, consisting of representatives from engineering, law enforcement, emergency management, elected officials, and others (see Ch. 3 for more information).

2. Use Safety Data

Collision data for the past 5 years (2016–2020) were analyzed to identify trends (see Ch. 4 for the full analysis).

3. Choose Proven Solutions

For specific locations and for the City as a whole, FHWA Proven Countermeasures and Caltrans safety countermeasures were chosen to address the identified safety problems (see Ch. 6).

4. Implement Solutions

*Specific projects were identified and prioritized for specific locations and for the entire system (see Ch. 7).*

Figure 2. FHWA LRSP development infographic (source: FHWA)

3. Safety Partners/Stakeholders

3.1. LRSP Stakeholder Working Group Members

The LRSP Working Group was formed by the City of Glendora and included representatives from all key stakeholder organizations. Thanks to their knowledge of the community and expertise in their fields, this group was able to capture the safety needs, goals, and priorities of the City, including safety countermeasures.

The LRSP Stakeholder Working Group included the following representatives:

- City of Glendora
- City of Glendora Community Services Commission
- City of Glendora Police Department
- ActiveSGV
- Los Angeles County Fire Division 2
- Los Angeles County Public Works
- Metro
- San Gabriel Valley COG

Figure 3. Stakeholder Working Group Organization Logos

3.2. LRSP Stakeholder Working Group Meetings

Three meetings were held as part of the LRSP process. They are listed below along with the agenda topics.

Kick-off meeting, November 30, 2021, 2:00 p.m. (virtual)

- Introduction, project background, project approach, data request, project management.

Stakeholder Working Group meeting #1, March 9, 2022, 7:00 p.m. (virtual)

- Introduction to the LRSP, survey, preliminary collision analysis findings, preliminary mapping findings, OTS record comparison, project website, City vision and goals, open discussion.

Stakeholder Working Group meeting #2, May 4, 2022, 3:00 p.m. (virtual)

- Recap, project outreach, collision mapping findings, strategies/countermeasures, challenge areas, systematic improvements, non-engineering strategies, open discussion.

The meeting summaries for the Stakeholder Working Group meetings are included in Appendix A.

3.3. SHSP Challenge/Emphasis Areas

The California Strategic Highway Safety Plan identifies 16 Challenge Areas on which to focus resources and efforts for road safety. Through input from the LRSP Working Group meetings, the following SHSP Challenge Areas were identified as being particularly important for Glendora.

5. Active Transportation: Pedestrians & Bicyclists
   - Ped: motor vehicle is involved in a crash with a pedestrian
   - Bike: motor vehicle is involved in a crash with a bike

6. Impaired Driving
   - Crashes where any evidence of drug or alcohol use by the driver is present

7. Intersections
   - Crashes occurring at an intersection

8. Speed Management/Aggressive Driving
   - Includes driving too fast, tailgating, and other reckless driving maneuvers

3.4. Vision and Goals

LRSP Vision:

Create a transportation network that provides a comfortable environment for all users and all modes, promotes traffic safety, and meets the needs of the community.

LRSP Goals:

1. Have zero fatal and severe injury collisions on the City roadways

2. Reduce the number of pedestrian and bicycle collisions on City roadways

3. Partner with traffic safety stakeholders (fire, police, schools, parks, etc.) to exchange information and ideas specific to enhancing roadway safety performance through engineering, enforcement, and educational strategies

4. Improve available collision data

5. Utilize community and traffic safety stakeholder input to identify opportunities to improve roadway safety

6. Reduce the number of broadside collisions

7. Systemically implement safety countermeasures proven to reduce Improper Turning

4. Analysis of Safety Data

4.1. Recent/Planned Safety Projects

In HSIP grant cycle 9 (2018), the City of Glendora received $250,000 in federal funds to install curb extensions, high-visibility crosswalks, enhanced crosswalk signage and pavement markings, street lighting, flashing beacons at stop signs, pedestrian countdown signals, lead ped intervals, and no-passing centerlines in the vicinity of five public and private elementary schools, including Cullen Elementary, Sellers Elementary, La Fetra Elementary, Hope Lutheran School, and Stanton Elementary. The total project cost was $523,900.

In addition, various traffic signals throughout the City have been upgraded.

4.2. Collision Data

4.2.1. Summary of Findings

This section provides a summary of the findings from the analysis performed for this LRSP.

4.2.1a. All Road Users

- Crash data was analyzed for the 5-year period between January 1, 2016 and December 31, 2020 for all reported crashes in the City, excluding those occurring on Interstate 210 and State Route 27 segments, which are Caltrans facilities.

- In the 5 years of crash data analyzed, there were 2,746 total reported crashes in the City. Two crashes resulted in fatalities and 38 (1.4%) resulted in severe injuries.

- The four most frequently stated crash types overall were:
  - ▷ Broadside at 27% of reported crashes,
  - ▷ Rear-End at 24% of reported crashes,
  - ▷ Sideswipe at 17% of reported crashes, and
  - ▷ Hit Object at 8% of reported crashes.
  - ▷ For 16% of crashes, the crash type was not stated.

- The most frequently stated crash types among fatal and severe injury crashes were:
  - ▷ Broadside at 45% of reported fatal and severe injury crashes,
  - ▷ Head-On at 8% of reported fatal and severe injury crashes,
  - ▷ Hit Object at 8% of reported fatal and severe injury crashes, and
  - ▷ Rear-End at 8% of reported fatal and severe injury crashes.

- Improper Turning was the most frequently cited collision factor among fatal and severe injury crashes, representing 8 (20%) of those crashes. This violation is cited when vehicles make unsafe or prohibited turning movements.

- The months with the highest number of reported crashes (for the 5-year period of 2016 – 2020) were:
  - ▷ December at 268 reported crashes
  - ▷ January at 255 reported crashes
  - ▷ May at 245 reported crashes
  - ▷ August at 239 reported crashes.

- The weekday (Monday through Friday) hours with the highest frequency of reported crashes were 2:00 – 3:00 p.m. and 3:00 – 4:00 p.m. The weekend (Saturday and Sunday) hours with the highest frequency of reported crashes were 1:00 – 2:00 p.m. and 3:00 – 4:00 p.m.

- Clear weather was the most frequently cited weather condition, recorded in 73% of reported crashes. Of fatal and severe injury crashes, 87.5% occurred in clear weather conditions. Only 2.5% of fatal and severe injury crashes occurred during rainy conditions.

- Dry roads were the most frequently cited road surface condition, recorded in 79% of reported crashes. Of fatal and severe injury crashes, 87.5% occurred on dry road surfaces. Of the fatal and severe injury crashes, 2.5% occurred on wet road surfaces.

- Crashes in dark conditions accounted for 23% of reported crashes but 40% of fatal and severe injury crashes.

- Among reported crashes, the share involving driving under the influence (of alcohol) was 7%, none of which were fatal crashes. Of the severe injury collisions, alcohol was a factor in 16%.:

4.2.1a. All Road Users

- A total of 58 bicycle-involved crashes were reported in the City between 2016 and 2020, of which 5 (13%) resulted in a severe injury. A total of 56 reported crashes involved a pedestrian between 2016 and 2020, of which 5 (13%) resulted in a severe injury. Bicycle crashes and pedestrian crashes are disproportionately severe relative to vehicular crashes (1% of vehicular crashes resulted in severe injury).

- About half of the reported bicycle crashes involved bicycles and vehicles moving in different directions. Bicycles "proceeding straight being hit by vehicles making a right turn" comprised 21% of reported bicycle crashes and bicycles "proceeding straight being hit by vehicles making a left turn" comprised 12%.

- Among the crashes where the bicyclist was identified as the party most at fault, the top three primary collision factors were "Other Hazardous Movement", "Wrong Side of the Road", and "Unsafe Speed". Of the collisions where the vehicle driver was identified as the party most at fault, the top primary collision factor was "automobile right-of-way", followed by "improper turning".

- Amgong the crashes where pedestrian was identified as the party most at fault, the top primary collision factor was "pedestrian violation." Where drivers were identified as the party most at fault, the top primary collision factor was "pedestrian right-of-way violation."

- The year 2016 had the highest number of reported pedestrian-involved crashes (16), while bicycle crashes were steady at about 12 per year for the 5-year analysis period.

4.2.2. Brief Roadway and Land Use Characteristics

This section provides a quick overview of existing roadway and land use characteristics in the City of Glendora.

4.2.2a. Roadway Characteristics

Glendora's roadway system is largely comprised of two-lane streets and four-lane divided roadways. Existing roadway classifications and number of lanes are presented in Table 1, Figure 4, and Figure 5 on the following pages, per the circulation element of the City's General Plan (known as "Glendora Community Plan 2025").

Average Daily Traffic (ADT) counts were provided by the City and included in Appendix B.

4.2.2b. Land Use Characteristics

Glendora is almost completely developed, with the two predominant land uses being residential (42% of the total City land) and conservation open space (37% of the total City land). The City's land use map (illustrated in Figure 6) shows several distinct areas including conservation open space, hillside low density neighborhoods, low- to medium-density residential neighborhoods, mixed uses (the downtown Village and Route 66), as well as some commercial, industrial, community facilities, and other land uses.

A significant amount of higher-density infill development is planned within the Route 66 Corridor Specific Plan area as the City implements new land use policies that take advantage of transit infrastructure and create more pedestrian-oriented land uses near the colleges and in the downtown Village.

Table 1. Roadway Classifications (Source: Circulation Element, Glendora Community Plan 2025)

	Number of Lanes	Classification
East - West Roadways		
Sierra Madre Avenue	2 lanes	Collector
Leadora Avenue	2 lanes	Collector
Comstock Ave: Loraine Avenue to Valley Center	2 lanes	Collector
Bennett Avenue	2 lanes	Collector
Foothill Boulevard: Citrus Avenue to Glendora	4-lane divided	Secondary
Foothill Boulevard: east of Glendora Street	2 lanes	Collector
Ada Avenue	2 lanes	Collector
Route 66	4-lane divided	Major - 4
Auto Centre Drive	4-lane divided	Secondary
Gladstone Street	4-lane divided	Secondary
Baseline Avenue	4-lane divided	Secondary
Arrow Highway	4-lane divided	Major - 4
North - South Roadways		
Citrus Avenue	4-lane undivided	Secondary
Barranca Avenue: north of Leadora Avenue	2 lanes	Collector
Barranca Avennue: south of Leadora Avenue	4-lane undivided	Secondary
Grand Avenue: north of Sierra Madre Avenue	2 lanes	Collector

	Number of Lanes	Classification
Grand Avenue: south of Gladstone	4-lane divided	Major - 4
Glendora Avenue: Sierra Madre Ave to Ada Ave	2 lanes	Collector
Glendora Avenue: Ada Avenue to Arrow Highway	4-lane divided	Secondary
Cullen Avenue	2 lanes	Collector
Bonnie Cove Avenue	2 lanes	Collector
Live Oak Avenue	2 lanes	Collector
Sunflower Avenue	4-lane divided	Secondary
Elwood Avenue	2 lanes	Collector
Loraine Avenue	4-lane divided	Secondary
Valley Center Avenue	2 lanes	Collector
Lone Hill Avenue: north of Route 66	2 lanes	Collector
Lone Hill Avenue: Route 66 to Gladstone	4-lane divided	Major - 6
Lone Hill Avenue: south of Gladstone	4-lane divided	Major - 4
Amelia Avenue: north of Route 66	2 lanes	Collector
Amelia Avenue: south of Route 66	4-lane divided	Secondary

City of Glendora
General Plan
Land Use Map

Legend

- ▨ Sphere of Influence
- ☐ Glendora City Limits
- Hillside Very Low Density
- Low Density
- Low/Medium Density
- Medium Density
- Medium/High Density
- High Density
- General Commercial
- Regional Commercial
- Village Mixed Use
- Light Industrial
- General Industrial
- Conservation Open Space
- Open Space
- Civic/Institutional
- Route 66 Specific Plan
- Arrow Highway Specific Plan
- Utility and Flood Control
- Railroad

N

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Miles
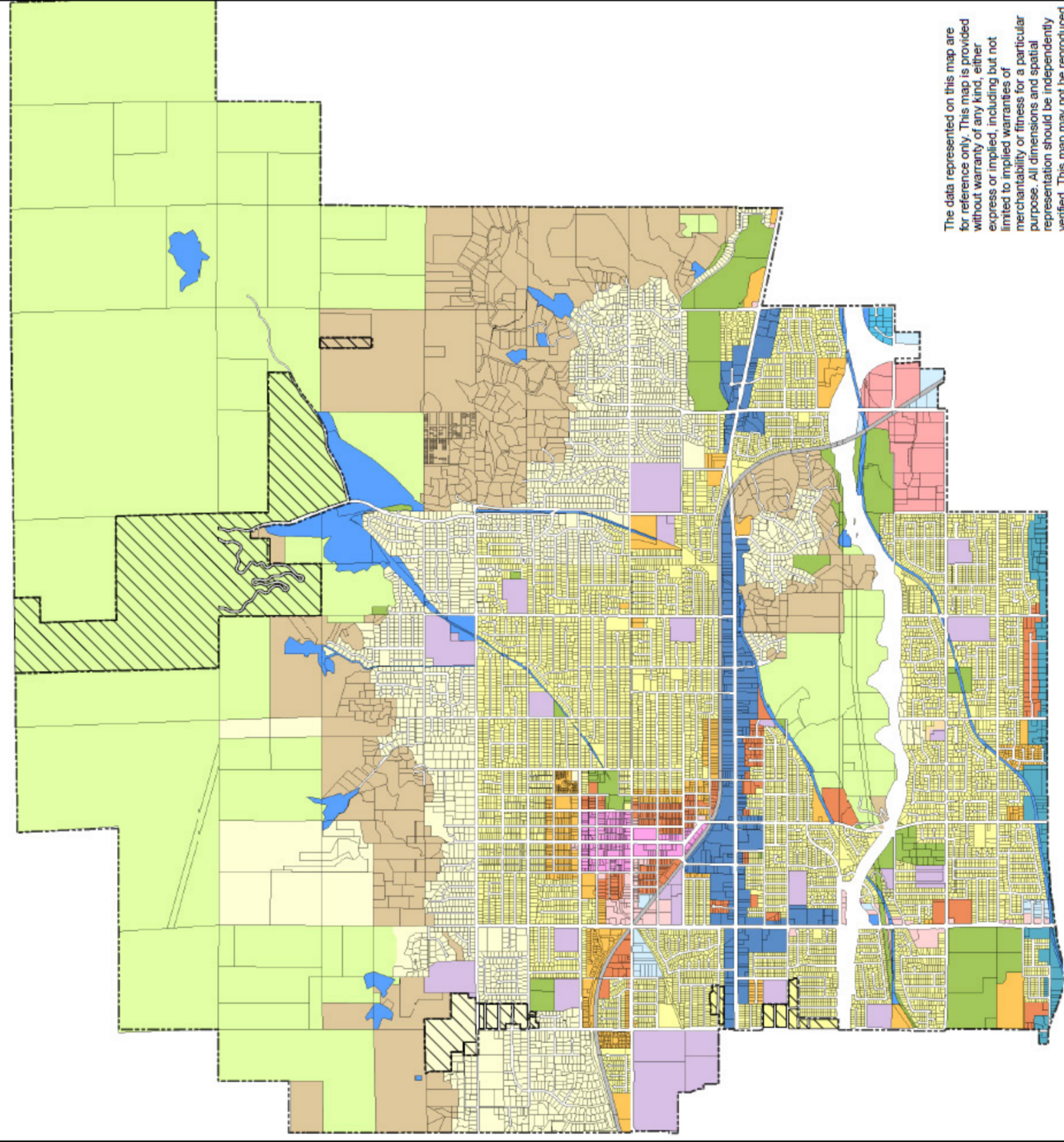
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Table 1. Roadway Classifications (Source: Circulation Element, Glendora Community Plan 2025)

4.2.3. Citywide Crash Analysis

This section presents the citywide crash analysis illustrating patterns and trends. The analysis focuses on identifying behavioral and roadway patterns associated with injury and fatal crash outcomes. By analyzing reported crashes, systemic trends across locations can be identified. Findings from this analysis will help inform safety countermeasures selected in subsequent project tasks.

4.2.3a. Crash Data

The crash database used for the analysis was provided by the City of Glendora and comprised of the most recent five years of reported crashes representing January 1, 2016 through December 31, 2020.

4.2.3b. All Road Users

This section analyzes reported crashes across motor vehicles, pedestrians, and bicyclists. Trends and findings are presented based on:

1. Crash Severity
2. Crash Type
3. Primary Collision Factor
4. Month
5. Time of Day and Day of Week
6. Weather Conditions
7. Road Surface
8. Lighting Conditions
9. Alcohol and Drug Involvement
10. Crashes by Year

Following this analysis, bicycle and pedestrian crashes are discussed separately.

1. Crash Severity

Crashes are classified by severity based on the most severe outcome associated with the crash. The classification categories by descending order of severity are fatal, severe injury, other visible injury, complaint of pain injury and property damage only (PDO). Table 2 presents crashes by severity and by the road users involved (e.g., pedestrian bicyclist, motor vehicle).

Among reported crashes, 40 (1.5%) resulted in either a severe injury or a fatality. The share of injuries and fatalities among pedestrian- and bicyclist-involved crashes is higher than among crashes overall. Pedestrians and bicyclists were each involved in 2% of crashes overall, but were involved in 13% of fatal and injury crashes.

Table 2. Road Users Involved and Crash Severity, Glendora (2016 - 2020)

Road Users Involved in Crashes	Fatal		Severe Injury		Other Visible Injury		Complaint of Pain		Property Damage Only		Total	
	#	%	#	%	#	%	#	%	#	%	#	%
Pedestrian Involved	0	0%	5	13%	22	9%	17	4%	12	0.6%	56	2%
Bicycle Involved	0	0%	5	13%	32	14%	11	3%	10	0.5%	58	2%
Vehicle Only or Vehicle-Fixed or Other	2	100%	28	74%	180	77%	395	93%	2027	99%	2632	96%
Total Reported Crashes	**2**		**38**		**234**		**423**		**2049**		**2746**	

2. Crash Type

Fatal and severe injury crash data differs from the number of total reported crashes by type, as can be seen in Figure 7, which shows the numbers and percentages of crashes by reported crash type and severity. The colors on the bar chart indicate crash severity. The percentage labels at the ends of the bars indicate the percent of total crashes represented by each crash type.

The three most frequent crash types were:

- Broadside at 27% of reported crashes,
- Rear-end at 24% of reported crashes, and
- Sideswipe at 17% of reported crashes.

Broadside collisions are also the most frequent crash type for fatal and severe injury crashes (45% of reported fatal and severe injury crashes), followed by "head-on" collisions, "hit object" collisions, and rear-end collisions (at 8% of reported fatal and severe injury crashes).

It is worth noting that a significant number of collisions (about 16%) are missing the crash type.

	Not Stated	Other	Vehicle - Pedestrian	Sideswipe	Rear-End	Overturned	Hit Object	Head-On	Broadside
■ Fatal + Severe Injury	5	3	2	2	3	1	3	3	18
■ Other Injury	50	9	34	35	170	15	33	47	264
■ Property Damage Only	396	45	11	422	473	8	191	54	449
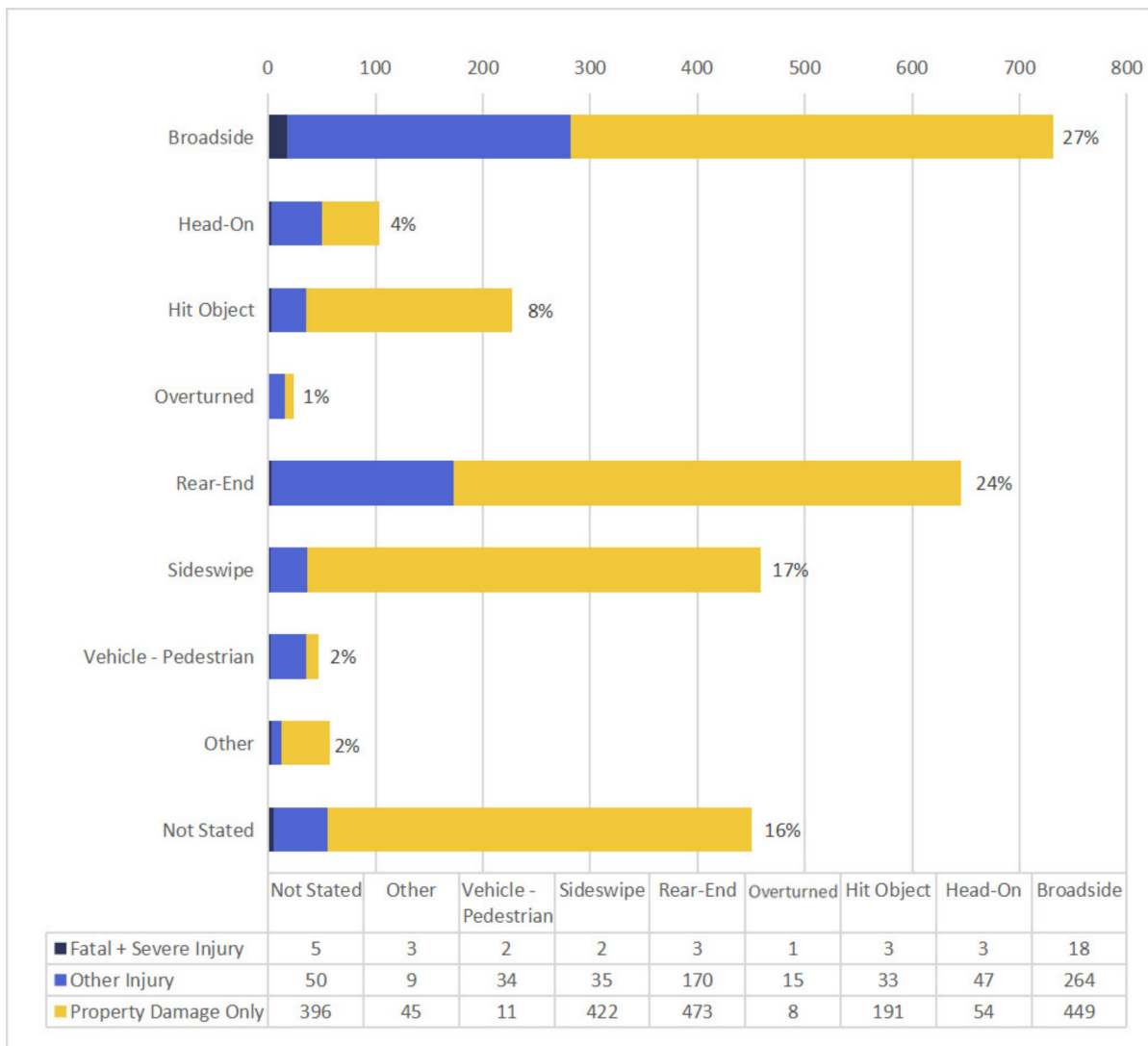
Figure 7. Reported Crashes by Type and Severity, Glendora (2016 – 2020)

3. Primary Collision Factor

Figure 8 shows the number of crashes categorized by the associated primary collision factors. The percentage labels at the ends of the bars indicate the percent of fatal and severe injuries for which each collision factor was reported as the primary.

Improper turning, auto right-of-way violation, and unsafe speed were the most frequently cited collision factors among (known and stated) fatal and severe crashes (with 8, 7 and 4 crashes respectively, corresponding to 20%, 18%, and 10% shown in Figure 8).

Unsafe speed was the most frequently cited collision factor overall, with 471 reported crashes.
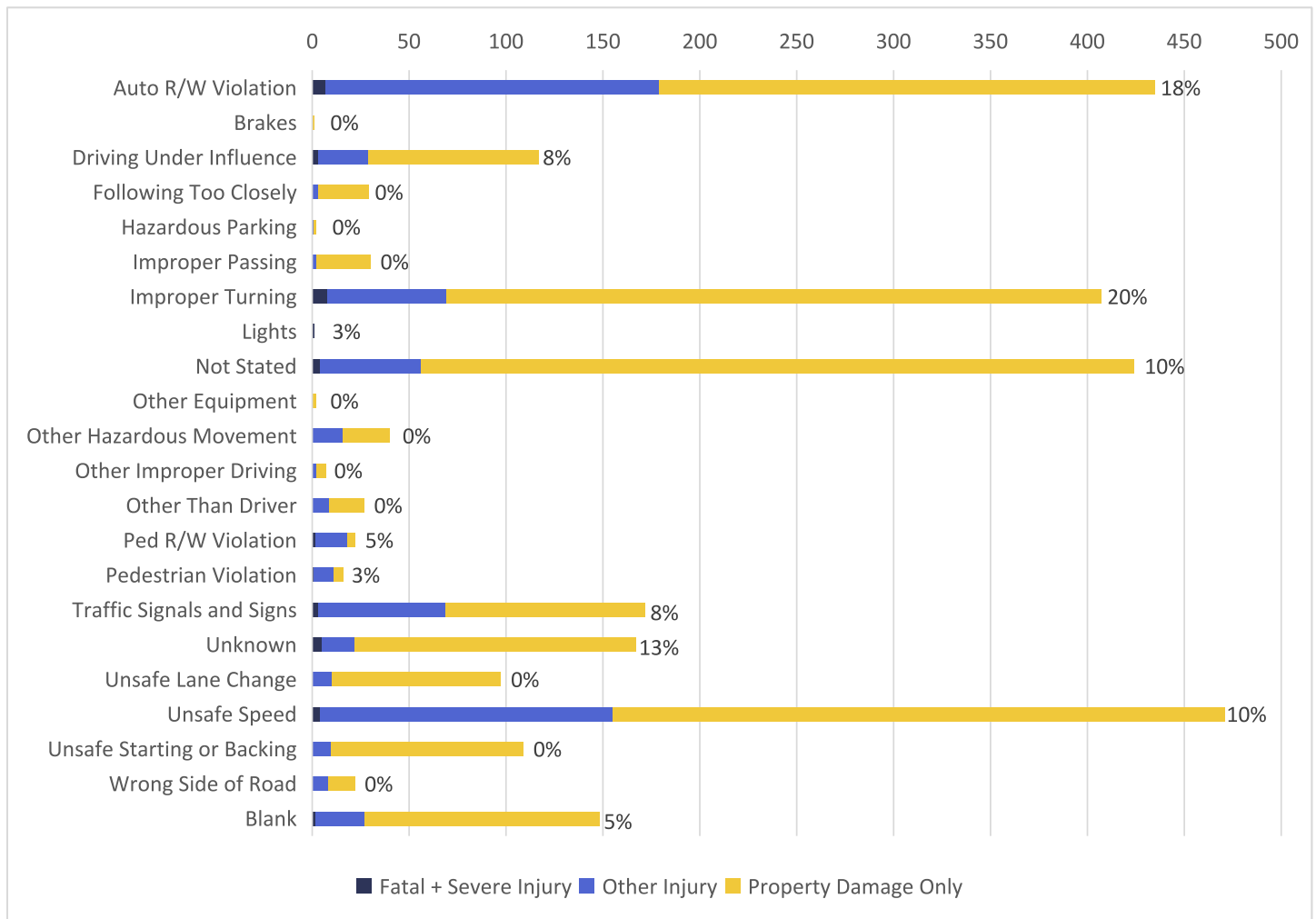
Figure 8. Primary Collision Factor, Glendora (2016 – 2020)

4. Month

Table 3 illustrates reported crashes involving bicycles, pedestrians, and vehicles only by month. Fatalities and severe injury collisions by mode and month are also shown.

In general, vehicular crashes were evenly distributed with December being the highest month. Pedestrian crashes were highest in December and January, while bicycle crashes were highest in January, August, and October.

The two fatalities occurred in June and October and neither of these involved pedestrians or bicycles.

Table 3. Total, Fatal, and Severe Injury Crashes by Mode and Month of the Year, Glendora (2016 – 2020)

Month	Total Crashes by Mode				Fatal Injury Crashes by Mode				Severe Injury Crashes by Mode			
	Ped Crashes	Bike Crashes	Auto / Other Crashes	TOTAL	Ped Crashes	Bike Crashes	Auto / Other Crashes	TOTAL	Ped Crashes	Bike Crashes	Auto / Other Crashes	TOTAL
January	12	7	236	255	0	0	0	0	2	1	1	4
February	2	2	210	214	0	0	0	0	0	0	3	3
March	6	4	221	231	0	0	0	0	0	0	5	5
April	1	5	204	210	0	0	0	0	0	0	0	0
May	3	6	236	245	0	0	0	0	0	1	0	1
June	5	3	220	228	0	0	1	1	1	0	6	7
July	2	5	204	211	0	0	0	0	0	0	2	2
August	4	7	228	239	0	0	0	0	0	1	3	4
September	3	5	226	234	0	0	0	0	0	1	2	3
October	4	7	189	200	0	0	1	1	0	1	4	5
November	5	4	202	211	0	0	0	0	0	0	1	1
December	9	3	256	268	0	0	0	0	2	0	1	3
Total	**56**	**58**	**2632**	**2746**	**0**	**0**	**2**	**2**	**5**	**5**	**28**	**38**

5. Time of Day and Day of Week

Table 4 shows reported crashes by time of day and day of week and Figure 9 presents the share of reported crashes by mode and time of day. The weekday (Monday through Friday) hours with the highest frequency of reported crashes were 2:00 – 3:00 p.m. and 3:00 – 4:00 p.m. On weekends (Saturday and Sunday) about 42% of crashes occurred between 5:00 p.m. and 3:00 a.m. and the hours with the highest frequency of reported crashes were 1:00 – 2:00 p.m. and 3:00 – 4:00 p.m.

Figure 9 shows that bicycle and motor vehicle crashes peak between noon and 3:00 p.m. whereas crashes involving pedestrians peak later (6:00 p.m. to 9:00 p.m.).

Table 4. Reported Crashes by Hour and Day of Week, Glendora (2016 – 2020)

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
12:00 AM - 01:00:00 AM	1	5	6	6	7	12	12
01:00 AM - 02:00:00 AM	5	3	2	2	3	11	5
02:00 AM - 03:00:00 AM	4	2	0	2	2	7	7
03:00 AM - 04:00:00 AM	5	1	1	3	5	6	4
04:00 AM - 05:00:00 AM	1	1	3	3	2	4	1
05:00 AM - 06:00:00 AM	2	8	2	6	6	3	4
06:00 AM - 07:00:00 AM	2	12	8	11	6	5	6
07:00 AM - 08:00:00 AM	18	22	14	17	18	6	1
08:00 AM - 09:00:00 AM	28	44	36	19	25	8	3
09:00 AM - 10:00:00 AM	20	28	16	22	18	11	9
10:00 AM - 11:00:00 AM	23	25	29	24	14	17	6
11:00 AM - 12:00:00 PM	25	29	25	27	18	18	8
12:00 PM - 01:00:00 PM	34	37	17	42	26	21	18
01:00 PM - 02:00:00 PM	22	40	26	32	30	21	22
02:00 PM - 03:00:00 PM	36	42	31	31	33	21	13
03:00 PM - 04:00:00 PM	25	39	35	35	32	22	20
04:00 PM - 05:00:00 PM	30	28	23	35	28	14	15
05:00 PM - 06:00:00 PM	30	29	25	28	27	23	12
06:00 PM - 07:00:00 PM	20	27	25	17	27	26	9

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
07:00 PM - 08:00:00 PM	11	18	23	11	14	21	15
08:00 PM - 09:00:00 PM	9	18	10	19	25	16	17
09:00 PM - 10:00:00 PM	7	9	12	13	7	14	3
10:00 PM - 11:00:00 PM	7	8	2	11	5	8	7
11:00 PM - 12:00:00 AM	1	6	5	4	11	15	11
Blank (No Time Reported)	22	25	25	17	23	26	18
TOTAL	388	506	401	437	412	356	246
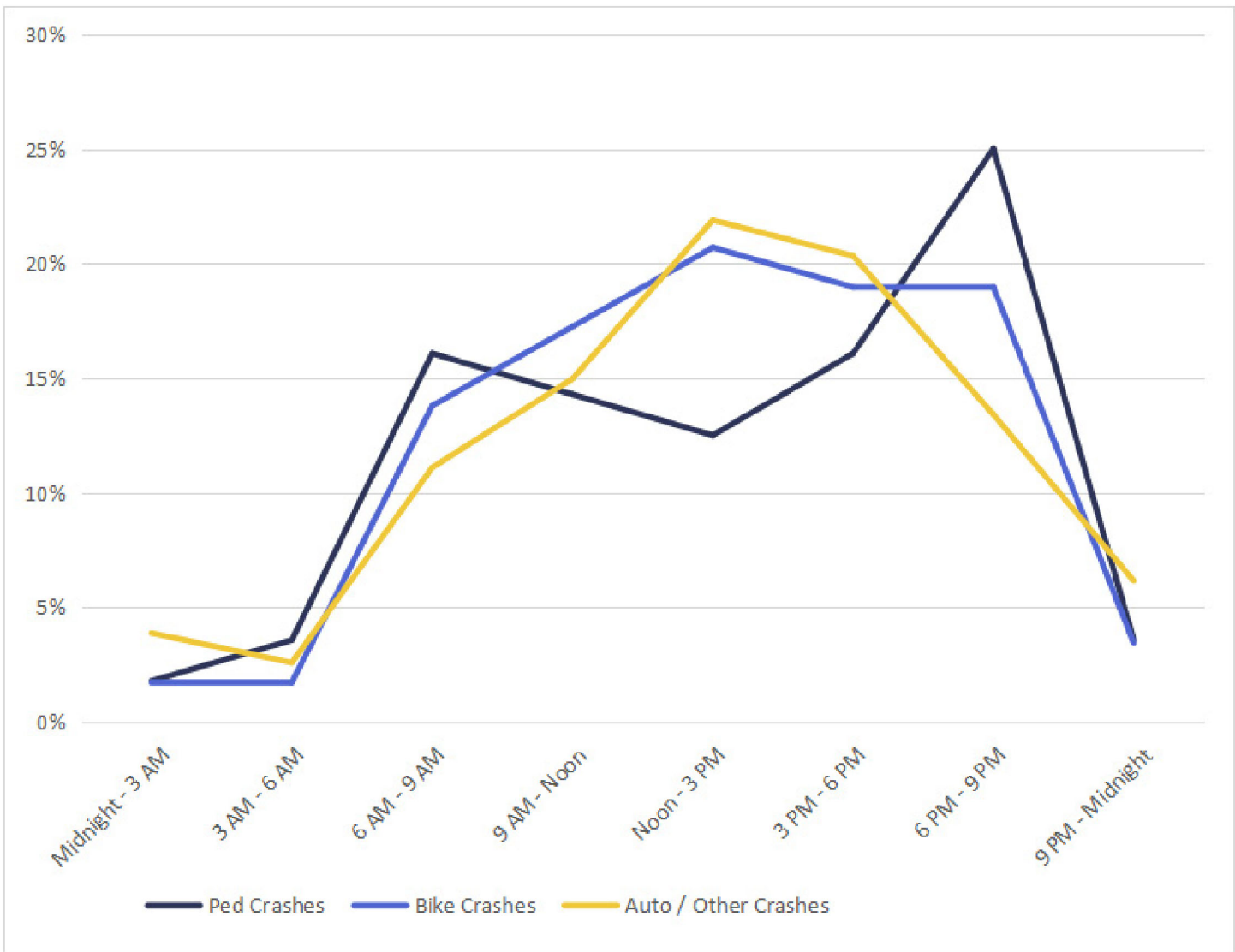
Figure 9. Share of Crashes by Mode and Time of Day, Glendora (2016 – 2020)

6. Weather Conditions

Figure 10 shows that crashes which occurred in clear weather accounted for 73% of total reported crashes. 88% of fatal and severe injury crashes and 83% of other injury crashes occurred in clear weather. Both fatal crashes occurred in clear weather. The percentages at the ends of the bars in the chart indicate the percentage of total crashes.
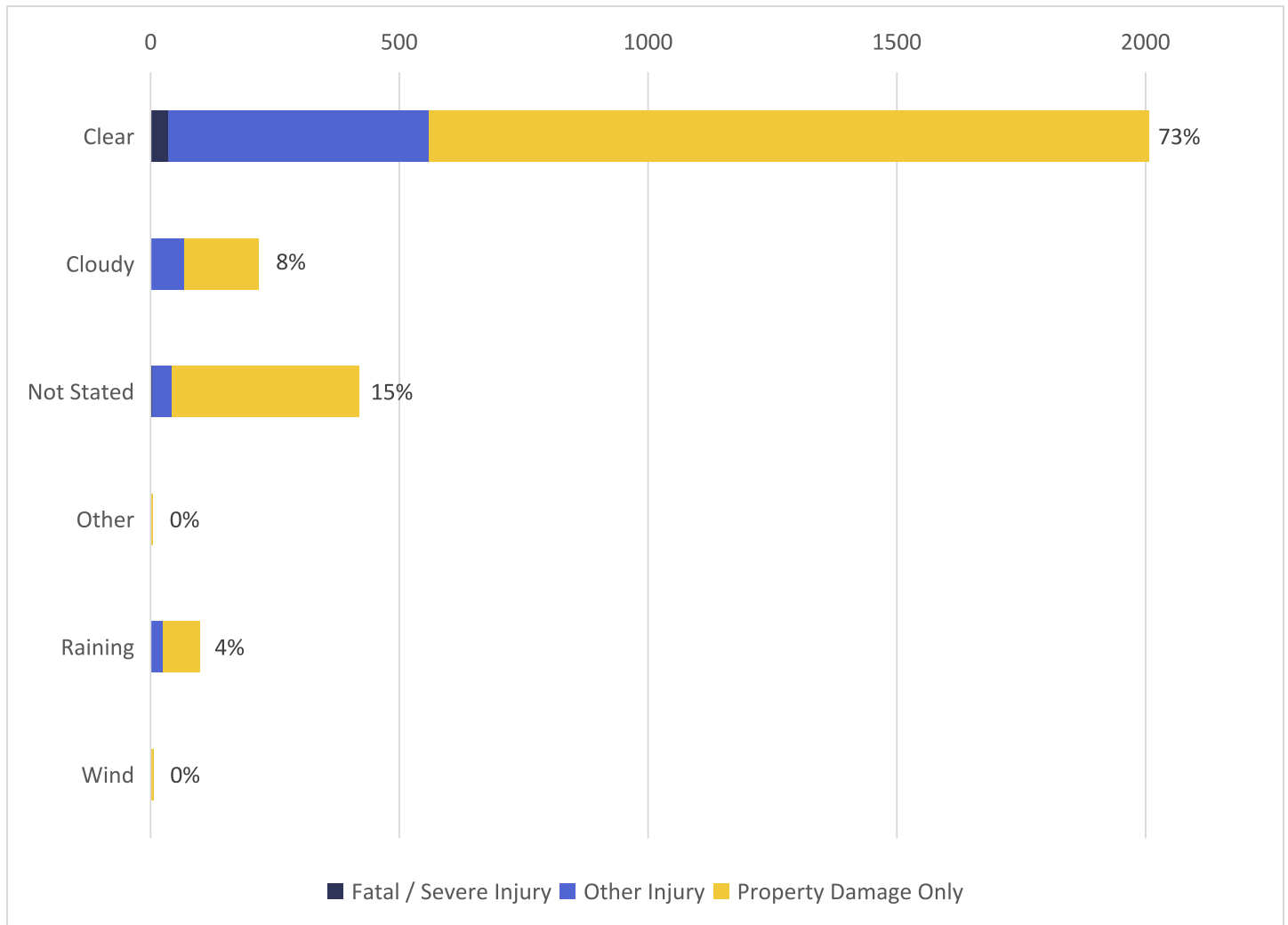
Figure 10. Crashes by Weather and Severity, Glendora (2016 – 2020)

7. Road Surface

Figure 11 presents reported crashes by road surface conditions.

Crashes that occurred on dry roads made up 79% of total reported crashes, but account for 88% of fatal and severe injury crashes. Both fatal crashes occurred on dry road surface.
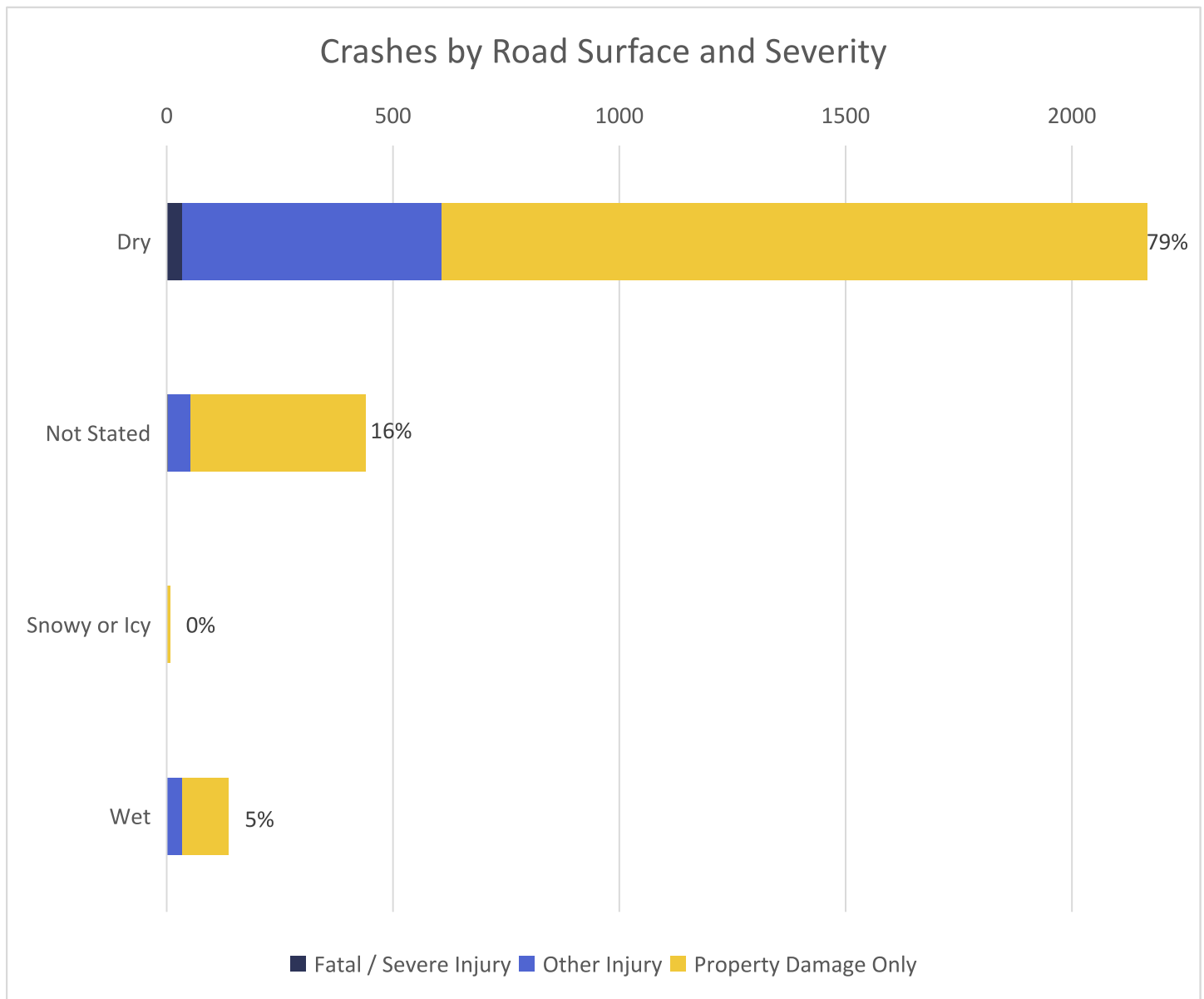
Figure 11. Crashes by Road Surface and Severity, Glendora (2016 – 2020)

8. Lighting Conditions

Figure 12 presents reported crashes by lighting conditions and severity.

Crashes that occurred in the daylight account for 62% of total reported crashes and those in the dark for about 23% of total reported crashes (about 16% of the records did not state the lighting conditions).

While both fatal crashes occurred during daylight, about 40% of severe crashes occurred in dark conditions.
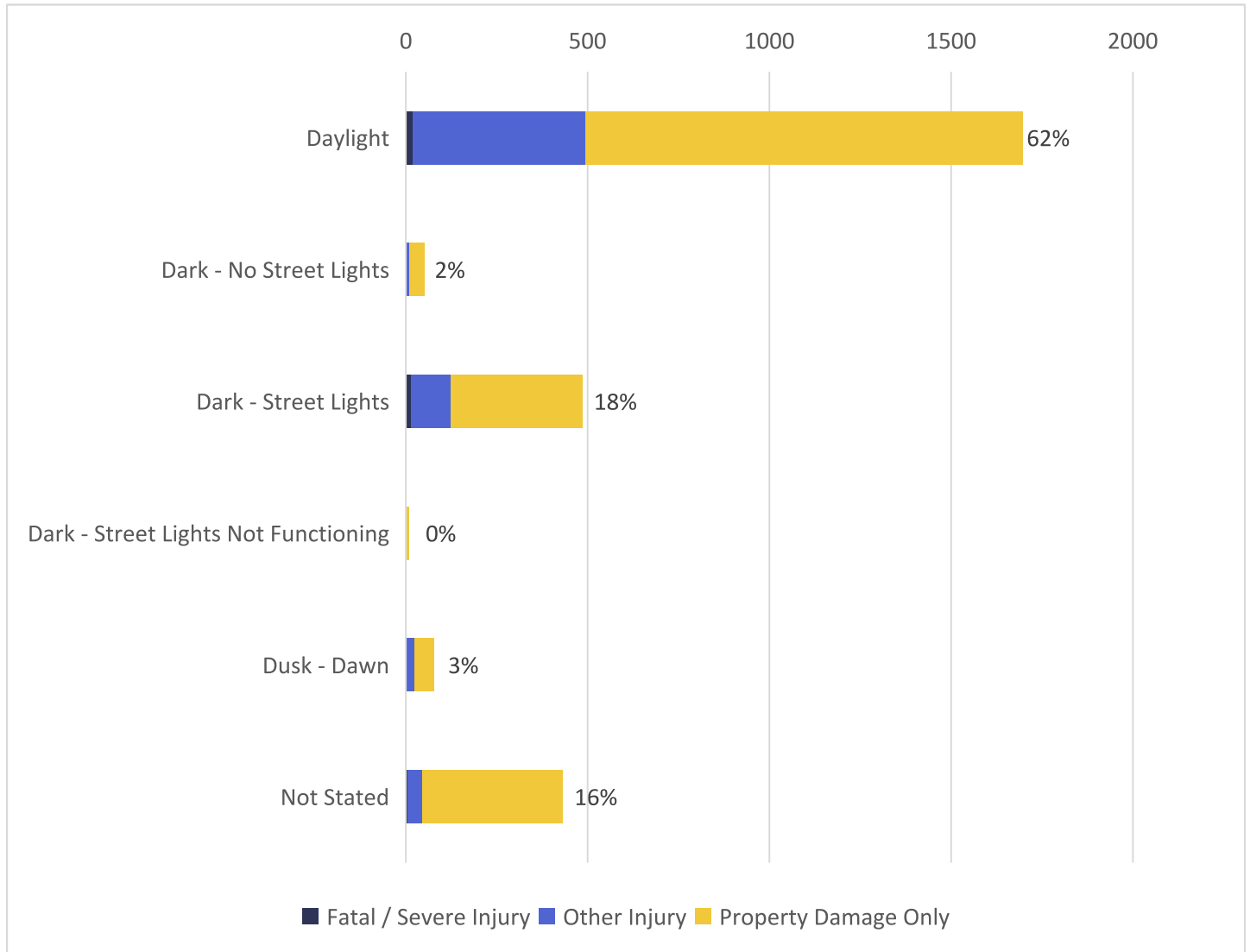
Figure 12. Crashes by Lighting Conditions and Severity, Glendora (2016 – 2020)

9. Alcohol and Drug Involvement

Figure 13 presents the percentage of crashes involving alcohol by severity. Among all reported crashes, the share involving some level of alcohol was 7%. However, among severe injury crashes the share involving some level of alcohol was 16%.

The total number of reported crashes involving alcohol by severity are shown in Figure 14.
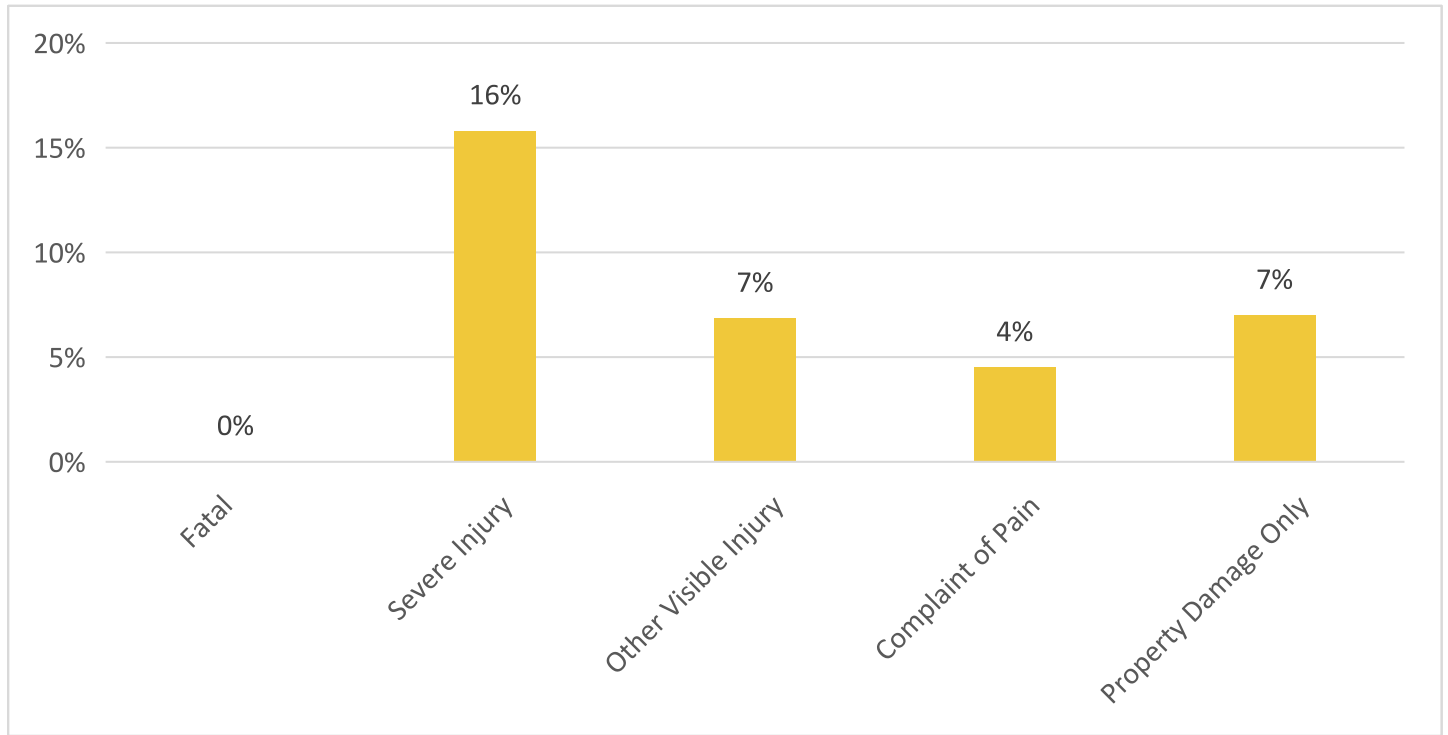
Figure 13. Percent of Crashes Involving Alcohol by Severity, Glendora (2016 – 2020)
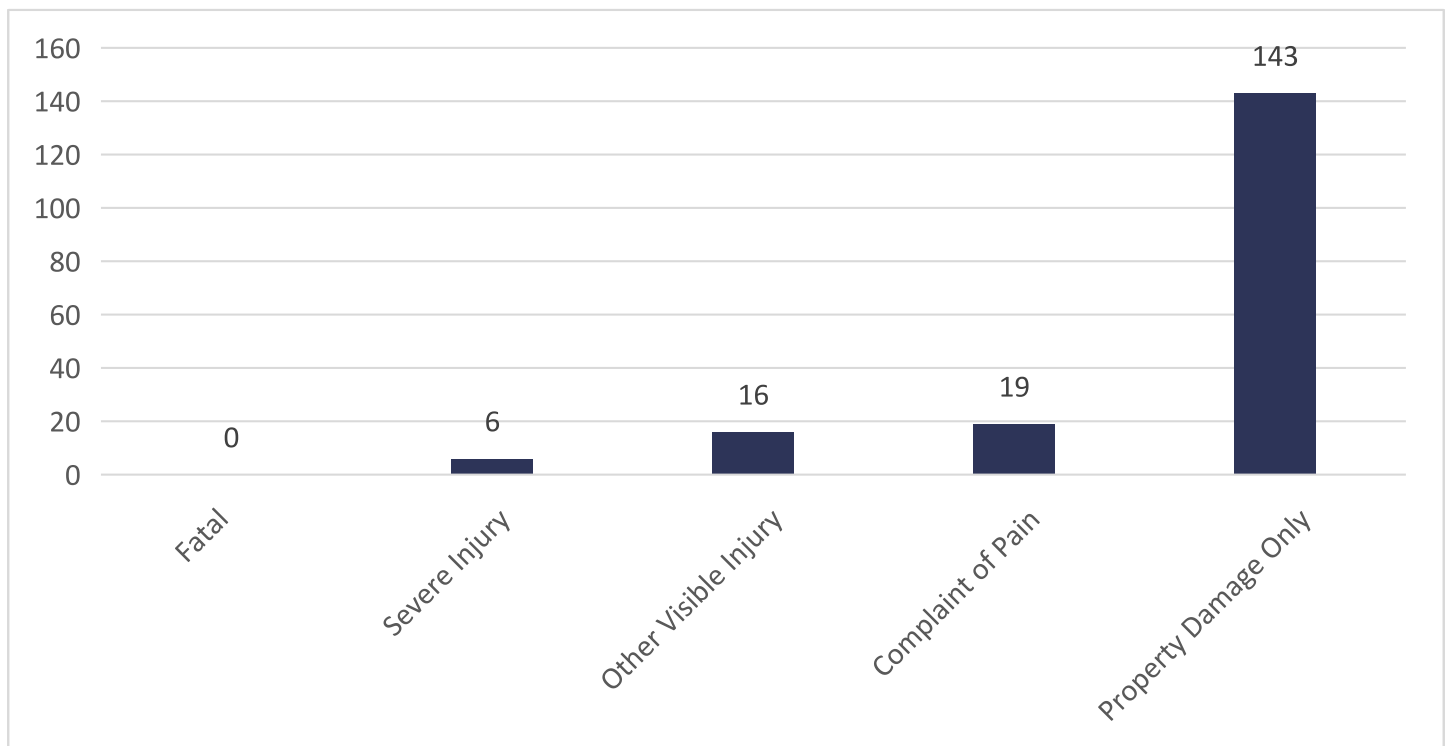
Figure 14. Number of Alcohol Involved Crashes by Severity, Glendora (2016 – 2020)

10. Crashes by Year

Figure 15 presents reported crashes by severity by year. While 2017 had the highest number of total collisions, 2018 had the most fatalities and severe injuries (2 fatalities and 10 severe injuries).

2020 had the lowest number of reported total crashes. This can be attributed to the Covid-19 pandemic which reduced vehicular travel for most of the year.
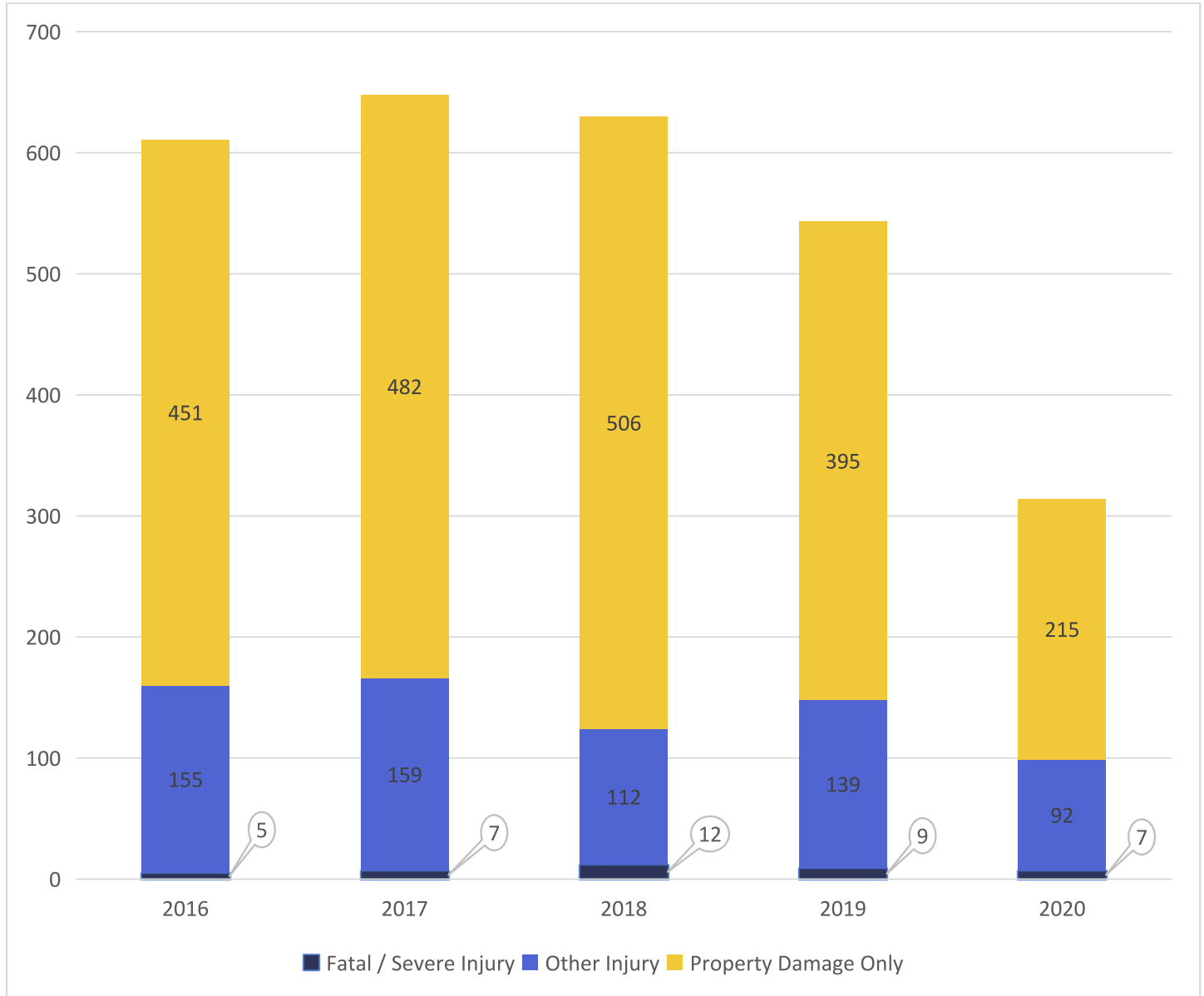
Figure 15. Crashes by Year, Glendora (2016 – 2020)

4.2.3c. Pedestrian and Bicycle Crashes

Pedestrians and bicyclists are considered vulnerable road users as they are prone to injury in any vehicular collision, primarily because there is little or no external protective device that could absorb the impact of a road crash.

This section presents the trends and findings for pedestrian and bicycle crashes based on the primary collision factors, movements preceding collision, and lighting conditions.

Primary Collision Factors: Pedestrian Crashes

Table 5 presents the primary collision factors most frequently associated with pedestrian crashes in the City, broken down by parties at fault.

Among the crashes where a pedestrian was identified as the party most at fault, the top primary collision factor was "pedestrian violation". Among total reported pedestrian crashes, the top primary collision factor was "pedestrian right-of-way violation".

Table 5. Pedestrian Crashes - Primary Collision Factors, Glendora (2016 – 2020)

	TOTAL (%)		Pedestrian at Fault (%)		Driver at Fault (%)	
Auto R/W Violation	5	9%	0	0%	5	11%
Hazardous Parking	1	2%	0	0%	1	2%
Not Stated	4	7%	3	27%	1	2%
Other Hazardous Movement	1	2%	0	0%	1	2%
Ped R/W Violation	22	39%	1	9%	21	48%
Pedestrian Violation	7	13%	6	55%	1	2%
Traffic Signals and Signs	4	7%	0	0%	4	9%
Unknown	5	9%	0	0%	4	9%
Unsafe Speed	1	2%	0	0%	1	2%
Unsafe Starting or Backing	1	2%	1	9%	0	0%
Blank	5	9%	0	0%	5	11%
TOTAL	**56**	**100%**	**11**	**100%**	**44**	**100%**

Primary Collision Factors: Bicyclist Crashes

Table 6 provides insight into the reported primary collision factors associated with bicycle crashes in the City, broken down by parties at fault.

Among the crashes where the bicyclist was identified as the party most at fault, the top two primary collision factors were "other hazardous movement" and "wrong side of the road".

Among the crashes where the driver was identified as the party most at fault, the top two primary collision factors were "auto right of way violation" and "improper turning".

Table 6. Bicyclist Crashes - Primary Collision Factors, Glendora (2016 – 2020)

	Total (%)		Bicyclist at Fault (%)		Driver at Fault (%)		Other / Unknown (%)	
Auto R/W Violation	10	17%	0	0%	9	23%	1	%25
Improper Passing	1	2%	0	0%	1	3%	0	%0
Improper Turning	9	16%	1	7%	8	20%	0	%0
Lights	1	2%	1	7%	0	0%	0	%0
Not Stated	5	9%	0	0%	4	10%	1	%25
Other Hazardous Movement	6	10%	4	29%	2	5%	0	%0
Other Than Driver	2	3%	0	0%	0	0%	2	%50
Pedestrian Violation	2	3%	0	0%	2	5%	0	%0
Traffic Signals and Signs	5	9%	2	14%	3	8%	0	%0
Unknown	2	3%	0	0%	2	5%	0	%0
Unsafe Speed	3	5%	2	14%	1	3%	0	%0
Wrong Side of Road	8	14%	3	21%	5	13%	0	%0
Blank	4	%7	1	%7	3	%8	0	%0
TOTAL	**58**	**%100**	**14**	**%100**	**40**	**%100**	**4**	**%100**

Movements Preceding Collision: Pedestrian Crashes

Figure 16 highlights pedestrian-involved crashes by pedestrian action preceding a crash by severity. As noted earlier, no fatal pedestrian-involved crashes were reported.

About 41% (23) of the collisions involving pedestrians occurred while crossing in a crosswalk at an intersection. Of these collisions, 52% (12 crashes) involved vehicles turning left preceding the crash and 17% (4 crashes) involved vehicles proceeding straight.
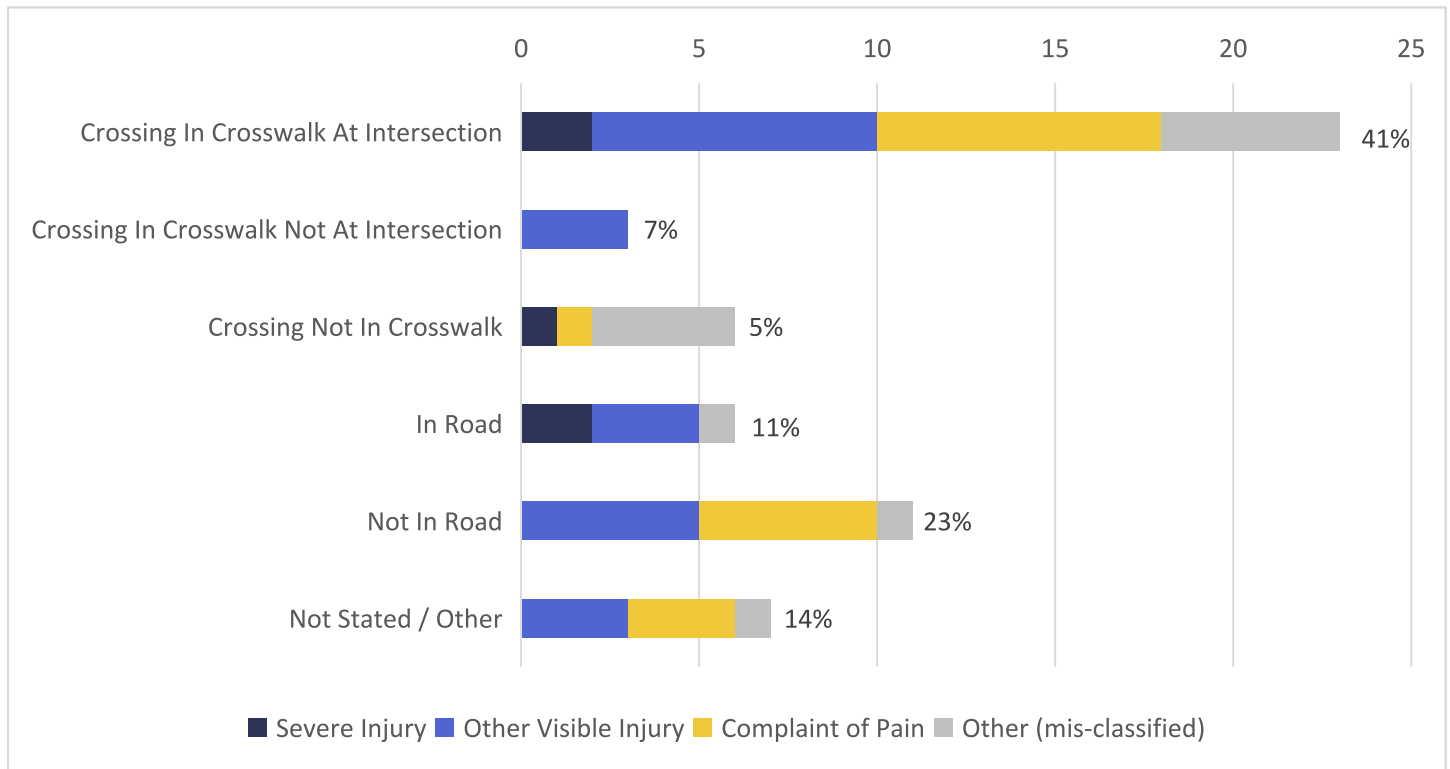
Figure 16. Pedestrian Crashes by Pedestrian Action and Severity, Glendora (2016 – 2020)

Movements Preceding Collision: Bicyclist Crashes

Table 7 provides the most frequent combinations of bicycle/vehicle movements preceding collision. Bicycle collisions with left and right turning vehicles constitute the highest combination. However, among the severe injury crashes, 3 (60%) involved a bicycle collision with a vehicle proceeding straight.

Table 7. Bicycle and Vehicle Movements Preceding Collisions, Glendora (2016 – 2020)

Bicycle Movement Preceding Collision	Vehicle Movement Preceding Collision	Total Crashes (%)	Severe Injury Crashes (%)
Proceeding Straight	Making Right Turn	12 (21%)	0 (0%)
Proceeding Straight	Making Left Turn	7 (12%)	0 (0%)
Proceeding Straight	Proceeding Straight	9 (16%)	3 (60%)
Proceeding Straight	Stopped In Road	1 (2%)	0 (0%)
Proceeding Straight	Passing Other Vehicle	2 (3%)	0 (0%)
Making Right Turn	Proceeding Straight	3 (5%)	0 (0%)
Entering Traffic	Proceeding Straight	3 (5%)	0 (0%)
Other Unsafe Turning	Proceeding Straight	1 (2%)	1 (20%)
Making Left Turn	Stopped In Road	2 (3%)	0 (0%)
Making Left Turn	Proceeding Straight	3 (5%)	0 (0%)
Traveling Wrong Way	Making Right Turn	1 (2%)	0 (0%)
Traveling Wrong Way	Making Left Turn	1 (2%)	0 (0%)
Traveling Wrong Way	Entering Traffic	1 (2%)	0 (0%)
Others / Not Stated		12 (21%)	1 (20%)
TOTAL		**58 (100%)**	**5 (100%)**

Lighting

Lighting is a concern for the safety of people walking and biking. Figure 17 depicts the distribution of pedestrian crashes, bicycle crashes, and total crashes for various lighting conditions.

Darkness was a factor for 34% of reported pedestrian crashes, and 21% of reported bicycle crashes. In addition, 23% of total reported crashes had darkness as a factor.

	Pedestrian	Bicycle	TOTAL
■ Dark - No Street Lights	3	2	51
■ Dark - Street Lights	15	7	486
■ Dark - Street Lights Not Functioning	0	0	4
■ Dusk - Dawn	1	3	78
■ Daylight	36	46	1696
■ Not Stated	1	0	431
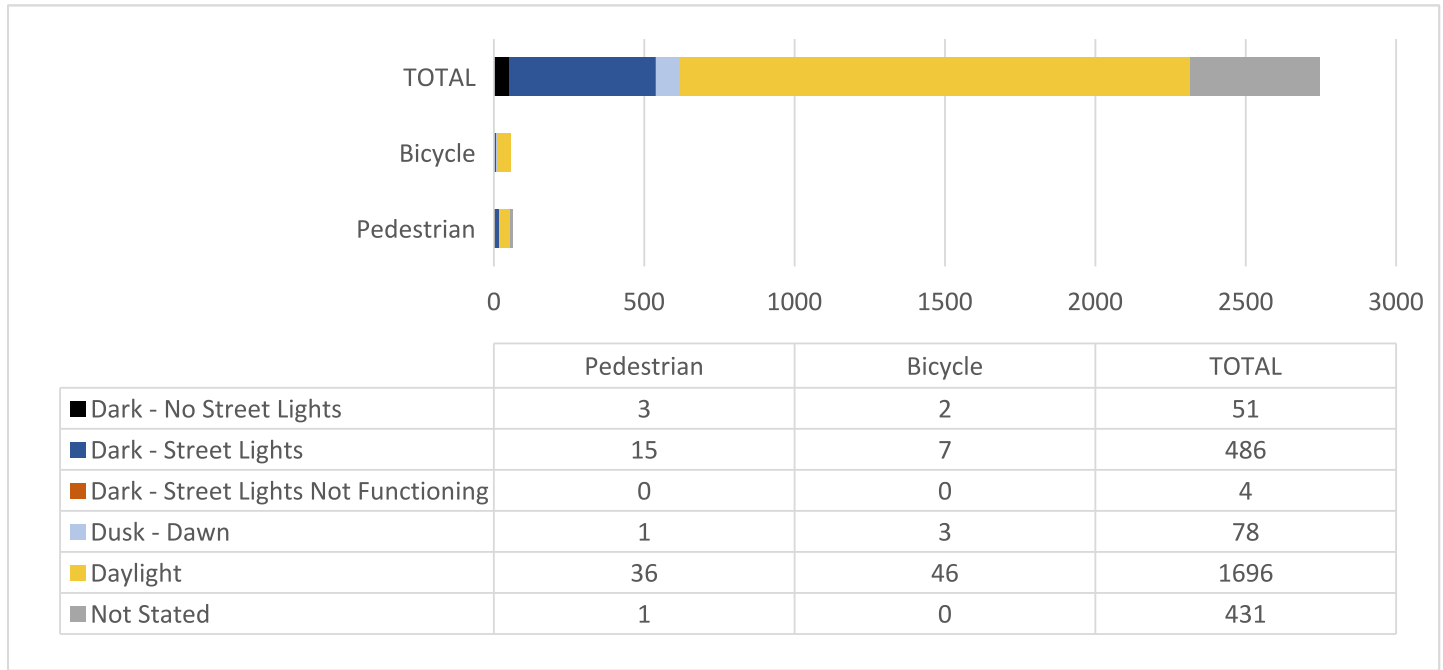
Figure 17. Crash Count by Mode and Lighting Conditions, Glendora (2016 – 2020)

Trends by Year

Figure 18 highlights pedestrian-involved and bicyclist-involved crashes by year.

2016 had the highest number of reported pedestrian-involved crashes. The number of pedestrian crashes showed a downward trend from 2018 to 2020.

Bicycle crashes seem to be trending at about 12 per year.
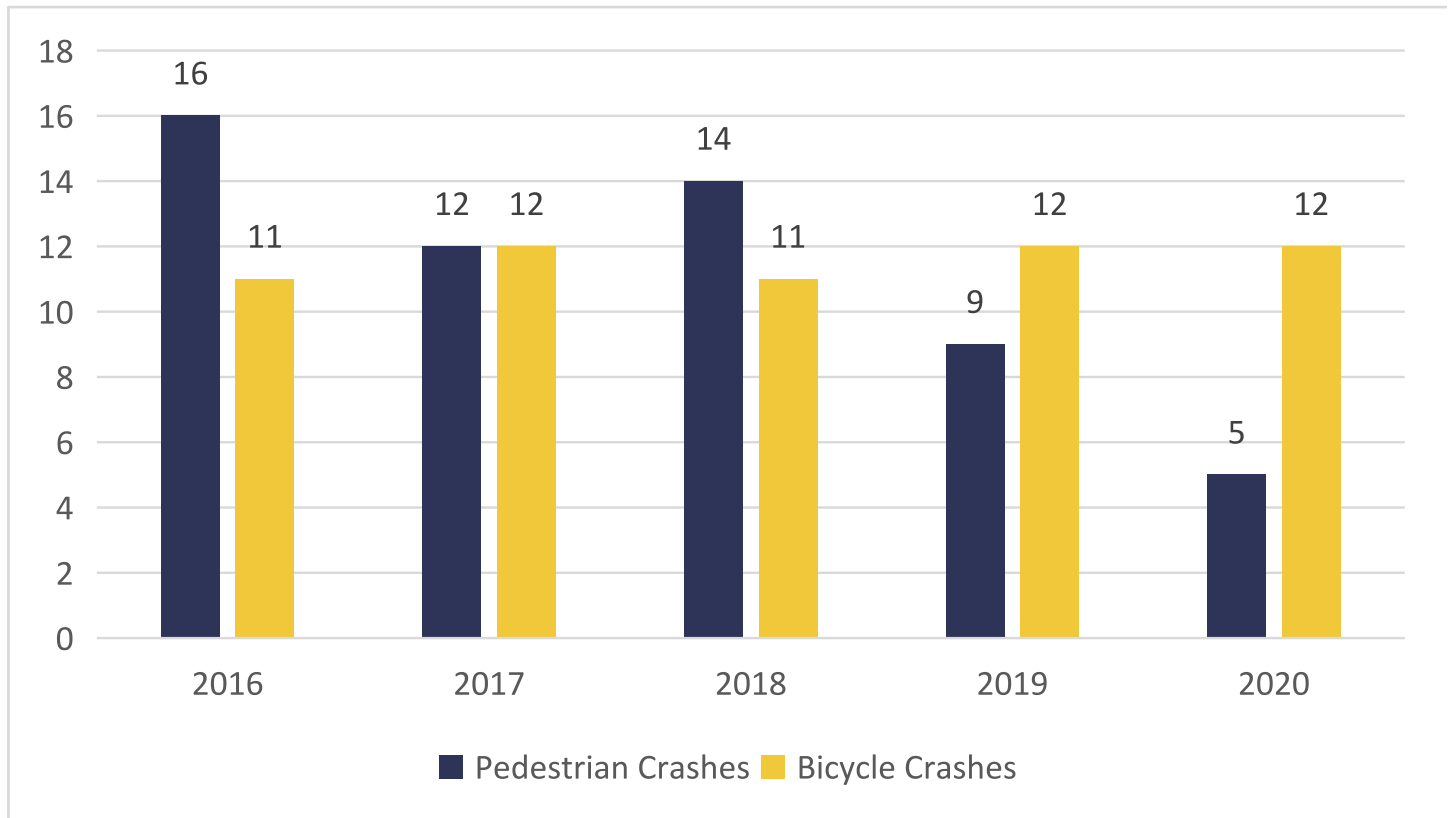
Figure 18. Pedestrian and Bicycle Crashes per Year, Glendora (2016 – 2020)

4.2.3d. Comparison with Statewide Averages

A comparison with statewide averages was conducted using the most recent statewide report, the 2017 Annual Report of Fatal and Injury Motor Vehicle Traffic Crashes, prepared by the California Highway Patrol (CHP). A summary of this comparison with statewide crashes is provided below:

- In 2017, statewide, the most common type of crash for fatal crashes was "broadside", which accounted for 1,210 (22%) fatal crashes out of the total 5,474 fatal crashes that occurred. The most common movement preceding crashes was "proceeding straight", which accounted for 3,173 (58%) of fatal crashes. **In Glendora, two fatal collisions were reported in the 5-year analysis period, the first involving a motorcycle hitting a fixed object (primary collision factor was listed as Improper Turning) and the second involving a broadside collision (primary collision factor was listed as Auto Right-of-way Violation.**

- In 2017, statewide, the most common type of crash for injury crashes was "rear end", which accounted for 150,070 (41%), followed by "broadside" crashes, which accounted for 98,477 (27%) of the total 363,002 injury crashes that occurred. **In Glendora, the most common types of crash for injury crashes were both "broadside" and "rear end" collisions, which accounted for 41% and 25% of injury crashes respectively. While the proportion of rear end crashes is lower than the statewide averages, the proportion of broadside crashes is much higher.**

- Statewide averages show that "unsafe speed", "automobile right-of-way", and "improper turning" were the top primary collision factors in fatal and severe injury crashes at 31%, 16%, and 14% respectively. **In Glendora, the top primary crash factor for injury and fatal collisions was "improper turning", which accounted for 20% of all crashes, followed by "automobile right-of-way" (18%) and "unsafe speed" (10%).**

- Statewide, pedestrian collisions made up 3% of overall crashes and 8% of injury and fatal crashes. **In Glendora, pedestrian-involved collisions made up 2% of overall crashes and 13% out of all severe injury and fatal crashes.**

- Statewide, bicycle collisions made up 3% of overall crashes and 7% of injury and fatal crashes. **In Glendora, bicycle collisions made up 2% of all crashes and 13% out of all severe injury and fatal crashes.**

- The California Office of Traffic Safety (OTS) rankings for the most recent year available, 2019, were also reviewed. These rankings compare safety performance in similar-sized cities to help identify emerging or on-going traffic safety focus areas. Glendora is categorized in Group C, a group of 105 cities with populations between 50,00 and 100,000. In general, Glendora ranks above the average except when it comes to speed-related crashes (#41), total fatal and injury crashes (#42), and Bicyclist crashes (#54).

4.2.3e. Office of Traffic Safety (OTS) Crash Rankings

The California Office of Traffic Safety (OTS) rankings for the most recent year available, 2019, were also reviewed. These rankings compare similar sized cities safety performance to help identify emerging or on-going traffic safety focus areas. Glendora is grouped in Group C with 105 cities with populations between 50,00 and 100,000.

Per OTS, the crash rankings using the Empirical Bayesian Ranking Method which weights different statistical categories including observed crash counts, population, and vehicle miles traveled. The resulting crash counts used for the rankings reflect unrecognized or unmeasurable influential factors for each jurisdiction as well as population and vehicle

miles traveled to account for traffic exposure. SWITRS is the source for the crash data used in the analysis, with population data from the California Department of Finance, and daily vehicle miles traveled (DVMT) from Caltrans. DVMT is an estimate of the total number of miles all vehicles traveled on the jurisdiction's streets on an average day during that year.

Table 8 shows the 2019 OTS Crash Rankings for the City of Glendora. The first number in the ranking is the City's ranking in that category, the second is the total number of cities in the City's group. Number 1 in the rankings is the highest, or "worst", ranking. The composite ranking provides an aggregate of several other rankings to give an indication of overall traffic safety.

The City's highest (or "worst") rankings were for speed related crashes (#41), total fatal and injury crashes (#52), Bicyclist crashes (#54), and Bicyclist crashes under 15 years old (#57). For all other categories the City ranked in the top half of similar jurisdictions.

Table 8. Glendora OTS 2019 Crash Rankings (Source: California Office of Traffic Safety, 2022)

TYPE OF CRASH	VICTIMS KILLED & INJURED	OTS RANKING
Total Fatal and Injury	216	52/105
Alcohol Involved	11	90/105
Had Been Drinking Driver < 21	0	69/105
Had Been Drinking Driver 21 – 34	3	66/105
Motorcycles	3	92/105
Pedestrians	8	80/105
Pedestrians < 15	0	90/105
Pedestrians 65+	1	68/105
Bicyclists	11	54/105
Bicyclists < 15	1	57/105
Composite	76	72/105
TYPE OF CRASH	FATAL & INJURY CRASHES	OTS RANKING
Speed Related	40	41/105
Nighttime (9:00pm – 2:59am)	16	66/105
Hit and Run	6	79/105
TYPE OF ARRESTS	ARRESTS	OTS RANKING*
DUI Arrests	160	85/105

4.2.4. Locations of Crashes

Crash data for the five-year period examined was analyzed with GIS software, allowing the locations of crashes to be mapped. The figures on the following pages show the locations of crashes in the City of Glendora.

Figure 19 shows a "heat map" indicating total collision density. The locations of severe injury and fatal crashes are shown in Figure 20. The locations of crashes involving pedestrians are shown in Figure 21, and the locations of crashes involving bicyclists are shown in Figure 22.
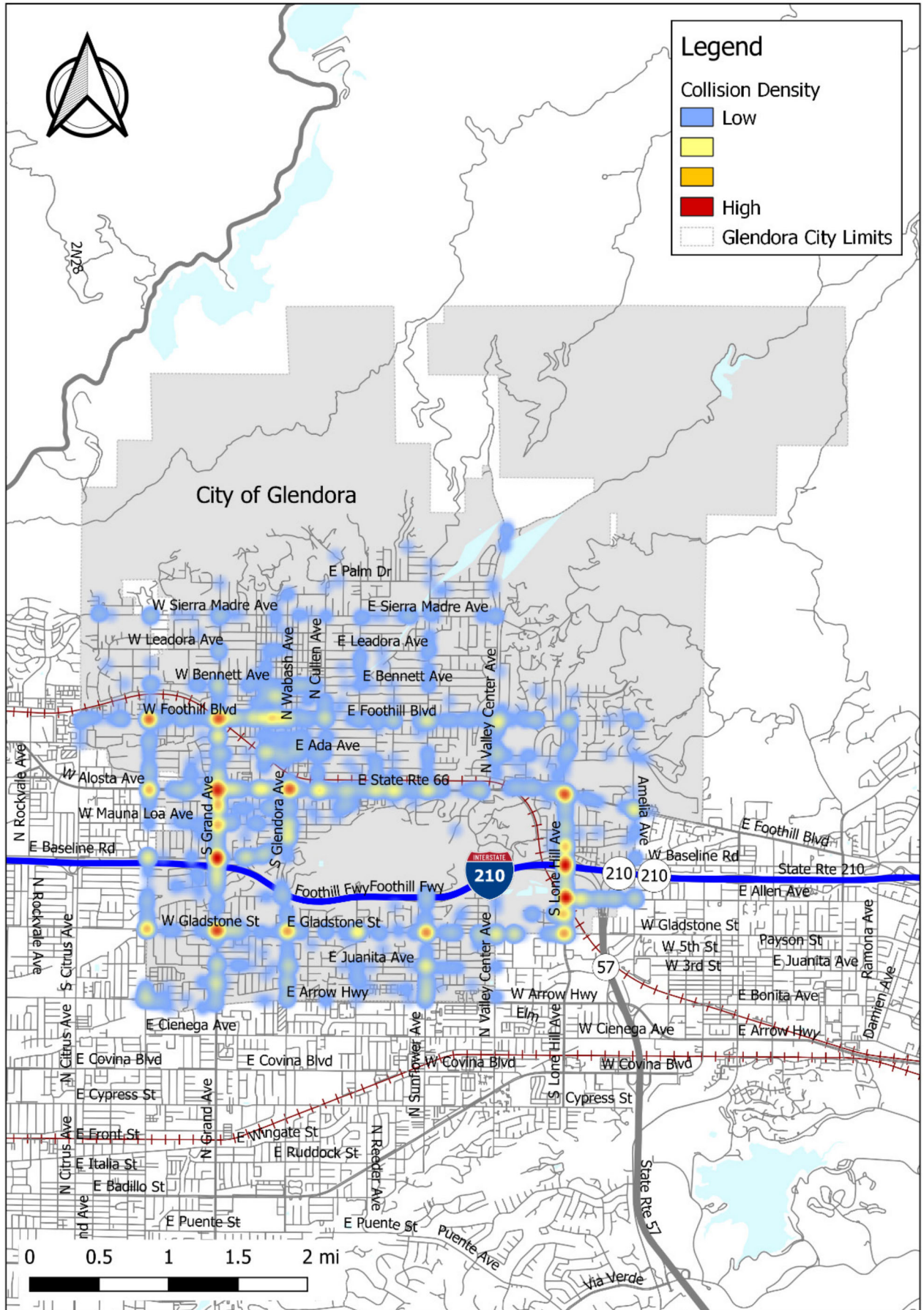
Figure 19. Total collision density
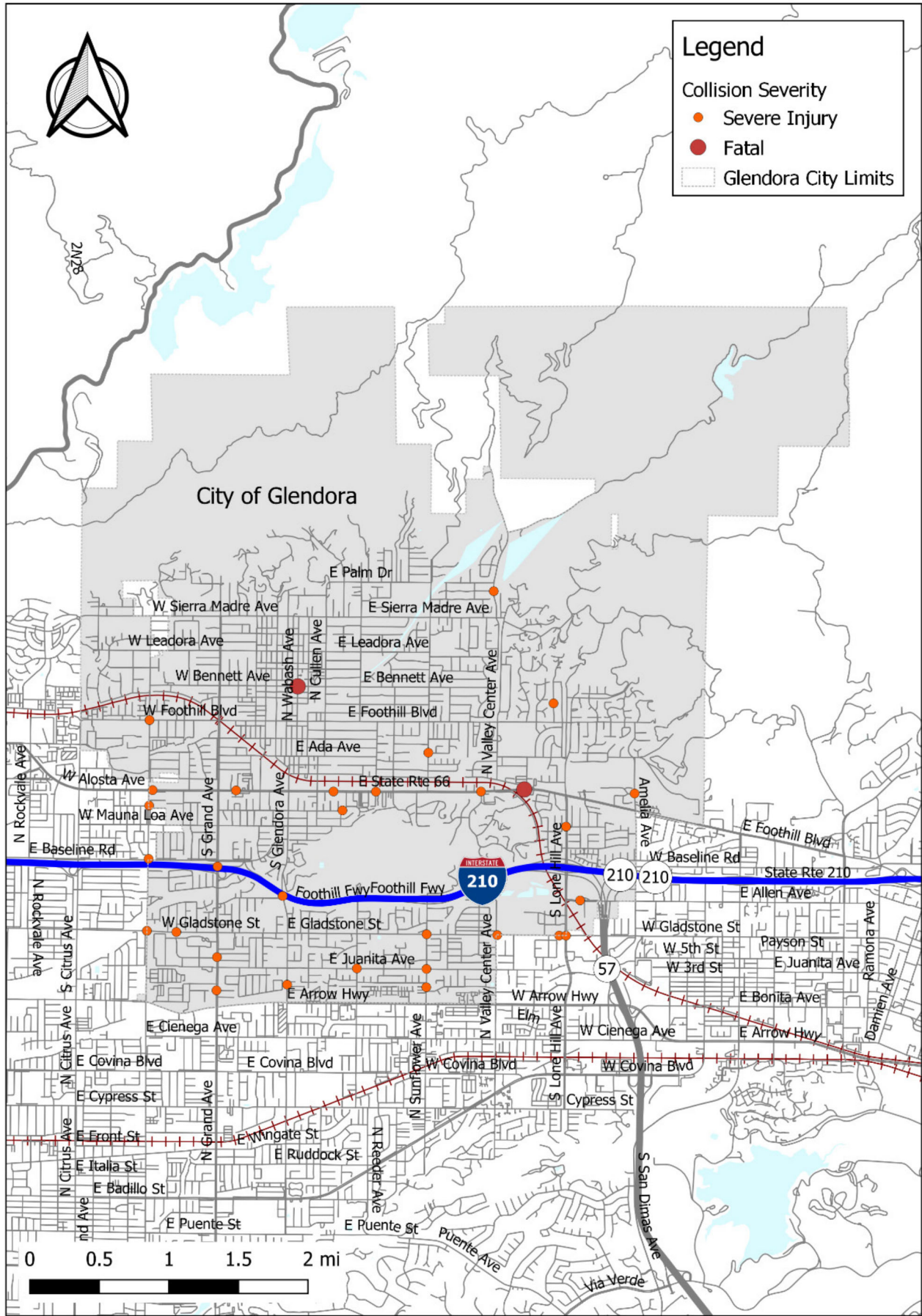
Figure 20. Severe and fatal injury locations
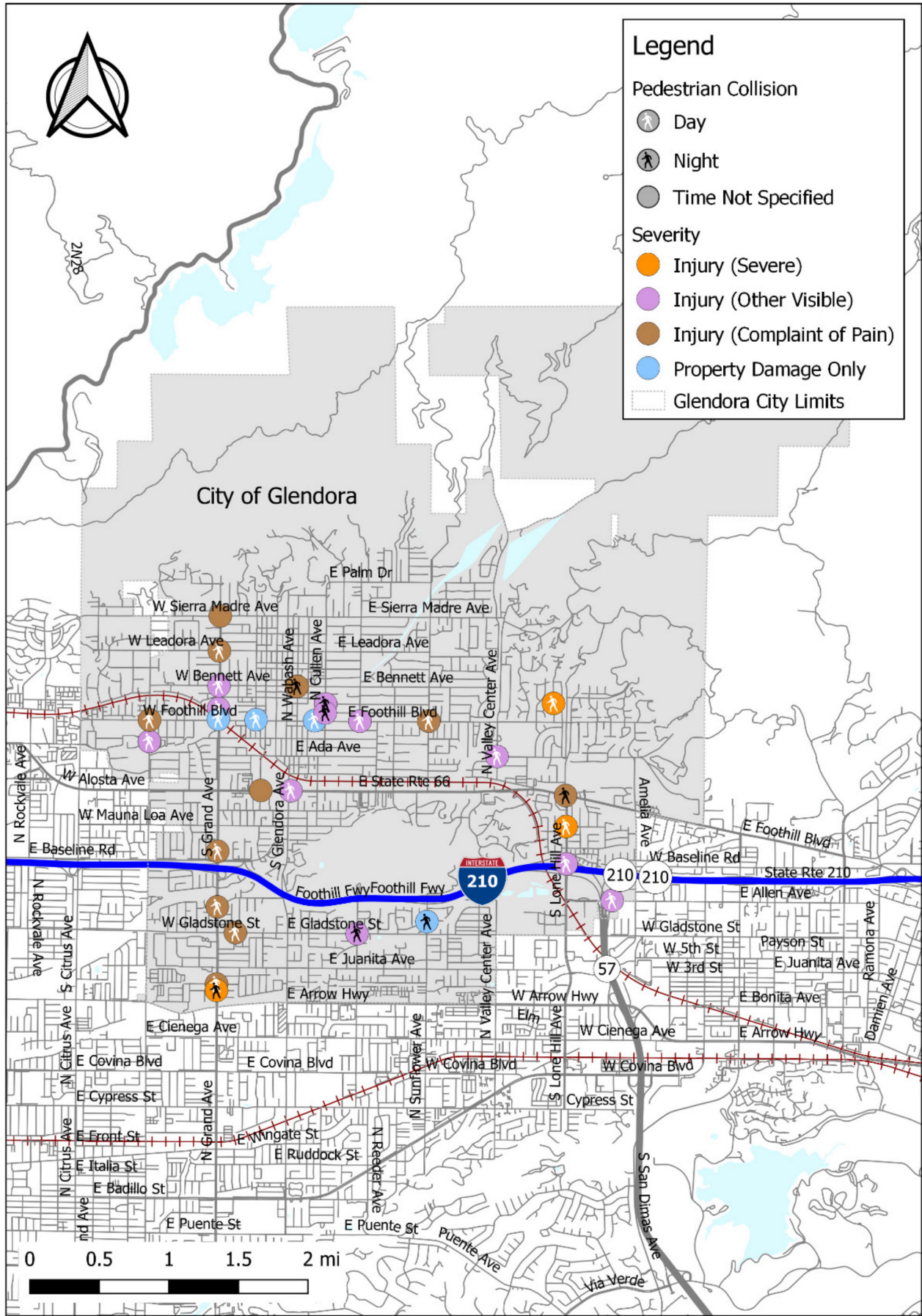
Figure 21. Pedestrian collision locations
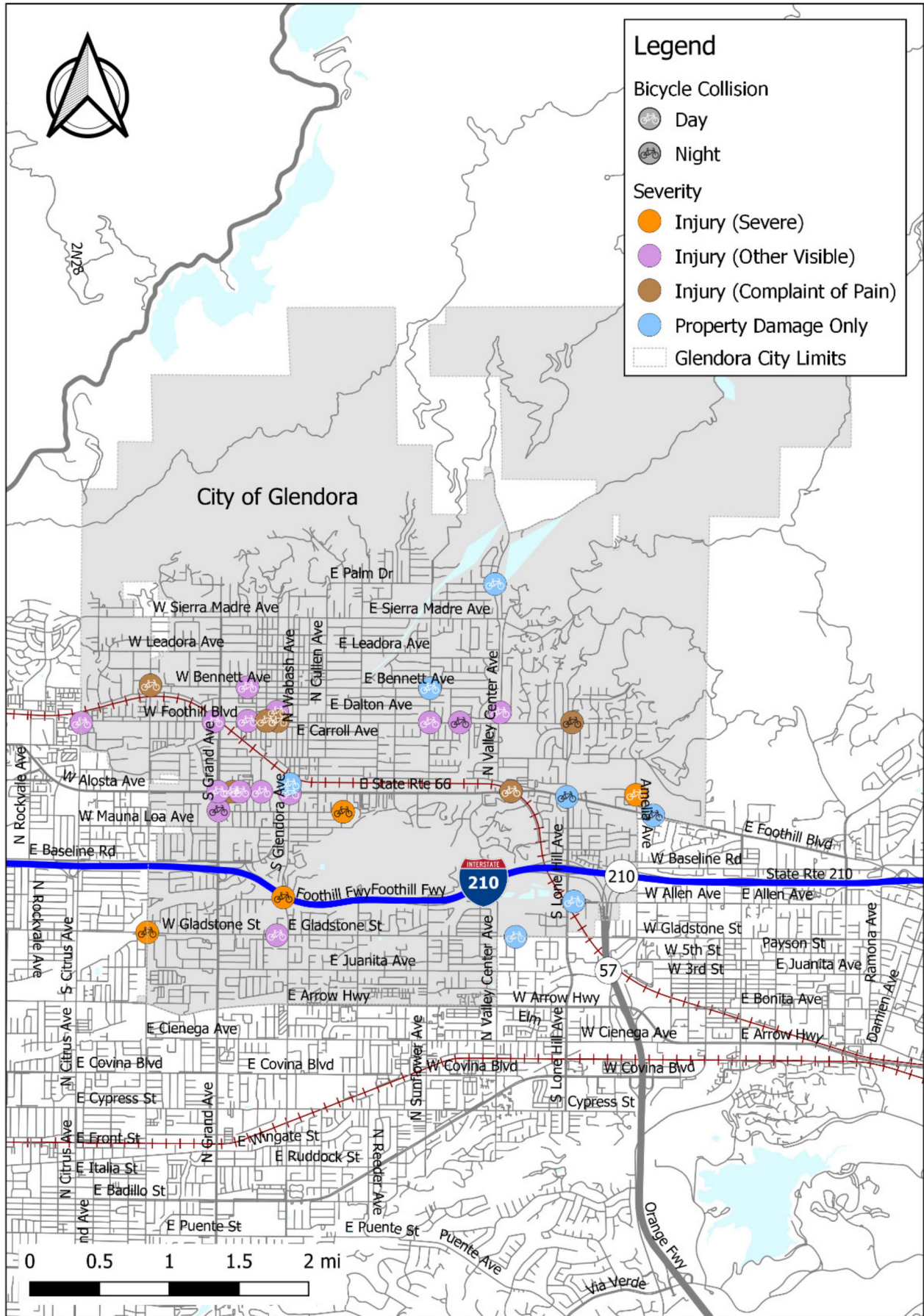
Figure 22. Bicycle collision locations

4.2.5. EPDO Ratings of Intersections and Corridors

Utilizing the collision data for the five-year timeframe examined, the Equivalent Property Damage Only (EPDO) rating was calculated for high-injury intersections and corridors in the City of Glendora. This was calculated using the methodology provided by the FHWA.

The equivalent property damage only (EPDO) method is documented in the Highway Safety Manual. In this method, weighting factors related to the societal costs of fatal, injury, and property damage-only crashes are assigned to crashes by severity to develop an equivalent property damage-only score that considers frequency and severity of crashes.

The locations and EPDO ratings of the top 10 high-injury intersections are shown in Figure 23. The locations and EPDO ratings of the top 10 high-injury corridors are shown in Figure 24.
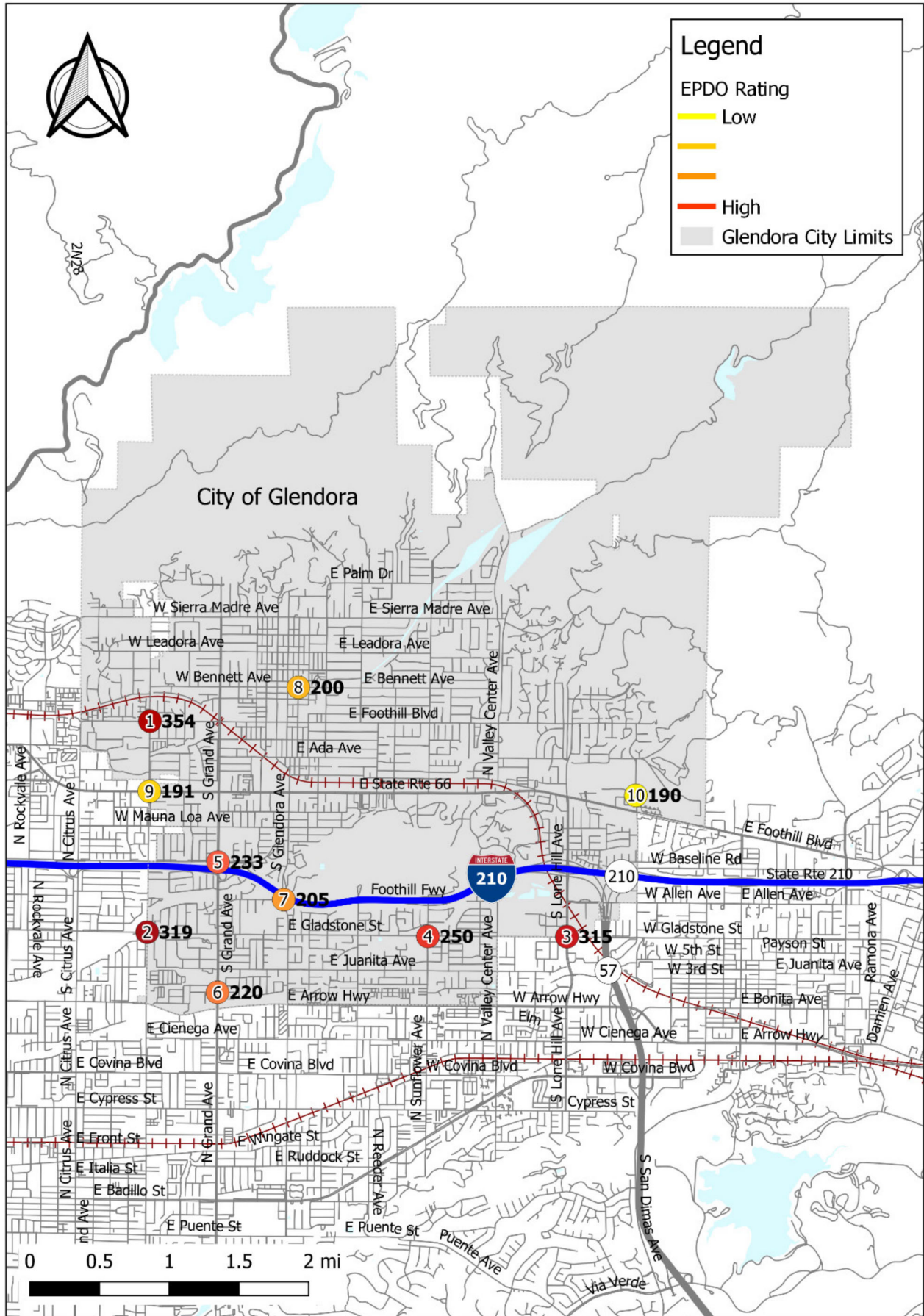
Figure 23. Top 10 high-injury intersections and EPDO ratings
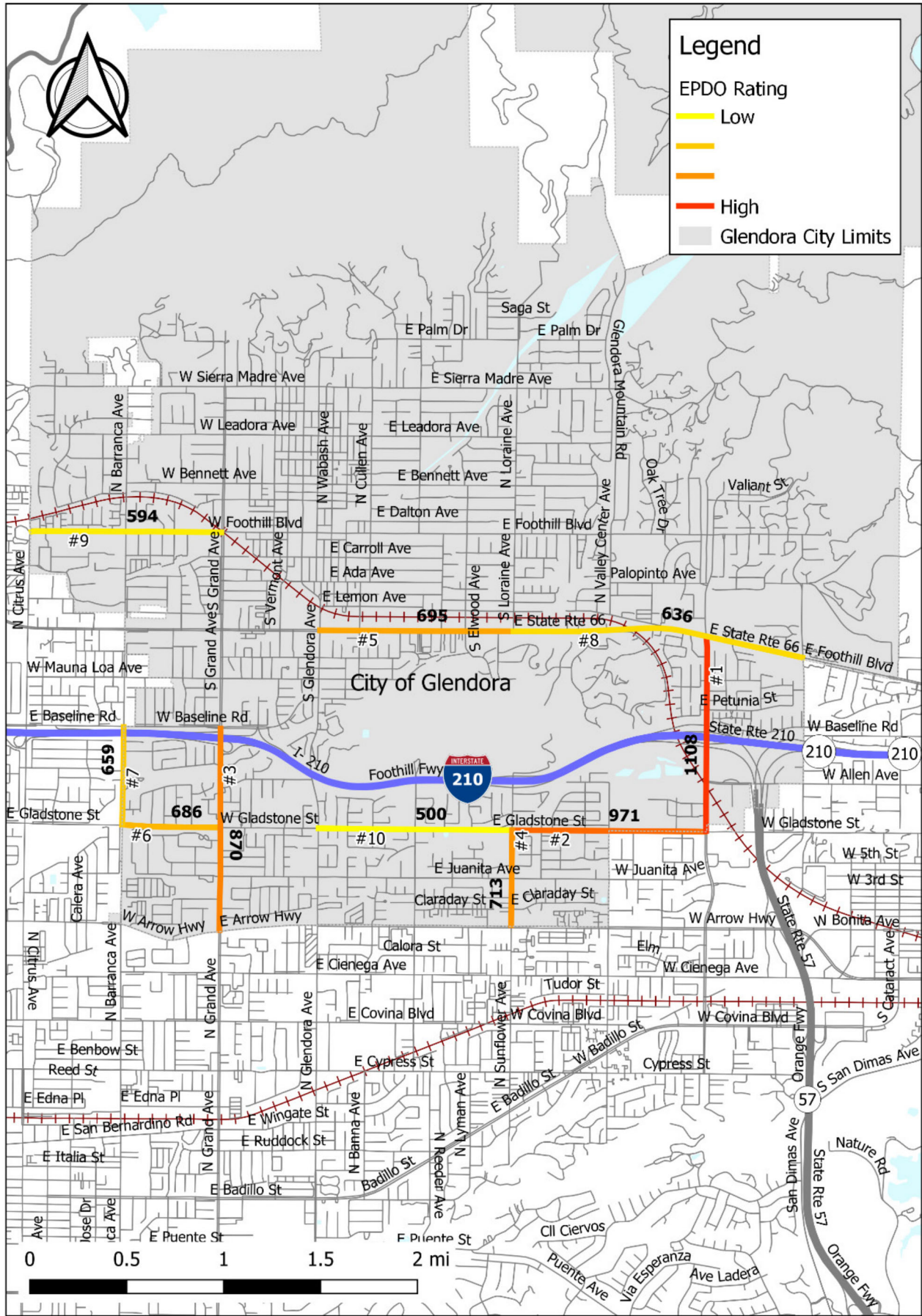
Figure 24. Top 10 high-injury corridor EPDO ratings

4.3. Field Reconnaissance

A field visit was performed in April 2022 to analyze the roadways throughout the City of Glendora and observe traffic conditions. The following are some general notes based on what was observed during the visit:

- Each of the high-injury intersections was visited, and the team observed what was causing collisions based on major collision factors.
- It was noticed that majority of intersections do not have protected left-turn signal phases.
- There are locations where near school crosswalks can be treated with high visibility crosswalks throughout the city.
- There are many bicycle facilities in the City where signs are not visible. There facilities can be improved by better signage or by upgrading bike route to class II bike lanes.

5. Public Outreach

5.1. Public Website and Survey

A project website was created on the Social Pinpoint platform to inform the public about the LRSP and provide a platform for input. The website included an online interactive map, where stakeholders could submit comments about road safety conditions associated with specific travel modes and locations; and a survey intended to collect data regarding road safety conditions and needs in Glendora.

Publicization of the website was undertaken by the City's social media team. The website was open for receiving comments from March 15 to April 26, 2022. The website received 101 comments provided by 80 stakeholders, and 32 survey responses. 62% of the comments perceived were related to driving. Figure 25 displays the homepage for the website, found at https://safetyplan.mysocialpinpoint.com/glendora.

Figure 25. Screenshot from public website

Visitors to the page were invited to provide comments on an interactive project map and share their thoughts through a project survey. Comments from the interactive map and detailed results from the survey are included in Appendix A: Stakeholder and Public Input.
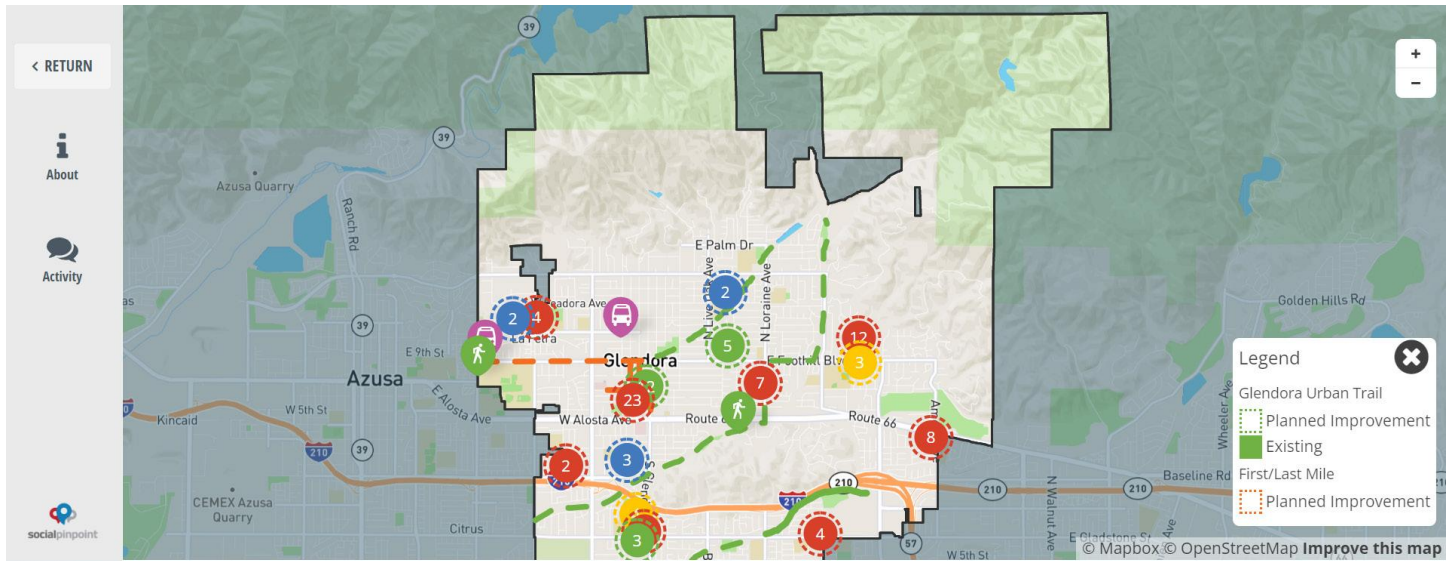
Figure 26. Interactive map

The interactive map feature on the website allowed the public to drag icons to a location within the City and leave a comment regarding driving, pedestrian, or bicycle suggestions at that location. Figure 26 shows the interactive map feature from the website.

Some of the top locations for public comment, along with the common comment themes, are listed below:

- South Glendora Avenue at West Baseline Road: Multiple complaints of speeding, inadequate sidewalks, and lack of bike lanes in a 1,000-foot radius around this intersection.
- South Lone Hill Avenue, directly south of the intersection with East Foothill Boulevard: Need for speed limit enforcement.
- Amelia Avenue at Duell Street (near Sutherland Elementary School): Multiple comments on school-related traffic safety issues.

The sentiments of the comments are shown in Figure 27 and the modes associated with the comments are shown in Figure 28.
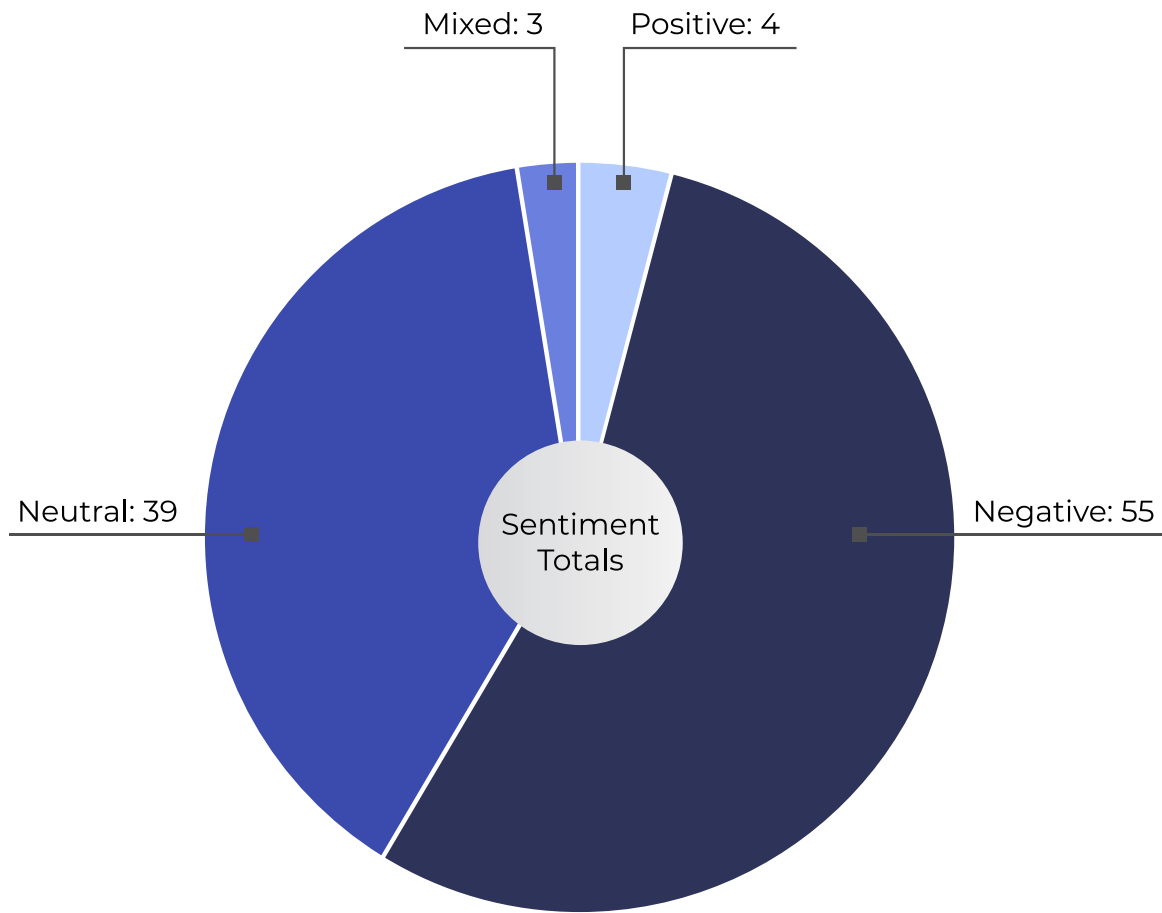
Figure 27. Sentiment of public comments
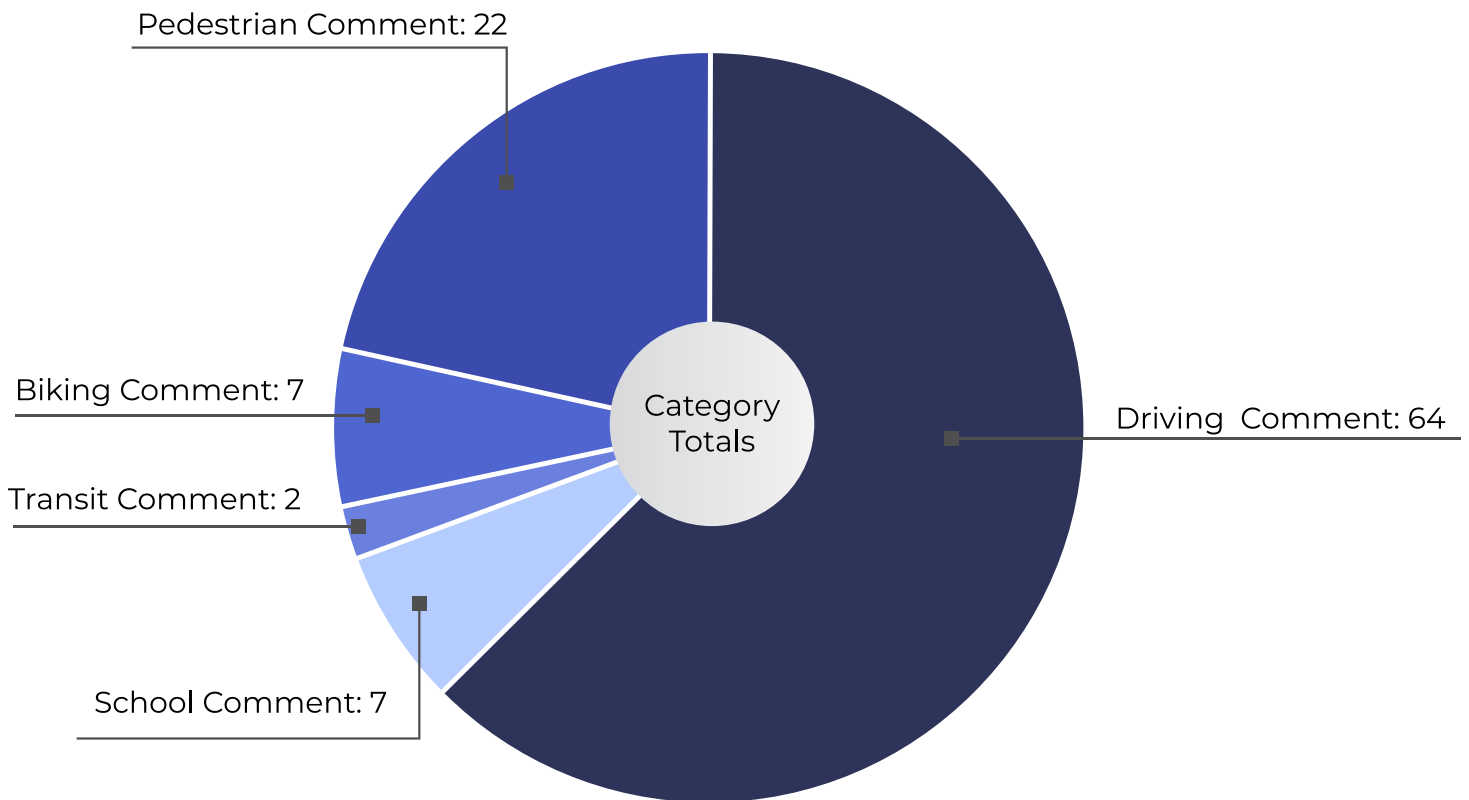
Figure 28. Mode associated with public comments

6. Identification of Strategies

Through coordination and feedback from the City of Glendora, the LRSP Working Group, and public outreach, the safety projects and strategies in this section were identified for this LRSP. Development of the recommended countermeasures was coordinated with the City.

In Section 6.1, this LRSP lists recommended countermeasures for specific corridors and intersections, as well as systemic safety strategies. In addition, systemic non-engineering strategies (Education, Enforcement, and Emergency Response) are listed in Section 6.2.

6.1. Engineering Strategies

6.1.1. Countermeasures for High-injury Intersections and Corridors

This section contains identified countermeasures to be implemented at specific locations in response to the identified road safety problems.

The Highway Safety Improvement Program provides grant funding to implement engineering countermeasures. The HSIP Cycle 11 Call-for-Projects was announced on Monday, May 9, 2022. The application due date will be Monday, September 12, 2022.

High-injury intersections, with associated crash data, are listed in Table 9. Recommended countermeasures for the high-injury intersections are listed in Table 10.

High-injury corridors, with associated crash data, are listed in Table 11. Recommended countermeasures for the high-injury corridors are listed in Table 12.

Intersections and corridors are ranked by their EPDO rating and labeled with these rank numbers for ease of identifying them on the maps and tables.

Table 9. High-injury Intersections

EPDO Rank	City Intersection MitigatioWns	Secondary Road	EPDO	Total Crashes	Top Collision Factor	Top Collision Type	Common Crashes/Issues						
							Night	Wet	Ped	Crossing Not in X-walk	Bike	Involv. w/ Fixed Object	DUI
1	Foothill Blvd	Barranca Ave	354	36	Auto R/W Violation (13)	Broadside (21)	9	1	1	1	0	3	4
2	Gladstone St	Barranca Ave	319	26	Auto R/W Violation (9)	Broadside (18)	13	3	0	0	1	1	2
3	Lone Hill Ave	Gladstone St	315	32	Unsafe Speed (7)	Broadside (13)	9	0	0	0	0	0	2
4	Gladstone St	Sunflower Ave	250	31	Auto R/W Violation (11)	Broadside (14)	10	6	0	0	0	2	1
5	Baseline Rd	Grand Ave	233	49	Unsafe Speed (9)	Sideswipe (16)	12	3	0	0	0	4	4
6	Fleetwood Pl (NS)	Grand Ave	220	6	Auto R/W Violation (3)	Broadside (2), Head On (2)	1	0	1	1	0	1	0
7	Dawson Ave (NS)	Glendora Ave	205	6	Auto R/W Violation (2)	Broadside (2), Sideswipe (2)	1	0	0	0	1	0	0
8	Bennett Ave (NS)	Wabash Ave	200	6	Auto R/W Violation (3)	Broadside (5)	1	0	1	1	0	0	0
9	Route 66	Barranca Ave	191	27	Unsafe Speed (8)	Rear-end (16)	7	1	0	0	0	4	4
10	Saratoga Ln (NS)	Amelia Ave	190	1	Unknown (1)	Other (1)	0	0	0	0	1	0	0
11	Juanita Ave	Sunflower Ave	154	15	Traffic Signals and Signs (5)	Broadside (8)	3	0	0	0	0	1	1
12	Gladstone St	Valley Center Ave	150	16	Improper Turning (5)	Broadside (7)	2	1	0	0	0	0	0

Table 10. High-injury Intersections with Recommended Countermeasures

EPDO Rank	Primary Road	Secondary Road	Crash Reduction Factor	Recommended Countermeasures	Reasoning
1	Foothill Blvd	Barranca Ave	-	Upgrade signing and striping [SI]	
			-	Police enforcement [SI]	4 collisions caused by DUI
			40	Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]	
			-	High visibility crosswalks [SI]	
				Note intersection was upgraded mid 2019 / Along FLM Corridor	
2	Gladstone St	Barranca Ave	30	Provide protected left turn phase (left turn lane already exists) [SI]	18 broadside collisions
			40	Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]	4 rear-end collisions
			-	High visibility crosswalks [SI]	
			-	Upgrade signing and striping [SI]	
3	Lone Hill Ave	Gladstone St	-	Police enforcement [SI]	7 unsafe speed collisions
			-	High visibility crosswalks [SI]	
			15	Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	9 rear-end collisions
			-	Upgrade signing and striping [SI]	Class III Bike Route
			-	High visibility crosswalks [SI]	
4	Gladstone St	Sunflower Ave	55	Improve pavement friction (High Friction Surface Treatments)	6 wet road collisions
			30	Provide protected left turn phase (left turn lane already exists) [SI]	14 broadside collisions
			40	Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]	6 rear-end collisions
			-	Police enforcement [SI]	4 DUI collisions and 9 unsafe speed collisions
5	Baseline Rd	Grand Ave	-	Upgrade signing and striping [SI]	16 sideswipe collisions
			30	Convert signal to mast arm (from pedestal-mounted) [SI]	15 rear-end collisions
			-	Upgrade signing and striping [SI]	
6	Fleetwood Pl (NS)	Grand Ave	35	Install/upgrade pedestrian crossing at uncontrolled locations (with enhanced safety features)	1 severe injury with ped
			-	Upgrade signing and striping [SI]	Class III Bike Route
7	Dawson Ave (NS)	Glendora Ave	40	Add intersection lighting	1 night collision
			-	Consider adding bike lanes	1 bike collision
			-	Upgrade signing and striping [SI]	
8	Bennett Ave (NS)	Wabash Ave	25	Install pedestrian crossing at uncontrolled locations (new signs and markings only)	1 pedestrian collision
			35	Install Rectangular Rapid Flashing Beacon (RRFB)	
			-	Police enforcement [SI]	4 collisions caused by DUI and 8 unsafe speed collisions
9	Route 66	Barranca Ave	-	Upgrade signing and striping [SI]	
			30	Convert signal to mast arm (from pedestal-mounted)	16 rear-end collisions

EPDO Rank	Primary Road	Secondary Road	Crash Reduction Factor	Recommended Countermeasures	Reasoning
10	Saratoga Ln (NS)	Amelia Ave	-	Upgrade signing and striping [SI]	
			35	Install/upgrade pedestrian crossing at uncontrolled locations (with enhanced safety features)	1 bike collision
11	Juanita Ave	Sunflower Ave	30	Provide protected left turn phase (left turn lane already exists) [SI]	8 broadside collisions
			-	Upgrade signing and striping [SI]	
			-	High visibility crosswalks [SI]	
12	Gladstone St	Valley Center Ave	30	Provide protected left turn phase (left turn lane already exists) [SI]	7 broadside collisions
			-	High visibility crosswalks [SI]	
			40	Add intersection lighting	2 night collisions
			-	Upgrade signing and striping [SI]	Class III Bike Route

[SI] = Systemic Improvement

Table 11. High-injury Corridors

EPDO Rank	Primary Road	Begin – End Segment	EPDO	Total Crashes	Top Collision Factor	Top Collision Type	Common Crashes/Issues						
							Night	Wet	Ped	Crossing Not in Crosswalk	Bike	Involv. w/ Fixed Object	DUI
1	Lone Hill Ave	Route 66 – Gladstone St	1108	229	Unsafe Speed (86)	Rear-end (105)	61	14	3	2	1	12	8
2	Gladstone St	Sunflower Ave – Lone Hill Ave	971	104	Auto R/W Violation (26)	Broadside (47)	31	9	0	0	1	3	2
3	Grand Ave	Baseline Rd – Arrow Hwy	870	138	Unsafe Speed (30)	Broadside (41)	38	6	3	1	0	10	10
4	Sunflower Ave	Gladstone St – Arrow Hwy	713	66	Auto R/W Violation (15)	Broadside (27)	21	7	0	0	0	5	8
5	Route 66	Glendora Ave – Loraine Ave	695	132	Unsafe Speed (35)	Rear-end (46)	38	9	1	0	1	11	9
6	Gladstone St	Barranca Ave – Grand Ave	686	64	Traffic Signal and Signs (15), Unsafe Speed (15)	Broadside (27)	28	4	0	0	1	2	5
7	Barranca Ave	Baseline Rd – Gladstone St	659	52		Broadside (28)	26	4	0	0	1	4	4
8	Route 66	Loraine Ave – Amelia Ave	636	108	Auto R/W Violation (17)	Rear-end (38)	26	11	1	0	3	15	4
9	Foothill Blvd	Citrus Ave – Grand Ave	594	91	Unsafe Speed (28)	Broadside (39)	21	5	2	0	2	6	6
10	Gladstone St	Glendora Ave – Sunflower Ave	500	91	Auto R/W Violation (23)	Broadside (34)	32	11	1	0	0	9	9

Table 12. High-injury Corridors with Recommended Countermeasures

EPDO Rank	Primary Road	Begin – End Segment	CRF	Recommended Countermeasures	Reasoning
1	Lone Hill Ave	Route 66 – Gladstone St	15	Install delineators, reflectors and/or object markers	
			-	Upgrade signing and striping [SI]	
			35	Install/upgrade pedestrian crossing (with enhanced safety features)	3 pedestrian collisions
			55	Improve pavement friction (High Friction Surface Treatments)	14 wet road condition collisions
			-	Enhance Bike Facilities	1 bike collision / Class III Bike Route
2	Gladstone St	Sunflower Ave – Lone Hill Ave	-	Upgrade signing and striping [SI]	
			-	Enhance Bike Facilities	1 bike collision / Class III Bike Route
3	Grand Ave	Gladstone St	15	Upgrade signing and striping [SI]	7 unsafe speed collisions
			-	Police enforcement [SI]	
			35	High visibility crosswalks [SI]	
4	Route 66	Baseline Rd – Arrow Hwy	-	Upgrade signing and striping [SI]	
5	Baseline Rd	Glendora Ave – Loraine Ave	15	Install delineators, reflectors and/or object markers	
			-	Upgrade signing and striping [SI]	
			-	Install Bike Facilities	1 bike collision
6	Fleetwood Pl (NS)	Barranca Ave – Grand Ave	-	Upgrade signing and striping [SI]	
			35	Add segment lighting	28 night collisions
			-	Install Bike Facilities	1 bike collision
7	Barranca Ave	Baseline Rd – Gladstone St	-	Upgrade signing and striping [SI]	
			35	Add segment lighting	26 night collisions
			-	Install Bike Facilities	1 bike collision
8	Route 66	Loraine Ave – Amelia Ave	15	Install delineators, reflectors and/or object markers	
			-	Upgrade signing and striping [SI]	
			35	Install bike facilities	3 bike collisions/ Class III Bike Route
			55	Improve pavement friction (High Friction Surface Treatments)	11 wet road collisions
9	Foothill Blvd	Citrus Ave – Grand Ave	-	Upgrade signing and striping [SI]	
			35	Install/upgrade pedestrian crossing (with enhanced safety features)	2 pedestrian collisions
			-	Install bike facilities	Roadway is part of planned first/last mile bike lanes
10	Gladstone St	Glendora Ave – Sunflower Ave	15	Install delineators, reflectors and/or object markers	
			-	Upgrade signing and striping [SI]	
			55	Improve pavement friction (High Friction Surface Treatments)	11 wet road condition collisions / Class III Bike Route

[SI] = Systemic Improvement

6.1.2. Systemic Engineering Countermeasures

In addition to the countermeasures recommended for specific intersections and corridors, the following engineering countermeasures were recommended for system-wide implementation.

1. Upgrade signing and striping

2. High-visibility pedestrian crosswalks

3 .Install bike lanes

4. Signal upgrades (to include converting signals to mast arm from pedestal-mounted)

5. Provide Advanced Dilemma-Zone Detection for high-speed approaches

6.2. Systemic Non-Engineering Countermeasures

In addition to the engineering countermeasures outlined in the previous sections, this LRSP includes countermeasures in the areas of education, enforcement, and emergency response that were identified as appropriate for the City of Glendora in the LRSP Working Group meetings. These countermeasures are listed below.

6.2.1. Education

- Continue bicycle, pedestrian, and FLM safety campaigns
- Continue Safe Routes to School maps and outreach at schools
- Social media blasts with quick education tools for all users
- Dangers of speeding/speed management campaigns
- Partnering with agencies such as LA County Health, Bicycle Coalitions, and others for public education

6.2.2. Enforcement

- Targeted speed enforcement (school zones, areas of concern)
- DUI saturation patrols
- Increasing number of traffic enforcement officers (possible through grants/OTS funding)
- Distracted driving enforcement

6.2.3. Emergency Response

- Review existing emergency vehicle pre-emption at signalized intersections
- Evaluate improvements to roadways to increase access and potentially shorten response times

7. Prioritization of Strategies

7.1. Funding Sources

The Highway Safety Improvement Program provides grant funding to implement engineering countermeasures. The HSIP Cycle 11 Call-for-Projects was announced on Monday, May 9, 2022. The application due date will be Monday, September 12, 2022. HSIP funds can pay for preliminary engineering, right of way (must be less than 10% of construction costs), and construction. Proposed projects are evaluated based on the Benefit/Cost Ratios (BCRs). All applications without fatal flaws are prioritized in descending order, statewide, by the BCRs.

The Active Transportation Program (ATP) funds projects that further ATP goals, which relate to increasing active transportation mode share and safety. Infrastructure projects can be funded, as well as plans and non-infrastructure projects. Applications are scored on several criteria, including an emphasis on safety.

The Bipartisan Infrastructure Law (BIL) L continues the Congestion Mitigation and Air Quality Improvement Program (CMAQ) to provide a funding to local governments for transportation projects and programs to help meet the requirements of the Clean Air Act. In some cases, projects that improve safety may also meet the criteria for CMAQ funding.

The California Office of Traffic Safety provides funding for non-engineering projects to improve safety, such as educational programs.

In addition, the City of Glendora can look for opportunities to incorporate safety enhancements within the Capital Improvement Program. However, this funding source is very limited.

7.2. Prioritized Projects

An essential part of the LRSP process is the prioritization of strategies. This section presents the identified engineering countermeasures for intersections and priorities ranked according to priority. The countermeasures were evaluated and prioritized based on benefit-to-cost ratios following the methodology prescribed in the current Caltrans Local Road Safety Manual and using the HSIP Analyzer for BCR applications provided by Caltrans. The prioritization of engineering countermeasures for the top ten high-injury intersections is shown in Table 13, and the prioritization of engineering countermeasures for the top ten high-injury corridors is shown in Table 14.

Table 13. Prioritized Engineering Countermeasures for High-injury Intersections

EPDO Rank	Primary Road	Secondary Road	Recommended Countermeasures	Max Project Cost for B/C Ratio of 10	Preliminary B/C Ratio	Total Expected Benefit	Preliminary Estimated Project Cost	HSIP Funding Reimbursement Ratio
1	Foothill Blvd	Barranca Ave	Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]	$10,000	-	-	$100,000	100%
			High visibility crosswalks [SI]	$2,500	3.6	$90,851	$25,000	100%
			Provide protected left turn phase (left turn lane already exists) [SI]	$100	5701.2	$5,701,197	$1,000	100%
2	Gladstone St	Barranca Ave	Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]	$10,000	-	-	$100,000	100%
			High visibility crosswalks [SI]	$2,500	50.0	$1,250,215	$25,000	100%
			Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
3	Lone Hill Ave	Gladstone St	High visibility crosswalks [SI]	$2,500	0.0	$0	$25,000	100%
			Improve signal hardware: lenses, back-plates with retroreflective borders, mounting, size, and number	$2,500	56.3	$1,408,629	$25,000	100%
			Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			High visibility crosswalks [SI]	$2,500	0.0	$0	$25,000	100%
4	Gladstone St	Sunflower Ave	Improve pavement friction (High Friction Surface Treatments)	$5,000	65.8	$3,288,777	$50,000	100%
			Provide protected left turn phase (left turn lane already exists) [SI]	$100	4019.9	$4,019,859	$1,000	100%
			Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]	$10,000	-	-	$100,000	100%
5	Baseline Rd	Grand Ave	Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			Convert signal to mast arm (from pedestal-mounted) [SI]	$10,000	41.6	$4,160,761	$100,000	100%
6	Fleetwood Pl (NS)	Grand Ave	Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			Install/upgrade pedestrian crossing at uncontrolled locations (with enhanced safety features)	$2,500	56.8	$1,420,722	$25,000	100%
7	Dawson Ave (NS)	Glendora Ave	Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			Add intersection lighting	$5,000	90.9	$4,546,309	$50,000	100%
			Consider adding bike lanes	$5,000	-	-	$50,000	90%
8	Bennett Ave (NS)	Wabash Ave	Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			Install pedestrian crossing at uncontrolled locations (new signs and markings only)	$1,000	3.2	$31,798	$10,000	100%
			Install Rectangular Rapid Flashing Beacon (RRFB)	$2,500	71.8	$1,795,117	$25,000	100%
9	Route 66	Barranca Ave	Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			Convert signal to mast arm (from pedestal-mounted)	$10,000	34.1	$3,411,411	$100,000	100%
10	Saratoga Ln (NS)	Amelia Ave	Upgrade signing and striping [SI]	$2,000	-	-	$20,000	100%
			Install/upgrade pedestrian crossing at uncontrolled locations (with enhanced safety features)	$2,500	159.1	$3,978,021	$25,000	100%

Table 14. Prioritized Engineering Countermeasures for High-injury Corridors

EPDO Rank	Primary Road (Begin – End Segment)	Recommended Countermeasures	Max Project Cost for B/C Ratio of 10	Preliminary B/C Ratio	Total Expected Benefit	Preliminary Estimated Project Cost	HSIP Funding Reimbursement Ratio
1	Lone Hill Ave (Route 66 – Gladstone St)	Install delineators, reflectors and/or object markers	$458,878	301.8	$4,588,779	$15,205	100%
		Upgrade signing and striping [SI]	$458,878	30.2	$4,588,779	$152,055	100%
		Install/upgrade pedestrian crossing (with enhanced safety features)	$328,592	131.4	$3,285,919	$25,000	90%
		Improve pavement friction (High Friction Surface Treatments)	$1,818,975	119.6	$18,189,753	$152,055	100%
		Enhance Bike Facilities	$276,609	12.1	$2,766,085	$228,082	90%
2	Gladstone St (Sunflower Ave – Lone Hill Ave)	Provide protected left turn phase (left turn lane already exists) [SI]	$433,889	28.7	$4,338,893	$150,978	100%
		Provide Advanced Dilemma Zone Detection for high-speed approaches [SI]	$1,929	0.1	$19,285	$226,467	90%
		High visibility crosswalks [SI]	$359,402	226.7	$3,594,015	$15,852	100%
3	Grand Ave (Baseline Rd – Arrow Hwy)	Upgrade signing and striping [SI]	$359,402	22.7	$3,594,015	$158,518	100%
		Enhance Bike Facilities	$318,481	127.4	$3,184,811	$25,000	90%
4	Sunflower Ave (Gladstone St – Arrow Hwy)	Upgrade signing and striping [SI]	$318,481	42.8	$3,184,811	$74,431	100%
5	Route 66 (Glendora Ave – Loraine Ave)	Install delineators, reflectors and/or object markers	$287,166	189.6	$2,871,662	$15,146	100%
		Upgrade signing and striping [SI]	$287,166	19.0	$2,871,662	$151,459	100%
		Install Bike Facilities	$38,539	1.7	$385,388	$227,188	90%
6	Gladstone St (Barranca Ave – Grand Ave)	Upgrade signing and striping [SI]	$306,609	40.2	$3,066,090	$76,301	100%
		Add segment lighting	$1,071,026	140.4	$10,710,257	$76,301	100%
		Install Bike Facilities	$318,525	27.8	$3,185,250	$114,451	90%
7	Barranca Ave (Baseline Rd – Gladstone St)	Upgrade signing and striping [SI]	$294,622	38.5	$2,946,216	$76,609	100%
		Add segment lighting	$1,060,167	138.4	$10,601,666	$76,609	100%
		Install Bike Facilities	$318,525	27.7	$3,185,250	$114,913	90%
8	Route 66 (Loraine Ave – Amelia Ave)	Install delineators, reflectors and/or object markers	$225,644	98.4	$2,256,435	$22,936	100%
		Upgrade signing and striping [SI]	$225,644	9.8	$2,256,435	$229,363	100%
		Install bike facilities	$40,442	1.2	$404,420	$344,045	90%
		Improve pavement friction (High Friction Surface Treatments)	$827,360	36.1	$8,273,595	$229,363	100%
9	Foothill Blvd (Citrus Ave – Grand Ave)	Upgrade signing and striping [SI]	$264,998	17.8	$2,649,978	$149,052	100%
		Install/upgrade pedestrian crossing (with enhanced safety features)	$45,445	18.2	$454,452	$25,000	90%
		Install bike facilities	$45,445	2.0	$454,452	$223,578	90%
10	Gladstone St (Glendora Ave – Sunflower Ave)	Install delineators, reflectors and/or object markers	$176,832	116.5	$1,768,316	$15,181	100%
		Upgrade signing and striping [SI]	$176,832	11.6	$1,768,316	$151,815	100%
		Improve pavement friction (High Friction Surface Treatments)	$648,382	42.7	$6,483,823	$151,815	100%

8. Evaluation Process

To evaluate the success of this plan, measures of success were identified. Each of these measures is associated with one of the goals of the plan.

1. **Goal:** Have zero fatal and severe injury collisions on City roadways

   ▷ **Measure of Success:** Progress toward this goal will be measured by the annual numbers of fatal and severe injury collisions on local roadways in the City of Glendora. A trend toward zero will indicate movement toward success in achieving the goal.

2. **Goal:** Reduce the number of pedestrian and bicycle collisions on City roadways

   ▷ **Measure of Success:** Progress toward this goal will be measured by the annual numbers of collisions that involve pedestrians and cyclists on City roads. A downward trend will indicate movement toward success.

3. **Goal:** Exchange information and ideas specific to enhancing roadway safety performance through engineering, enforcement, and educational strategies

   ▷ **Measure of Success:** Success will be indicated by a satisfactory number of useful exchanges of information and ideas.

4. **Goal**: Improve available collision data

   ▷ Progress toward this goal will be measured by the availability of improved collision data beyond what is currently available.

5. **Goal:** Utilize community and traffic safety stakeholder input to identify opportunities to improve roadway safety

   ▷ **Measure of Success:** Progress toward this goal will be measured by the annual number of broadside collisions on City roads. A downward trend will indicate movement toward success.

6. **Goal:** Reduce the number of broadside collisions

   ▷ **Measure of Success:** Progress toward this goal will be measured by the number of opportunities to improve roadway safety that are identified using community and traffic safety stakeholder input.

7. **Goal:** Systemically implement safety countermeasures proven to reduce Improper Turning

   ▷ **Measure of Success:** Progress toward this goal will be measured by the number of safety countermeasures proven to reduce Improper Turning that are implemented on City roads.

9. Next Steps

The City of Glendora will present the Local Road Safety Plan to the City Council for adoption on [insert date]. This LRSP will be a living document that can be updated as needed. Progress toward the goals will be monitored. The LRSP will guide the City's roadway safety efforts for the next five years.

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Appendix A: Meeting Agendas and Minutes

Glendora Local Road Safety Plan (LRSP)

Kick Off Meeting Agenda
Date: 11/30/2021 at 2 PM – Virtual

Agenda Items:

1. **Introductions**
   a. Project Team
   b. Point Contacts

2. **Project Background**
   a. Limits (Citywide) – Caltrans and Neighbouring Cities Responsibilities
   b. Purpose (Safety + Funding)
   c. Confirm Understanding

3. **Project Approach**
   a. Locations of Concern (Public Works, Police Feedback, stakeholder complaints)
      i. documented
      ii. undocumented
   b. PM (Progress Meeting + 3 Working Groups)
   c. LRSP Goals and Objectives
   d. Identify Safety Issues
   e. Analyze Data
   f. Field Review
   g. Developing Countermeasures
   h. Documentation
   i. HSIP Grant

4. **Data Request**
   - GIS / CAD Files
   - Street Classifications (Any Changes to the Circulation Element) –Truck Routes / Bikeway Routes
   - Collision Data last 5 years (1/1/2016 to 12/31/2020)
   - Available Traffic Counts (ideally pre-pandemic)
   - Relevant Studies / Projects

5. **Project Management**
   - Schedule
   - Progress Meetings

Glendora Local Road Safety Plan (LRSP)

Kick Off Meeting Minutes
Date: 11/30/2021 at 2 PM – Virtual

<u>Attendees</u>

MA: Maliha Ansari (City of Glendora)   RH: Rawad Hani (GTS)
SM: Steven Mateer (City of Glendora)   CG: Cassandra Garcia (GTS)
CF: Christopher Farino (City of Glendora)

Meeting Discussion Items	Action Items
Introductions: • Maliha Ansari: Principal Engineer and City's main point of contact for the project • Steven Mateer: Transportation Manger • Christopher Farino: Police Corporal • Rawad Hani: Project Manager and GTS main point of Contact • Cassandra Garcia: Transportation Engineer **Project Limits:** • RH noted that the project covers all roads under the City jurisdiction and asked about intersections shared with other jurisdictions. MA noted a few shared intersections with Azusa, Caltrans, LA County, and San Dimas and provided a map showing these locations. • SM noted that a new bike path (Class I) is currently being designed in the County's Flood Control Channel right-of-way as part of the Urban Trails and FLM project. SM presented a map showing the location of the trails that he will transmit to GTS. **LRSP Purpose:** • RH noted the purpose of the LRSP is to create a framework to systematically identify and analyze safety problems and recommend safety improvements. The LRSP provides a proactive approach to addressing safety needs and demonstrates agency responsiveness to safety challenges. He noted the LRSP will result in a prioritized list of improvements and actions that can then utilize HSIP and other funding sources to implement them.	Urban Trails Map (SM)

- MA noted that LRSP will be required for the next HSIP call-for-projects cycle.

Locations of Concern:
- RH noted that GTS received from the City the crash history for the past 5 years. GTS will also be hosting a survey to allow residents and other stakeholders to share their feedback.
- MA noted that Gladstone St is often used as an alternative to the freeway during peak periods and it has been noted that drivers tend to speed. MA shared via email a list of 4 areas of concern at Crosswalk at Gladstone and Nearglen, Dawson and Glendora Ave, Crosswalk on Dawson Ave. at the golf course, and Bender Ave. at Gladstone. MA noted also the importance of integrating LRSP with Urban Trails and FLM plan.
- CF note 5 hotspot locations: Lone Hill Ave and Auto Center Dr; Grand Ave and Baseline Road; Foothill Blvd and Barranca Ave; Route 66 and Grand Ave; Grand Ave and Gladstone St;
- CF noted the Lone Hill and Gladstone is a congested area with the on-going construction; he also noted speeding along Glendora Mountain Road down to Sierra Madre as well as around 1000 W Foothill Blvd whereby the posted seed is 35mph but vehicles travel at about 50 mph.
- SM noted the other locations of concern are Glendora between Route 66 and Foothill Ave; Citrus College (Foothill and Barranca); and in general locations of vulnerable populations such as schools.
- MA provided a map with the location of elementary schools within the City.
- MA also asked to look at the intersection of Foothill Blvd and Lone Hill Ave as part of the analysis. Queues extend from the high school to Lone Hill and can lead to concerns for traffic turning from the side streets to Foothill.

Project Management
- RH noted that he will be in touch with the City's PM (MA) on a bi-weekly basis. MA noted that this group will meet monthly to monitor progress.
- RH noted that their will also be working group meetings with other stakeholders (to be jointly identified with the City). These working groups will help with setting the goals and objectives and provide feedback as the plan gets developed. RH provided a high-level overview of the project and noted that the next few weeks will be focused on analyzing the data and then these will be presented to the City. He also noted that a platform will be developed for city residents to provide their inputs and feedback.

Data Needs
- CF provided earlier collision history records

• MA provided the data noted earlier as well as the 2017 Speed Survey and Traffic Signal Management Plan. MA noted that 2017 AADT is on the City's website.
• Street Classifications was verified and no major changes were noted to the Circulation Element roadway classifications, truck routes, or bikeway routes.
• SM noted that there was a 5-month bike land demonstration project along Glendora Ave during the pandemic and he will share the volumes collected during the demonstration period. He also pointed to a single block bike lane on Dawson fronting the Teen Center.
• Collision Data last 5 years (1/1/2016 to 12/31/2020)
   - Available Traffic Counts (ideally pre-pandemic)
   - Relevant Studies / Projects
 	
Action items
• RH to provide minutes of meeting
• RH to update schedule and provide to MA
• MA to provide GIS files (if available) – Provided MXD file post meeting and directed to County's GIS data website
• SM to provide Urban Trails and FLM material – Provided post meeting on 12/2/2021
	Urban Trails and FLM Material (SM)

Glendora Local Road Safety Plan (LRSP)

Working Group Meeting #1 – Agenda
Date: 03/09/2022 at 7 PM – Virtual

Agenda

1. Introductions

2. What is a Local Road Safety Plan

3. LRSP Process

4. Your Role as a Safety Champion

5. Preliminary Collision Analysis Findings

6. Project webpage / interactive map

7. Discussion

8. Next Steps

City of Glendora
Local Road Safety Plan (LRSP)

Stakeholder Meeting
3.9.2022 at 7:00 PM (Virtual)

Meeting Discussion Items:	Action Items
Intro to LRSP • RH introduced Local Road Safety Plan (LRSP), noting the goal is to improve roadway safety throughout the city through data, incorporating residents/businesses and other shareholders to ultimately find key issues or areas and propose improvements or actions to help mitigate and improve safety. Introductions • AS: AS: Alison Sweet (City of Glendora) • RH: Rawad Hani (GTS) • SM: Steven Mateer (City of Glendora) – Transportation manager, manages people movement project which includes first/last mile and urban trail program, wants LRSP to support city vision for safe transportation network • MA: Maliha Ansari (City of Glendora) – Principal engineer in charge of capital improvement and traffic related projects, works on developing CIP projects and getting HSIP funding. Wants to improve city safety and align with Caltrans goal of roadway safety • KB: Kamal Bhayal (GTS) – Senior traffic engineer, part of LRSP team • CG: Cassandra Garcia (GTS) – Transportation engineer, part of LRSP team • AW: Adriana Watson (LA County Fire Division 2) – liaison for fire department, support fire related and community safety interest	

Meeting Discussion Items:	Action Items
- KL: Katie Lemmon (Metro) – On first/last mile team. Noted Metro is implementing street safety policies. - TM: Topher (Active SGV) – Active SGV mission is to incorporate more sustainable, equitable, livable San Gabriel Valley. Includes designing street that are comfortable for all ages and abilities, particularly for vulnerable users. - CF: Carl Flores (Fire Department) – Assistant Fire Chief, in agreeance with AW. Wants to ensure water systems are reachable and keep updated of any changes along road that may affect systems. Supports and willing to help with any aspect needed from fire department. - ET: Emiko Thompson (LA County Public Works) – Assistant Deputy Director with Traffic Safety and Mobility Division. Noted county has vision zero strategy that utilizes collision data and other qualitative data to prioritize projects. Wants to observe and note any similarities/issues between city roadways and unincorporated roadways. - AF: Alexander Fung (San Gabriel Valley COG) – wants to support city, already helping city with active transportation projects - BL: Britanny Lewis-Porchia (Community Services Commission for City) – Vice Chair - CF: Chris Farino (Glendora Police) – Traffic Division, primary focus is education and enforcement - MR: Marie Ricci (City of Glendora) – Administrative Services Director - AP: Abel Paguio Menti Polls - RH provided poll link and code for questions: - How would you describe traveling on the roads in Glendora – Answers included safe, scenic, good condition, fair, old, good, pedestrian-friendly, street trees, nice trees, pleasant, low stress, convenient, and pretty good. - What road safety improvements are most needed – Answers included clear roads, road maintenance, clear roads, fresh striping, enforcements, traffic lights, ped crossing, bike lanes, class iv bikeways, crosswalks, and plaza improvements	

Meeting Discussion Items:	Action Items
Preliminary Collision Analysis Findings • RH summarized various preliminary findings of the collision analysis. RH stated 2,746 reported collisions between the years 2016 and 2020, with only 2 being fatal. Pedestrians and bicycle collisions are disproportionately involved in severe injury collisions. Top 3 collisions overall are broadside, rear-end and sideswipe. While top 3 collisions for fatal or severe injury are broadside, and a tie among head-on, hit object and rear-end. Top 3 overall factors were unsafe speeding, automobile r/w, and improper turning, Top 3 overall factors for fatal or severe injury are improper turning, automobile r/w, and unsafe speed. Bike and automobile collisions peaked between noon to 3pm, while pedestrian collisions peaked between 6pm to 9pm. Approximately 40% of severe crashes occurred in dark conditions. There were 56 reported pedestrian involved collisions with 60% of severe injuries occurring when pedestrian not in crosswalk, and 34% occurred in the dark. There were 58 reported bicycle involved collisions with 36% being broadside collisions. • RH stated the preliminary conclusions are unsafe speed is a common collision factor. Improper turning and auto r/w violations are collision factors among fatal and severe injury collisions. Ped and bike collisions are disproportionally severe relative to vehicle crashes. Many pedestrian collisions occur in the crosswalk and there are high number of pedestrian r/w violations. **Preliminary Collision Mapping Findings** • RH stated most high injury intersections located at Baseline/Grand, Lone Hill/Auto Centre, Gladstone/Grand, Route 66/Grand. Highest injury corridors at Route 66, Gladstone St, Grand Ave, and Foothill Blvd. **OTS Record Comparison** • RH stated Glendora was compared to similar cities using OTS rankings. Worst rated categories included total fatal and severe injury collisions, bike involved collisions, bike <15 involved collisions, and speed related collisions.	

Meeting Discussion Items:	Action Items
Project Website • RH stated project website is live and includes interactive map and survey for public to fill out. Largely serve to educate public and obtain their experience and thoughts to incorporate into project. City Vision and Goals • RH stated city's vision and goal statements promote safety. In addition, City of Glendora's General Plan has many items that also promote the idea of safety. Open Discussion: • RH discussed the current 7 LRSP goals including zero fatal and severe injury collisions on city roadways, reduce number of ped and bike collisions, partner with traffic safety stakeholders to exchange information and ideas specific to enhance roadway safety through engineering/enforcement/education, improve available collision data, utilize community and traffic safety stakeholder input, reduce number of broadside collisions, and lastly systematically implement safety countermeasures proven to reduce improper turning. • KL asked if there was a time horizon associated with goal 1 and RH stated the LRSP is a living document that needs to be updated over the next few years. A specific time horizon would need to be discussed by various key stakeholders. • AS asked for examples of goal 7 that could be implemented in city. RH stated there are options such as left turn protected phasing such as the one proposed at Grand and Bennett. Systematic improvements are described by the FHWA as being proactive and acting for the system as a whole. MA asked what alternatives to left turn protected phase are available. RH stated alternatives may include enhanced striping, high visibility crosswalks with rapid flashing beacons and more countermeasures will need to be identified as the LRSP progresses. Funding and grants will need to be considered. • AF recommends adding complete first/last mile improvements and encouraging transit use to the goals	City to share and promote website

Meeting Discussion Items:	Action Items
• MR noted the LRSP vision includes to provide a comfortable environment for all users and all modes, but LRSP goals are only related to safety and should be updated to meet the vision better, RH agreed. • KL stated to consider adding goal specific to equity, BL agreed. • AS wanted to confirm LRSP goals would be updated based upon meeting feedback and incoming data, RH confirmed. • AP asked if there could be IISNS and street lights as part of the goals, RH believes these are good ideas although the ultimate goals will be revised to be more big picture and be shared by second group meeting. • AF recommended existing and planned City projects (including first/last mile project) be incorporated into LRSP vision statement, RH agreed. Conclusion • RH stated LRSP vision and goals will be updated, and any additional comments could be made with MA or RH. • CF mentioned evening meetings may be an issue with some stakeholders. AS proposed tentative meeting on May 4 at 3pm. AS recommend stakeholders share project website be shared so public and voice concerns. MA asked how the website should be shared and deadline, RH stated social media team should share link and typically maps and surveys should be closed after 6 weeks.	LRSP goals will be updated Confirm second meeting tentatively for May 4 at 3pm

City of Glendora
Local Road Safety Plan (LRSP)

Stakeholder Meeting
05.04.2022 at 3:00 PM (Virtual)

Meeting Discussion Items:	Action Items
Intro to LRSP • RH introduced Local Road Safety Plan (LRSP), noting the goal is to improve roadway safety throughout the city through data, incorporating residents/businesses and other shareholders to ultimately find key issues or areas and propose improvements or actions to help mitigate and improve safety. Introductions • AS: Alison Sweet (City of Glendora) – Public Works Director • RH: Rawad Hani (GTS) • SM: Steven Mateer (City of Glendora) – Transportation manager, manages people movement project which includes first/last mile and urban trail program, wants LRSP to support city vision for safe transportation network • KB: Kamal Bhayal (GTS) – Senior traffic engineer, part of LRSP team • CG: Cassandra Garcia (GTS) – Transportation engineer, part of LRSP team • DW: David Wang – Caltrans • JK: Jeff Kugel – Community Development Director • AE: Alexis Escobar – City of Glendora • AT: Alex Tran - Engineering Assistant – City of Glendora • JC: Joe Cina – Glendora Chamber of Commerce • SR: Sam Robbin – City of Glendora • SM: Steven Mateer – City of Glendora, Transportation Manager, Project Manager for people movement	

Meeting Discussion Items:	Action Items
• JL: Josh Landis – Foothill Transit, planning manager • GC: George Diaz – Emanate Health Hospital and clinics • JL: James Lo – City of Glendora engineering assistant • KL: Katie Lemmon – LA Metro first/last mile team • TM: Topher – Active SGV • MB: MD R. Bhuiyan – Caltrans district area engineer **Recap** • RH provided overview of 1st meeting and steps taken which were discussed during the 1st meeting. RH stated that the focus of LRSP was to reduce fatal and severe injury collisions on local road. The strategies are mainly focused on engineering solutions as well as non-engineering which references to emergency, medical response, educational and enforcement services. LRSP is also necessary in order to obtain HSIP funding. • RS provided preliminary collision analysis findings based on collisions occurred within City local roads. RH stated 2% of reported collision were resulted in fetal or severe injury. 13% of severe injury collisions involved pedestrian and bicycle. Top 3 collisions for fatal or severe injury are broadside, and a tie among head-on, hit object and rear-end. Top 3 overall factors for fatal or severe injury were improper turning, automobile r/w, and unsafe speeding. **Project Outreach** • RH stated project website was live from March 15 to April 26. The website was advertised by City's social media team. Website received 101 comments provided by 80 stakeholders and 32 survey responses. 62% of the comments received were related to the driving. **Preliminary Collision Mapping Findings** • RH stated most high injury locations were identified and ranked based on the severity. The ranking system utilized were taken from Caltrans LRSM. • Top 10 ranked segments identified based on collision severity are Lone Hill Ave (Route 66 & Gladstone St), Gladstone St (Sunflower Ave & Lone Hill Ave), Grand Ave (Baseline Rd & Arrow Hwy), Sunflower Ave (Gladstone St & Arrow Hwy),	

Meeting Discussion Items:	Action Items
Route 66 (Glendora Ave & Loraine Ave), Gladstone St (Barranca Ave & Grand Ave), Barranca Ave (Baseline Rd & Gladstone St), Route 66 (Loraine Ave & Amelia Ave), and Foothill Blvd (Citrus Ave & Grand Ave) Gladstone St (Glendora Ave & Sunflower Ave). • Top 10 ranked intersections identified based on collision severity were Foothills/Barranca Ave, Gladstone ST/Barranca Ave, Lone Hill Ave/Gladstone Sr, Gladstone St/Sunflower Ave, Baseline Rd/Grand Ave, Fleetwood Ok/Grand Ave, Dawson Ave/Glendora Ave, Bennett Ave/Wabash Ave, Route 66/Barranca Ave, and Saratoga Ln/Amelia Ave. **Strategies/Countermeasures** • RH stated that after identifying locations with high ranking, the next step was to identify the solutions also known as countermeasures addressing safety issues. FHWA and Caltrans LRSM manual provides various countermeasures or strategies for signalized and unsignalized intersections and roadways. For example, unsignalized intersection locations with crashes during nighttime, LRSM suggest lighting treatment at the intersection can reduce 40% of related crashes with life expectancy of 20 years. Most of the listed countermeasures has 50 to 100% funding eligibility through HSIP grant. RH reiterated that LRSP is an important document to get HSIP funding. • RH stated the high injury intersections summarized based on ranking, Foothill Blvd/Barranca Ave intersection with highest ranking had 36 crashes with highest EPDO. It has mostly R/w violations related collisions which might be due to red light running. However, this intersection was upgraded in year 2020 to protected left-turn which reduced collisions drastically. GTS team field visited each location and observed what was causing collisions based on major collision factor. • Similarly high injury corridors were summarized based on EPDO score. GTS identified strategies that can help address the issues observed during the filed visit. For example, GTS identified some issue throughout the City in terms of signing and striping was that City was historically using ceramic	

Meeting Discussion Items:	Action Items
pavement markers for delineation of lanes. However, City is moving toward high visibility treatment. **Challenge Area** • RH stated that LRSP provides connection between SHSP to identify challenge/emphasis areas. Per the SHSP, the main challenge areas identified are active transportation, impaired driving, intersections, and speed management/aggressive driving which were present in the City of Glendora. **Systematic Improvements** • RH stated that when identifying challenge areas, the focus was on systematic improvements. For example, when identifying challenge area, the focus was not only on individual locations but to identify similar challenges on multiple locations. As identified in the previous meeting, there were trends observed throughout the City which were emphasized during the field observations and analysis. For example, there were high number of improper turning or r/w violations. During the field visit it was noticed that majority of intersections does not have protected left-turn. The improvements can be applied throughout the city. • There are locations where near school crosswalks can be treated with high visibility crosswalks throughout the city. There are many bicycle facilities in the City where signs are not visible. There facilities can be improved by better signage or by upgrading bike route to class II bike lanes. • RH stated that addressing systematic improvements are beneficial than addressing individual locations when applying for HSIP grants **Non-engineering Strategy:** • RH discussed non-engineering strategies including education, enforcement and emergency Reponses. RH stated that the continuing City's campaign including SRTS, bicycle collations can be beneficial in addressing safety concerns. • RH stated that considering large number of DUI, having DUI saturation patrols is very important.	

Meeting Discussion Items:	Action Items
• RH stated that evaluating EVPE at intersection can help with emergency response as well as improvements to road that can potentially shorten response time. **Open Discussion:** • DW asked in outreach page suggest taking out one lane with using a travel and is this was in a proposal and RH stated this is a public suggestion received at a location where right lane become travel lane as part of outreach and this is not a proposal or LRSP recommendation. • DW asked if Foothill Boulevard is a state route and RH stated that Foothill Boulevard is in City street classification and it is relinquished to the City some time ago. • TM was asked if City has some complete street projects in pipeline. Will you re-address LRSP once complete street projects will be build-out. Second question was since there is a list of high injury intersections provided will they be prioritized and will there be separate list of locations with pedestrian and cyclist. RH stated that this will be a live document and will be updated every 5 years. In regard to second question, yes the locations listed will be prioritized based on B/C ratio in order to be obtain HSIP grant successfully. • RH stated that data source was City of Glendora police department from Jan 2016 to Dec 2022. **Next Step:** • RH stated that the projects will be prioritized based on b/c ratio. GTS will prepare draft plan and submit to the City for review. Once review is completed, draft will be presented to City Council. After City Council approval, draft will be finalized and submitted to the City.	 GTS to submit draft report to the City.

Appendix B: Average Daily Traffic Counts

City of Glendora - 2017 Citywide Traffic Counts

ID	Street	From	To	ADT	Peak Hour	Peak Total	K-Factor	D-Factor
1	ADA AVE	GRAND AVE	VERMONT AVE	3,647	14:15	325	8.9%	55.3%
2	ADA AVE	VERMONT AVE	GLENDORA AVE	3,574	14:15	343	9.6%	58.6%
3	ADA AVE	GLENDORA AVE	CULLEN AVE	3,932	7:30	369	9.4%	63.0%
4	AMELIA AVE	COUNTRY CLUB	ROUTE 66	5,454	16:45	576	10.6%	51.7%
5	AMELIA AVE	DUELL ST	AUTO CENTRE DR	7,751	16:45	841	10.9%	55.5%
6	AMELIA AVE	FOOTHILL BLVD	COUNTRY CLUB	5,230	17:00	576	11.0%	58.6%
7	AMELIA AVE	ROUTE 66	DUELL ST	7,586	7:30	919	12.1%	56.2%
8	ARROW HWY	BARRANCA AVE	GRAND AVE	23,768	17:00	1792	7.5%	52.4%
9	ARROW HWY	BONNIE COVE AVE	SUNFLOWER AVE	25,637	7:15	1979	7.7%	52.3%
10	ARROW HWY	GLENDORA AVE	BONNIE COVE AVE	24,931	17:00	1964	7.9%	53.4%
11	ARROW HWY	GRAND AVE	GLENDORA AVE	23,887	16:45	1839	7.7%	52.2%
12	ARROW HWY	SUNFLOWER AVE	VALLEY CENTER AVE	27,407	7:15	2013	7.3%	50.6%
13	AUTO CENTRE DR	57 FWY	AMELIA AVE	12,699	16:30	1390	10.9%	58.3%
14	AUTO CENTRE DR	LONE HILL	57 FWY	23,652	7:45	1786	7.6%	51.8%
15	BARRANCA AVE	BASELINE RD	GLADSTONE ST	17,812	7:15	1519	8.5%	55.2%
16	BARRANCA AVE	BENNETT AVE	FOOTHILL BLVD	7,425	7:30	1083	14.6%	52.6%
17	BARRANCA AVE	FOOTHILL BLVD	ROUTE 66	11,057	7:30	1059	9.6%	50.0%
18	BARRANCA AVE	GLADSTONE ST	ARROW HWY	17,842	7:15	1508	8.5%	53.8%
19	BARRANCA AVE	LEADORA AVE	BENNETT AVE	5,237	7:30	616	11.8%	53.8%
20	BARRANCA AVE	MAUNA LOA AVE	BASELINE RD	16,314	17:00	1383	8.5%	50.2%
21	BARRANCA AVE	SIERRA MADRE AVE	LEADORA AVE	3,232	7:30	398	12.3%	54.2%
22	BARRANCA AVE	ROUTE 66	MAUNA LOA AVE	15,920	14:30	1362	8.6%	50.1%
23	BASELINE RD	BARRANCA AVE	GRAND AVE	8,172	7:15	802	9.8%	52.4%
24	BASELINE RD	DODSWORTH	GLENDORA AVE	13,617	7:45	1146	8.4%	61.4%
25	BASELINE RD	GRAND AVE	DODSWORTH	17,085	7:30	1515	8.9%	62.2%
26	BENNETT AVE	BARRANCA AVE	GRAND AVE	3,005	7:30	632	21.0%	50.2%
27	BENNETT AVE	CULLEN AVE	LIVE OAK AVE	3,660	14:15	441	12.0%	52.7%
28	BENNETT AVE	GLENDORA AVE	CULLEN AVE	4,670	14:15	506	10.8%	55.1%
29	BENNETT AVE	GRAND AVE	GLENDORA AVE	5,056	14:15	520	10.3%	55.5%
30	BENNETT AVE	LIVE OAK AVE	LORAINE AVE	5,496	14:15	695	12.6%	50.9%
31	BENNETT AVE	LORAINE AVE	E/O LORAINE AVE	434	7:45	46	10.6%	53.6%
32	BONNIE COVE AVE	GLADSTONE ST	JUANITA AVE	4,001	14:00	337	8.4%	52.7%
33	BONNIE COVE AVE	JUANITA AVE	ARROW HWY	5,166	16:30	451	8.7%	52.6%
34	BONNIE COVE AVE	GLADSTONE ST	N/O GLADSTONE ST	707	15:15	64	9.1%	50.5%
35	COMPROMISE LINE RD	VALLEY CENTER	ROUTE 66	3,843	7:30	555	14.4%	51.3%
36	CULLEN AVE	ADA AVE	FOOTHILL BLVD	2,046	15:30	199	9.7%	62.4%
37	CULLEN AVE	BENNETT AVE	LEADORA AVE	2,416	7:30	284	11.8%	54.6%
38	CULLEN AVE	FOOTHILL BLVD	BENNETT AVE	3,271	7:45	348	10.6%	51.1%
39	CULLEN AVE	LEADORA AVE	SIERRA MADRE AVE	1,165	14:00	137	11.8%	58.4%
40	ELWOOD AVE	ADA AVE	ROUTE 66	1,940	17:00	164	8.5%	53.6%
41	ELWOOD AVE	BENNETT AVE	FOOTHILL BLVD	1,166	17:00	109	9.3%	74.2%
42	ELWOOD AVE	FOOTHILL BLVD	ADA AVE	2,661	17:00	271	10.2%	59.9%
43	FOOTHILL BLVD	AMELIA AVE	CATARACT AVE	17,785	16:45	1824	10.3%	51.4%
44	FOOTHILL BLVD	BARRANCA AVE	GRAND AVE	12,510	7:30	1147	9.2%	52.2%
45	FOOTHILL BLVD	CITRUS AVE	BARRANCA AVE	12,529	7:30	1113	8.9%	53.0%
46	FOOTHILL BLVD	CULLEN AVE	ELWOOD AVE	9,792	7:45	922	9.4%	57.5%
47	FOOTHILL BLVD	ELWOOD AVE	LORAINE AVE	Segment under construction				
48	FOOTHILL BLVD	GLENDORA AVE	CULLEN AVE	11,982	17:00	1110	9.3%	50.3%
49	FOOTHILL BLVD	GRAND AVE	GLENDORA AVE	17,065	16:30	1435	8.4%	52.1%
50	FOOTHILL BLVD	LONE HILL	AMELIA AVE	5,029	17:00	532	10.6%	55.1%
51	FOOTHILL BLVD	LORAINE AVE	VALLEY CENTER AVE	12,383	7:45	1431	11.6%	52.1%
52	FOOTHILL BLVD	VALLEY CENTER AVE	LONE HILL AVE	14,687	7:30	1335	9.1%	52.2%

notes:

K-Factor: Proportion of ADT occuring in Peak Hour

D-Factor: Proportion of ADT occuring in heavier direction

City of Glendora - 2017 Citywide Traffic Counts

ID	Street	From	To	ADT	Peak Hour	Peak Total	K-Factor	D-Factor
53	GLADSTONE ST	BARRANCA AVE	GRAND AVE	14,864	6:15	1525	10.3%	53.8%
54	GLADSTONE ST	BONNIE COVE AVE	SUNFLOWER AVE	20,470	16:45	1772	8.7%	56.4%
55	GLADSTONE ST	GLENDORA AVE	BONNIE COVE AVE	20,316	16:45	1734	8.5%	56.9%
56	GLADSTONE ST	GRAND AVE	GLENDORA AVE	16,048	6:15	1367	8.5%	54.4%
57	GLADSTONE ST	SUNFLOWER AVE	VALLEY CENTER AVE	21,373	17:00	1783	8.3%	50.8%
58	GLADSTONE ST	VALLEY CENTER AVE	LONE HILL AVE	19,738	16:45	1698	8.6%	51.0%
59	GLENDORA AVE	BASELINE RD	GLADSTONE ST	18,046	17:00	1531	8.5%	55.6%
60	GLENDORA AVE	ADA AVE	ROUTE 66	15,603	16:30	1333	8.5%	52.6%
61	GLENDORA AVE	BENNETT AVE	FOOTHILL BLVD	5,702	14:30	509	8.9%	50.3%
62	GLENDORA AVE	FOOTHILL BLVD	ADA AVE	10,242	14:30	893	8.7%	52.8%
63	GLENDORA AVE	GLADSTONE ST	JUANITA AVE	13,444	7:30	1173	8.7%	51.3%
64	GLENDORA AVE	JUANITA AVE	ARROW HWY	13,123	17:00	1094	8.3%	51.2%
65	GLENDORA AVE	LEADORA AVE	BENNETT AVE	3,650	7:30	383	10.5%	54.0%
66	GLENDORA AVE	MAUNA LOA AVE	BASELINE RD	23,598	17:00	1943	8.2%	53.5%
67	GLENDORA AVE	ROUTE 66	MAUNA LOA AVE	20,359	17:00	1682	8.3%	55.0%
68	GLENDORA AVE	SIERRA MADRE AVE	LEADORA AVE	2,442	7:30	284	11.6%	55.0%
69	GLENDORA MOUNTAIN ROAD	SIERRA MADRE AVE	BIG DALTON CANYON RD	936	15:15	87	9.2%	50.4%
70	GLENDORA MARKETPLACE	LONE HILL	1ST STOP SIGN	10,778	12:30	978	9.1%	51.9%
71	GLENWOOD AVE	ROUTE 66	FOOTHILL BLVD	3,347	14:15	415	12.4%	68.4%
72	GRAND AVE	ADA AVE	ROUTE 66	21,782	14:30	1798	8.3%	50.2%
73	GRAND AVE	BASELINE RD	JUANITA AVE	25,736	16:45	1940	7.5%	51.6%
74	GRAND AVE	BENNETT AVE	FOOTHILL BLVD	13,015	14:15	1250	9.6%	55.2%
75	GRAND AVE	FOOTHILL BLVD	ADA AVE	17,945	14:15	1528	8.5%	50.6%
76	GRAND AVE	JUANITA AVE	ARROW HWY	23,056	16:30	1776	7.7%	51.3%
77	GRAND AVE	LEADORA AVE	BENNETT AVE	8,035	14:15	788	9.8%	51.1%
78	GRAND AVE	MAUNA LOA AVE	BASELINE RD	33,839	14:30	2439	7.2%	52.0%
79	GRAND AVE	ROUTE 66	MAUNA LOA AVE	31,434	14:30	2349	7.5%	51.5%
80	GRAND AVE	SIERRA MADRE AVE	LEADORA AVE	6,032	14:30	592	9.8%	52.4%
81	JUANITA AVE	BONNIE COVE AVE	SUNFLOWER AVE	2,341	7:15	243	10.4%	52.5%
82	JUANITA AVE	GLENDORA AVE	BONNIE COVE AVE	2,972	7:30	307	10.3%	52.5%
83	JUANITA AVE	GRAND AVE	GLENDORA AVE	2,398	7:30	216	9.0%	55.3%
84	JUANITA AVE	SUNFLOWER AVE	VALLEY CENTER AVE	1,862	16:30	173	9.3%	51.8%
85	LEADORA AVE	BARRANCA AVE	GRAND AVE	1,325	7:30	182	13.7%	51.6%
86	LEADORA AVE	CULLEN AVE	LIVE OAK AVE	1,350	7:30	180	13.3%	50.8%
87	LEADORA AVE	GLENDORA AVE	CULLEN AVE	1,413	7:30	170	12.0%	53.3%
88	LEADORA AVE	GRAND AVE	GLENDORA AVE	1,475	7:30	188	12.7%	50.8%
89	LEADORA AVE	LIVE OAK AVE	LORAINE AVE	1,538	7:30	181	11.8%	53.5%
90	LEADORA AVE	LORAINE AVE	VALLEY CENTER AVE	552	13:45	167	30.2%	52.2%
91	LEADORA AVE	YUCCA RIDGE	BARRANCA AVE	495	7:30	53	10.7%	51.7%
92	LIVE OAK AVE	BENNETT AVE	LEADORA AVE	1,901	14:15	205	10.8%	52.7%
93	LIVE OAK AVE	FOOTHILL BLVD	BENNETT AVE	1,987	16:00	183	9.2%	52.3%
94	LIVE OAK AVE	LEADORA AVE	SIERRA MADRE AVE	1,429	7:30	183	12.8%	55.2%
95	LIVE OAK AVE	SIERRA MADRE AVE	PALM AVE	1,569	8:00	150	9.5%	51.0%
96	LONE HILL AVE	AUTO CENTRE DR	GLADSTONE ST	34,709	12:30	2769	8.0%	52.3%
97	LONE HILL AVE	FOOTHILL BLVD	PALOPINTO AVE	11,542	7:45	917	7.9%	51.2%
98	LONE HILL AVE	PALOPINTO AVE	ROUTE 66	14,629	7:30	1360	9.3%	53.0%
99	LONE HILL AVE	PETUNIA AVE	AUTO CENTRE DR	38,920	16:45	2735	7.0%	53.0%
100	LONE HILL AVE	ROUTE 66	PETUNIA AVE	33,901	17:15	2572	7.6%	50.8%
101	LORAINE AVE	BENNETT AVE	FOOTHILL BLVD	8,596	7:30	1067	12.4%	55.6%
102	LORAINE AVE	FOOTHILL BLVD	STEFFEN AVE	7,590	7:30	926	12.2%	53.9%
103	LORAINE AVE	LEADORA AVE	BENNETT AVE	5,445	7:30	686	12.6%	51.4%
104	LORAINE AVE	PALM AVE	SIERRA MADRE AVE	1,815	7:45	251	13.8%	53.5%
105	LORAINE AVE	SIERRA MADRE AVE	LEADORA AVE	3,177	7:30	507	15.9%	50.6%
106	LORAINE AVE	STEFFEN AVE	ROUTE 66	9,636	7:30	1042	10.8%	50.7%

notes:
K-Factor: Proportion of ADT occuring in Peak Hour
D-Factor: Proportion of ADT occuring in heavier direction

City of Glendora - 2017 Citywide Traffic Counts

ID	Street	From	To	ADT	Peak Hour	Peak Total	K-Factor	D-Factor
107	MAUNA LOA AVE	BARRANCA AVE	GRAND AVE	3,723	7:30	431	11.6%	52.5%
108	MAUNA LOA AVE	GRAND AVE	GLENDORA AVE	3,879	7:45	470	12.1%	54.3%
109	MAUNA LOA AVE	E/O GLENDORA		2,329	7:45	224	9.6%	50.2%
110	PALM AVE	LIVE OAK AVE	LORAINE AVE	1,415	7:45	160	11.3%	51.8%
111	PASADENA AVE	ADA AVE	ROUTE 66	1,605	14:15	176	11.0%	62.1%
112	PASADENA AVE	S/O ROUTE 66		2,111	7:45	223	10.6%	54.3%
113	ROUTE 66	BARRANCA AVE	GRAND AVE	23,800	16:45	1758	7.4%	52.7%
114	ROUTE 66	COMPROMISE LINE RD	LONE HILL AVE	32,092	7:30	2620	8.2%	50.7%
115	ROUTE 66	ELWOOD AVE	LORAINE AVE	28,454	7:45	2340	8.2%	51.0%
116	ROUTE 66	GLENDORA AVE	PASADENA AVE	29,636	14:45	2294	7.7%	52.2%
117	ROUTE 66	GRAND AVE	VERMONT AVE	24,352	14:30	1829	7.5%	54.2%
118	ROUTE 66	LONE HILL AVE	AMELIA AVE	18,647	16:45	1809	9.7%	50.2%
119	ROUTE 66	LORAINE AVE	COMPROMISE LINE RD	30,252	7:30	2600	8.6%	50.9%
120	ROUTE 66	PASADENA AVE	ELWOOD AVE	28,150	7:45	2299	8.2%	51.8%
121	ROUTE 66	VERMONT AVE	GLENDORA AVE	23,381	14:45	1755	7.5%	54.1%
122	SIERRA MADRE AVE	BARRANCA AVE	GRAND AVE	7,840	7:00	872	11.1%	51.5%
123	SIERRA MADRE AVE	CULLEN AVE	LIVE OAK AVE	6,608	7:30	660	10.0%	50.1%
124	SIERRA MADRE AVE	GLENDORA AVE	CULLEN AVE	5,500	7:30	550	10.0%	60.8%
125	SIERRA MADRE AVE	GRAND AVE	GLENDORA AVE	7,179	7:15	747	10.4%	50.6%
126	SIERRA MADRE AVE	LIVE OAK AVE	LORAINE AVE	5,605	7:30	615	11.0%	52.4%
127	SIERRA MADRE AVE	LORAINE AVE	VALLEY CENTER AVE	5,582	7:30	595	10.7%	51.1%
128	SIERRA MADRE AVE	YUCCA RIDGE	BARRANCA AVE	7,707	7:30	776	10.1%	50.3%
129	SUNFLOWER AVE	ARROW HWY	JUANITA AVE	14,708	7:30	1182	8.0%	56.3%
130	SUNFLOWER AVE	GLADSTONE ST	210 FREEWAY	18,902	7:15	1587	8.4%	57.2%
131	SUNFLOWER AVE	JUANITA AVE	GLADSTONE ST	14,618	7:30	1145	7.8%	56.0%
132	VALLEY CENTER AVE	ALLEN AVE	GLADSTONE ST	560	19:00	57	10.2%	51.5%
133	VALLEY CENTER AVE	COMPROMISE LINE RD	PALOPINTO AVE	2,991	7:45	391	13.1%	51.3%
134	VALLEY CENTER AVE	FOOTHILL BLVD	SIERRA MADRE AVE	6,454	7:30	654	10.1%	50.9%
135	VALLEY CENTER AVE	GLADSTONE ST	JUANITA AVE	5,880	16:30	525	8.9%	57.2%
136	VALLEY CENTER AVE	JUANITA AVE	ARROW HWY	7,358	17:00	662	9.0%	56.3%
137	VALLEY CENTER AVE	PALOPINTO AVE	FOOTHILL BLVD	4,645	7:45	581	12.5%	54.9%
138	VERMONT AVE	FOOTHILL BLVD	NORTH ADA	4,120	14:15	392	9.5%	53.8%
139	VERMONT AVE	MEDA AVE	FOOTHILL BLVD	2,473	7:30	284	11.5%	51.5%
140	VERMONT AVE	NORTH ADA	ROUTE 66	3,803	14:30	349	9.2%	53.1%
141	VERMONT AVE	ROUTE 66	COLORADO AVE	1,244	14:15	123	9.9%	60.7%

notes:
K-Factor: Proportion of ADT occuring in Peak Hour
D-Factor: Proportion of ADT occuring in heavier direction