City of Escondido Local Roadway Safety Plan (Amended for SS4A)

Prepared for:

City of Escondido

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1. Executive Summary

The City of Escondido (City) has prepared a Local Roadway Safety Plan (LRSP) in accordance with CALTRANS LRSP Guidelines to identify, analyze and prioritize roadway safety improvements on the local streets within the City. This LRSP identifies the top systemic crash patterns and top crash locations throughout the City, based on crash data collected from January 2016 through December 2020. The LRSP also provides the City a toolbox of countermeasures to address the systemic crash patterns and reduce crashes at the City's top crash locations. In this LRSP, a total of ten (10) projects have been identified for HSIP grant funding. The combination of countermeasures that were selected for each project and location was selected to provide the most competitive applications for HSIP grant funding. Applications to receive HSIP funding for projects identified in this LRSP will need to be submitted in April 2022.

The purpose of this LRSP is to:

- Analyze crash data over a five-year period (January 2016 to December 2020);
- Identify the top crash patterns and locations throughout the City;
- Recommended safety countermeasures at intersections and roadway segments;
- Provide cost estimates of recommended improvements;
- Prioritize projects based on cost-benefit ratios and effectiveness of safety improvements; and
- Develop strategies for safety project implementation.

Goals associated with this LRSP include:

- Reduce the number of fatalities and severity of crashes throughout the City;
- Reduce excessive speeding behavior contributing to crashes;
- Implement proven safety solutions to reduce fatal and severe injury crashes;
- Re-evaluate crash trends and associated countermeasures periodically to determine the effectiveness of the improvements.

2. Introduction

The City prepared this LRSP to identify, analyze and prioritize roadway safety improvements on the local streets throughout the City. This LRSP identifies the top systemic crash patterns and top crash locations throughout the City, based on crash data collected from January 2016 through December 2020. The LRSP also provides the City a toolbox of countermeasures to address the systemic crash patterns and reduce crashes at the City's top crash locations. The City is committed to improving transportation safety to reduce the risk of death and serious injury that results from incidents on the transportation system. As part of an ongoing effort to improve safety, this LRSP was developed in collaboration with City staff, partner agencies, and organizations.

In 2016, California established the Systematic Safety Analysis Report Program (SSARP) in response to a growing need to address transportation safety at a citywide level. The objective of the SSAR program was to identify low-cost, systemic countermeasures that could be incorporated into an overall master plan of improvements that could be funded through local and grant funding, specifically the Highway Safety Improvement (HSIP) grant program. In 2020, the SSARP process was amended and renamed LRSP. Under this program, LRSP's are required for HSIP grant funding applications in Year 2022. The City of Escondido received a grant from the state of California to prepare a LRSP. This LRSP report was prepared in compliance with the State and Federal guidelines for eligibility to apply for HSIP funding and provides the necessary data to support current and future applications for the recommended projects identified in this LRSP.

The City strives to improve safety measures on the roadway network per the City's General Plan Street Network Policy 7.4 *"Provide adequate traffic safety measures on all new roadways and stripe to provide adequate traffic safety measures on existing roadways (subject to fiscal and environmental considerations). These measures may include, but are not limited to, appropriate levels of maintenance, proper street design, traffic control devices (signs, signals, striping), street lighting, and coordination with the school districts and other agencies."*

Source: Escondido Business Insight

3. Vision & Goals

3.1. Vision

The vision of this LRSP is to advance road safety throughout the City by reducing fatal and serious injuries while improving the lives of all roadway users. The goal is to reduce traffic deaths and severe injuries through a proactive, preventative approach that prioritizes traffic safety.

VISION STATEMENT:

To advance road safety throughout the City by reducing fatal and serious injuries while improving the lives of all roadway users.

3.2. Goals

The vision stated above to "*Advance road safety throughout the City by reducing fatal and serious injuries while improving the lives of all roadway users"* begins with setting clear and achievable goals, which include:

Goal #1: Reduce the number of fatal crashes to 50% by Year 2050.

Goal #2: Reduce excessive speeding behavior leading to the City's primary contributing factor in traffic crashes.

Goal #3: Implement proven safety solutions systemically to reduce fatal and severe injury crashes.

Goal #4: Re-evaluate crash trends and associated countermeasures in the LRSP a minimum of every 5 years and engage with the community, stakeholders and City management.

4. Safety Partners

Safety partners, also referred to as Stakeholders, are those departments, agencies, organizations and public partners whose input and support are foundational to a successful LRSP. Stakeholders involved in this LRSP included decision makers and partners who can help plan, implement, evaluate and encourage the progress of achieving the safety goals outlined in this LRSP. As shown in **Table 1**, the following Partner Organization Stakeholders, who represent their public constituents were engaged and participated in the development of the countermeasures and safety projects for this LRSP:

Table 1: List of Stakeholders & Involvement

Stakeholder	Involvement / Role
Police Department	Provided valuable input on the crash trends and helped identify emphasis areas that could reduce the need for enforcement and improve safety.
Fire Department	Participated in the Stakeholder meetings and provided feedback on the crash data.
Engineering Department	Assisted in the review of the crash analysis, helped identify countermeasures, and prioritized study locations for HSIP funding.
City Attorney	Participated in the Stakeholder meetings and reviewed the crash data and countermeasures evaluated in the LRSP.
Recreation Department	Provided feedback on the crash data and countermeasures related to pedestrian and bicycle safety concerns near local parks.
Information Systems (GIS) Department	Coordinated on the GIS database information needed to create the crash maps used in the LRSP.
Escondido Union High School District	Participated in the Stakeholder meetings providing input on the transportation safety issues at specific locations near high schools.
Escondido Union School District	Participated in the Stakeholder meetings providing input on the transportation safety issues at locations near elementary schools.
North County Transit District (NCTD)	Helped identify pedestrian safety concerns near transit stops and along bus routes.
Metropolitan Transit System (MTS)	Helped identify pedestrian safety concerns near transit stops and along bus routes.
CALTRANS – District 11	Responsible for providing funding for the LRSP effort and reviewing the LRSP Report and HSIP Grant Applications.
Escondido Education COMPACT	Participated in the Stakeholder meetings and provided feedback on the crash data and helped identify appropriate countermeasures.

4.1. First Stakeholder Meeting

On Tuesday, August 31, 2021, the first stakeholder meeting was conducted for the LRSP. The purpose of the stakeholder meeting was to confirm the crash data findings, discuss hot spot locations, and obtain input from the participants on their experiences and knowledge of the area in terms of traffic safety concerns. Representatives from the following City Departments and organizations participated in the stakeholder meeting:

- City of Escondido – Engineering Department
- City of Escondido – Police/Traffic Division
- City of Escondido – City Attorney
- City of Escondido – Recreation Department
- City of Escondido – Information Division (GIS)
- Escondido Union High School District (EUHSD)
- Escondido Union School District (Elementary)
- North County Transit District (NCTD)
- Caltrans – District 11
- Escondido Education COMPACT
- Michael Baker International (consultant)

At the stakeholder meeting, an overview of the LRSP process and goals was presented. Findings of the crash analysis were then presented and discussed. Intersection and mid-block roadway segment hot spot locations were identified based on the highest number of crashes and potential costs associated with each crash type and location.

Participants were encouraged to provide input on the crash data and hot spot locations presented. Examples of this input include: The Escondido Police Department provided input on how the pedestrian and bicycle-involved crashes are reported. For example, if school-aged children are riding scooters or skateboards and crash into a vehicle, it's reported by the officer as a pedestrian-involved crash. The Police Department mentioned that Washington Avenue from Broadway to Ash Street is a corridor where a high volume of incidents have been reported. The School District commented that motorists use the center two-way-left-turn lane (TWLTL) on Mission Avenue to bypass vehicles blocking the travel lane while waiting to pick-up or drop-off their children at Mission Middle School. It was also stated that Mission Middle School, Pioneer Elementary School, Juniper Elementary School and LR Green Elementary School experience pedestrian crossing hazards, speeding, illegal turning movements, and aggressive driving near these schools and along the school frontage. These concerns were reviewed and appropriate countermeasures were applied to the extent feasible to address these safety concerns.

4.2. Second Stakeholder Meeting

On Tuesday, November 16, 2021, the second stakeholder meeting was conducted for the LRSP. The purpose of the second stakeholder meeting was to present the proposed countermeasures for the top 35 intersections and 10 segments that have the highest volume of crashes reported and gain feedback from the safety partners. Representatives from the following City Departments and organizations participated in the stakeholder meeting:

- City of Escondido – Engineering Department
- City of Escondido – Police/Traffic Division
- City of Escondido – City Attorney
- City of Escondido – Recreation Department
- City of Escondido – Information Division (GIS)
- Escondido Union High School District (EUHSD)
- City of Escondido – Fire Department
- Escondido Union School District (Elementary)
- North County Transit District (NCTD)
- Escondido Education COMPACT (disadvantaged youth support organization)
- Michael Baker International (consultant)

The School District and Escondido Education COMPACT provided feedback on the countermeasures that related to pedestrian safety, such as the refuge islands, marked crosswalks at uncontrolled intersections, and the

installation of Rectangular Rapid Flashing Beacons (RRFBs). Pedestrian and bicycle-related countermeasures were recommended at locations near schools, parks and locations where pedestrian-involved crashes have occurred.

4.3. Transportation and Community Safety Commission Review

The Transportation and Community Safety Commission (TCSC) is an advisory body to the City Council, the Director of Engineering Services, the Traffic Engineer and the Police Traffic Division. The TCSC reviews traffic matters and provides recommendations related to pedestrian safety, roadway improvements, enforcement of traffic regulations, and student safety round school site. The TCSC reviewed the crash data reported in the LRSP on November 7, 2021. The Final LRSP was presented to TCSC in February 2022 for review and approval. Projects were prioritized for funding through the Highway Safety Improvement Program (HSIP) managed by Caltrans. Applications to receive HSIP Cycle 11 funding for projects identified in the LRSP will be submitted in September 2022.

4.4. Roadway Safety Public Forum Outreach

In addition to the stakeholder organization meetings, additional outreach efforts throughout the process shared the City's traffic safety efforts with the public:

- Washington Park Traffic Safety Public Forum (November 2021)
- Transportation Safety Workshop - Council Chambers – (November 2021)
- Ongoing efforts and opportunities for public input:
    - Council meetings (ongoing)
    - Transportation and Community Safety Commission meetings – public forum
    - Office of Traffic Safety (OTS) funded Police Department Bicycle and Pedestrian Safety education
    - OTS Selective Traffic Enforcement
    - Walk Audits
    - Safe Routes to School Education efforts,
    - Social media
    - Report-It! mobile app
    - LRSP online
    - Service requests – calls, email, social media, in person inquiries at City Hall – these range from red curb requests, reporting traffic signal issues, to requests for pedestrian crossing improvements, such as ADA accommodations, school crossings, park crossings, etc.

4.5. Upcoming Outreach Opportunities

In late 2022, the City will be launching a Comprehensive Active Transportation Strategy (CATS). This effort will examine transportation options citywide to reduce barriers to mobility options and seek opportunities for improvements. This effort will include significant outreach for public input, and will include extensive use of social media venues to gather perspectives of how people want to and need to travel throughout the City. Travel equity will be a focus, looking at travel needs according to various equity assessments (income, age, ability, opportunity, etc.). The effort will be combined with a comprehensive evaluation of the City's 350 mile roadway network, with a focus on opportunities to 'right-size' the City's streets. Ultimately, the plan is to produce a Comprehensive Active Transportation Strategy, but also an updated Circulation Element, with an emphasis on both vehicular as well as multi-modal travel opportunities.

The CATS will evaluate how 'vulnerable users' travel, their origin-destinations, and how the city transportation network can improve to meet their needs.

5. Process

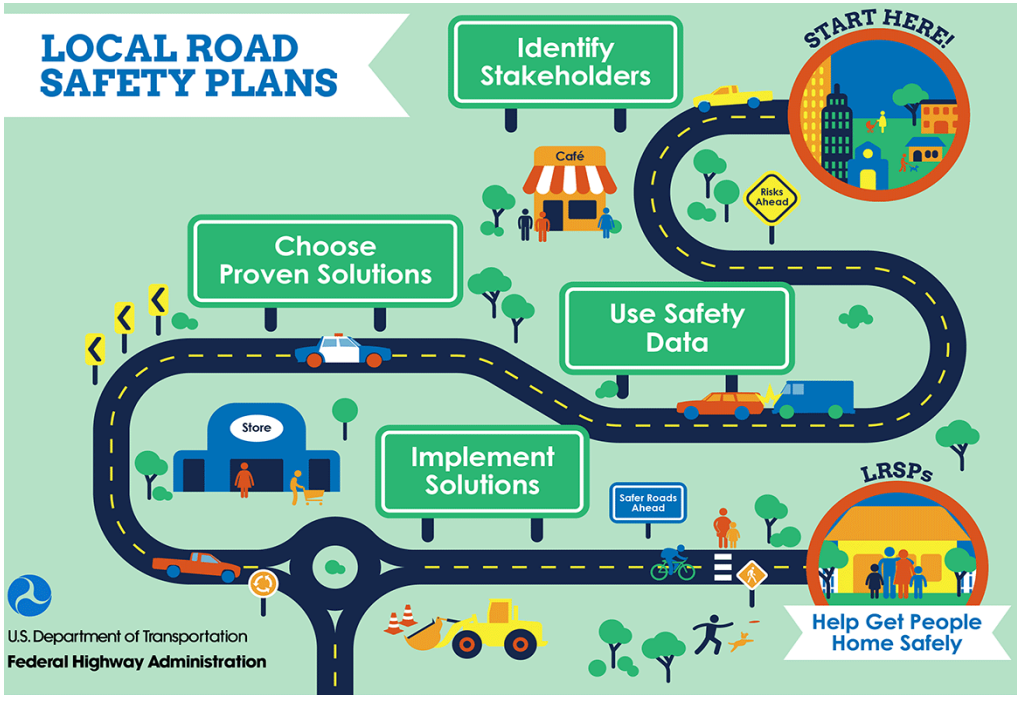
An LRSP provides a framework for identifying, analyzing, and prioritizing roadway safety improvements on local roads. The LRSP development process follows a well-defined process laid out by Caltrans in the Local Roads Safety Manual, but the content is tailored to the issues and needs on the roadway network within the City of Escondido. The process results in a prioritized list of issues, risks, actions, and proven countermeasures that can be used to reduce fatalities and serious injuries on local roads. The development of this LRSP involved the following process:

STEP #1 – IDENTIFY STAKEHOLDERS
Identified Stakeholders to provide input and feedback on the safety plan.

STEP #2 – ANALYZE CRASH DATA
Obtained crash data from Crossroads and evaluated to most common crash types and causes in the City. The top 35 intersections and top 10 roadway segments were identified and then ranked by crash cost.

STEP #3 – IDENTIFY COUNTERMEASURES
Based on the crash trends and data for each of the top crash locations, appropriate countermeasures were selected to address safety concerns.

STEP #4 – IMPLEMENT SOLUTIONS
Submit for HSIP and other grant program funding. Once funding is secured, construct and monitor crash history with improvements. Regularly monitor Implementation Plan and update LRSP every 5 years.



Source: Federal Highway Administration (FHWA)

6. City Policies and Transportation Projects

Prior to the development of this LRSP, the City addressed transportation safety through a number of previous and existing plans, projects and programs that are discussed in this section.

6.1. City of Escondido General Plan

The City's General Plan was adopted May 23, 2012 and presents strategies to address existing and future roadway and transportation safety conditions in the City to promote growth and improve the quality of life in Escondido. Its Mobility and Infrastructure Element (Chapter III) includes policies and recommendations related to transportation safety. The following goals and policies currently promote equitable transportation safety throughout the City:

Regional Transportation Planning Goal #1 – Provide an accessible, safe, convenient, and integrated multi-modal network that connects all users and moves goods and people within the community and region efficiently.

Complete Streets Policy 2.1 – Ensure that the existing and future transportation system is inter-connected and serves multiple modes of travel, such as walking, biking, transit, and driving for safe and convenient travel.

Complete Streets Policy 2.2 – Provide a safe, efficient and accessible transportation network that meets the needs of users of all ages including seniors, children, disabled persons, and adults.

Pedestrian Network Policy 3.3 – Maintain a pedestrian environment that is accessible to all and that is safe, attractive, and encourages walking.

Pedestrian Network Policy 3.8 – Repair sidewalk and pedestrian paths in the public-right-of-way that impede pedestrian travel and maintain the pedestrian network in a manner that facilitates accessibility and safety.

Pedestrian Network Policy 3.9 – Support "safe routes to schools" programming and partner with schools, non-profit organizations, and transit agencies with the goal of encouraging more children to walk and bike to school in a safe environment.

Bicycle Network Policy 4.1 – Maintain and implement a Bicycle Master Plan that enhances existing bicycle routes and facilities; defines gaps and needed improvements; prescribes an appropriate Level of Service; outlines standards for their design and safety; describes funding resources; and involves the community.

Street Network Policy 7.4 – Provide adequate traffic safety measures on all new roadways and strive to provide adequate traffic safety measures on existing roadways (subject to fiscal and environmental considerations). These measures may include, but not be limited to, appropriate levels of maintenance, proper street design, traffic control devices (signs, signals, striping), street lighting, and coordination with the school districts and other agencies.

Traffic Calming Policy 9.1 – Reduce congestion in areas surrounding schools, parks, and other activity centers by applying effective traffic management solutions.

In addition to the policies listed in the General Plan, the City is examining opportunities to update longstanding Traffic Engineering Policies, such as speed limits, crosswalk warrants, median openings, etc.

6.2. City of Escondido Bicycle Master Plan

The City's 2012 Bicycle Master Plan developed a plan for an interconnected network of on- and off-street bicycle facilities that serve all of Escondido's neighborhoods, and provides connections to transit centers, shopping

districts, parks and other local amenities. The goal of the plan is to maximize the efficiencies offered by multi-modal connections between mass transit and bikeways, and to promote a viable alternative to automobile travel in a climate particularly conducive to bicycle transportation. The Bicycle Master Plan should be updated periodically in efforts to obtain future funding for non-motorized projects and support active transportation throughout the City. The three key objectives of the Bicycle Master Plan include:

1) to evaluate the existing bicycle network in the City and identify gaps, deficiencies and bicyclists needs;

2) to establish goals, objectives and policies that are consistent with and expand upon the City's General Plan's Mobility and Infrastructure Element; and

3) to develop a feasible bikeway plan with proposed projects that will provide safe, efficient and convenient bicycle travel in Escondido and to provide connection to regional destinations.

6.3. Previous HSIP & ATP Funded Projects

The City successfully applied for and received HSIP grant funding for safety improvements from Cycles 5, 6 and 9. In addition, the City successfully applied for and received grant funding through the Active Transportation Program (ATP). A list of HSIP and ATP funded projects that have recently been completed or are currently in design are listed in **Table 2**.

Table 2: Recent Traffic Safety Improvements

Project Location	Year	Project Description	Status
East Valley Pkwy – Beven Dr to Northern City Limits	HSIP Cycle 5 2014	Install sidewalk/pathway; add lighting; and improve signal hardware	Completed
El Norte Pkwy / Fig St	HSIP Cycle 6 2013	Install new traffic signal	Completed
Valley Pkwy / Date St	HSIP Cycle 6 2013	Install new traffic signal	Completed
Bear Valley Pkwy / Mary Lane	HSIP Cycle 7 2015	Signal modification to provide protected left-turn phasing	In Design
Felicita Ave / Juniper St and Felicita Ave / Escondido Blvd	HSIP 8 2016	Signal modification to provide protected left-turn phasing	In Design
Juniper St Safe Routes To School	ATP 2017	Widen Juniper St from Felicita Ave to Nutmeg, add missing sidewalk, add bike lanes etc.	In Design
Quince/Tulip Creek Crossings	ATP 2017	Install new traffic signal at Tulip, Convert RRFB into signal at Quince St	In Construction
Creek Trail Crossings	ATP 2016	Improvements to 7 St crossings from Juniper St to Citrus Ave	In Construction

Project Location	Year	Project Description	Status
Missing Link Bikeway	ATP 2014	Bikeway / Cycle-track along Valley Pkwy from Quince St to Broadway/Woodward	Complete
Transit Center Pedestrian Bridge	2016	Widen bridge and extend sidewalk west from Transit Center	Complete
El Norte Pedestrian Signal	ATP 2015	Escondido Creek Trail crossing of East El Norte Pkwy	Complete
Traffic Signal Communication Upgrades	HSIP Cycle 9 2020	Install traffic signal interconnect system to allow for improved safety operations and optimized signal coordination.	In Design

6.4. Traffic Management Project List

Transportation and Community Safety Commission (TCSC) approved a policy to evaluate and prioritize proposed projects using a Traffic Management Project List (TMPL) on January 9, 2014. As stated in the policy, a list of projects needs to be evaluated by staff and presented to TCSC for consideration each year. The TCSC provides direction to staff as to which projects should be selected for further evaluation and design. A scoring system has been developed to evaluate and prioritize projects. Project are assigned points based on the road condition, road usage, anticipated effectiveness of the solution, and problem severity. Projects with the higher total accumulated points have a higher priority on the TMPL. The 2021/2022 TMPL includes six (6) different projects citywide including:

1.) Mission Middle School Mid-Block Crosswalk Improvements – Score of 19 Points
2.) Crosswalk Improvements at Oak Hill Elementary School Frontage – Score of 18 Points
3.) North Broadway Elementary School Improvements – Score of 18 Points
4.) Crosswalk Improvements at Hidden Valley Middle School Frontage – Score of 17 Points
5.) Felicita Road Mid-Block Crosswalk Improvements – Score of 15 Points
6.) Crosswalk Improvements at Tulip Street and 15th Avenue (Felicita Elementary School) – Score of 14 Points

The top four (4) priority projects with the highest scores were recommended by City staff and approved by TCSC on April 8, 2021 for further assessment and detailed design considering an estimated $50,000 budget.

6.5. Traffic Engineering Hotline

Residents can contact the City with any traffic related questions or concerns through the City's website, via email, via phone, or in-person at City Hall. The preferred option is for the public to use the *Report It!* App to report an issue. Each request is reviewed, evaluated and a response will be provided to everyone. If improvements or action is required, staff will prepare a work order or forward the request to other departments (such as public works or code enforcement or Police Department) for action. Critical actions will be prioritized. Several funding sources will be considered based on the types of actions required for location. For example, request may lead to location being evaluated and placed on signal priority list, or TMPL. Actions may include red-curbing or striping changes or additional signage.

6.6. Current Transportation Projects

In addition to the previous traffic-safety related projects listed in the previous section, the City is currently moving forward with other transportation improvement projects to improve safety, refer to **Table 3**.

Table 3: List of Current City Transportation Projects

Project Location	Funding	Project Description	Status
Bear Valley Pkwy / Mary Lane	HSIP	Signal modification to provide protected left-turn phasing in east-west approach.	In Design
Juniper St / Felicita Ave	HSIP	Signal modification to provide protected left-turn phasing at all approaches.	In Design
Escondido Blvd / Felicita Ave	HSIP	Signal modification to provide protected left-turn phasing in north-south approaches.	In Design
El Norte Pkwy / Nutmeg St	Developer	Signal modification	Under Construction
Country Club Lane / Gary Lane	Developer	Install new traffic signal	Under Construction
Country Club Lane / Nutmeg St	Developer	Install new traffic signal	Under Construction
Country Club Lane / Golden Circle Dr	Developer	Install new one-lane roundabout	Under Construction
Escondido Creek Trail (between Juniper St and Citrus Ave)	ATP	Install six (6) Rectangular Rapid Flashing Beacons (RRFB) and one (1) pedestrian signal along the trail.	Under Construction
Country Club Lane / Firestone Dr	Developer	Install one (1) new RRFB	In Design
Rock Springs Road / Lincoln Ave	Developer	Install new traffic signal	In Design
Rock Springs Road / Mission Ave	Developer	Signal Modification	In Design
Escondido Creek Crossing at Quince St & Tulip St	ATP	Install Pedestrian Signals	Under Construction
Felicita Ave / Park Dr	Developer	Install Roundabout	In Design
Barham Dr at Meyers Ave	Developer	Install new traffic signal	In Design
Grand Ave Streetscape Improvements	City of Escondido	Street narrowing, streetscape improvements, and traffic circles	Under Construction
Palomar Heights Mixed-Use Development	Developer	Install new traffic signal at Valley Pkwy / Ivy St and modify 3 existing signals at Valley Pkwy / Valley Blvd, Valley Pkwy / Grand Ave, and Grand Ave / Fig St.	In Design

7. Crash Data Summary

The initial step in the development of the LRSP was to conduct crash data research and database development. Crash data was provided by the City for a five-year period from January 1, 2016 to December 31, 2020. Data from both the Statewide Integrated Traffic Records System (SWITRS) and the City's local Crossroads database was vetted, but the Crossroad data was determined to be more complete, with no date gaps or issues with geo-locations. During this 5-year period, a total of 4,332 crashes were reported along local roadways and along the state-owned Highway 78 surface streets, which includes Broadway from Lincoln Avenue to Washington Avenue, Washington Avenue from Broadway to Ash Street, Ash Street from Washington Avenue to Grand Avenue, San Pasqual Valley Road between Grand Avenue and City Limits south of Oak Hill Drive. Roughly 6% (or 266) of citywide crashes occurred along the Highway 78 route through the City.

The crash analysis focused on crashes that occur on public roadways and intersections within the City's right-of-way. Crashes not considered in this analysis were those that occur on non-public rights-of-way, such as private roads or private drives, within parking lots or parking garages, or within shopping centers. Crashes that are recorded as property damage may include, but are not limited to, damage to telephone poles, fences, street signs, signal poles or equipment, guard posts, trees, livestock, dogs, etc.

Interstate 15 is a major north-south state highway that cuts through the City of Escondido. Crashes recorded on Interstate 15 were not included or evaluated in this report since the HSIP funding is designated to "local" roadways rather than major state highways. Highway 78 is a major east-west state highway that traverses through the City of Escondido. Crashes on Highway 78 that traverses through the City Limits were included in the overall volume of crashes reported in this document, and in various sets of analyses. However, the Caltrans intersections and roadway segments along the Highway 78 route were not included in the final list of top 30 intersections and top 10 segments since HSIP funding will not be pursued for Caltrans' locations.

7.1. General Findings

7.1.1. Crashes by Year

The number of fatal crashes, injury crashes, property damage only crashes, total fatalities, and total injuries for the five-year analysis period are highlighted in **Table 4**, including the averages over the analysis period.

As shown, there was a clear reduction in reported crashes during the year 2020. This decline in reported crashes is likely a direct result of the novel coronavirus state-mandated stay-at-home orders beginning March 2020 and continuing through June 2021, and the reduction of overall travel that subsequently occurred. The San Diego Association of Governments (SANDAG) reported a 44% reduction of vehicle-miles-traveled on freeways, a 41% reduction of daily traffic volumes on local roadways, and traffic speed increase of 30 MPH during peak periods, between mid-March and mid-April 2020, compared to 2019. As of May 2021, countywide traffic continues to be 10% below pre-pandemic levels.[1]

[1] https://www.nbcsandiego.com/news/local/how-the-pandemic-changed-san-diego-traffic/2641180/

Table 4: Reported Number of Crashes by Year and Injury Type

Category	Year					Total	Average Per Year
	2016	2017	2018	2019	2020		
Fatal Crashes	8	8	4	7	6	33	7
Severe Injury Crashes	21	13	18	21	22	95	19
Other Visible Injury Crashes	237	251	244	270	196	1,198	240
Complaint of Pain Crashes	376	419	423	344	316	1,878	376
Property Damage Only Crashes	192	212	217	257	250	1,128	226
Total Crashes	*838*	*903*	*906*	*899*	*790*	*4,332*	*867*
Total Fatalities	9	9	5	8	9	40	8
Total Injuries	968	1,012	964	948	792	4,684	937

Figure 1 illustrates an overall view of the concentration of crashes during the five-year time period at intersections. All crashes were mapped using Geographic Information Systems (GIS) based on the Crossroads database. Intersection crashes identified in this report include crashes that occurred at the intersection and crashes that occurred within 125 feet of that intersection. For purposes of this crash analysis, we assumed that crashes occurring within 125 feet of the intersection are most likely related to vehicles stopped at the intersection waiting for the signal to turn green or making a turn movement.

Figure 2 illustrates an overall view of the mid-block crashes throughout the City during the five-year time period. Crashes that occurred mid-block (outside of the 125-foot radius of an intersection) were mapped within the limits of a roadway segment.

The top 10 intersections with the highest concentration of crashes are presented in **Table 5** and the top 10 roadway segments with the highest concentration of mid-block crashes are listed in **Table 6**.

According to the 2018 data from Caltrans, the City ranked 8th highest for alcohol involved crashes, 9th highest for fatal and injury crashes, 12th highest for pedestrian involved crashes, and 15th highest for speed related crashes when compared to 59 similar sized cities within California. The City is ranked 5th out of 59 similar cities for DUI arrests. Total traffic citations issued within the City decreased from 7,415 in 2019 to 4,175 in 2020. This decrease is primarily due to the Coronavirus Pandemic where less drivers were on the road. The lower volume of traffic citations seems to correlate to the lower volume of crashes as there is a decrease in total crashes in 2020 (790 crashes) compared to 2019 (899 crashes).

Figure 1: Citywide Intersection Crash Map

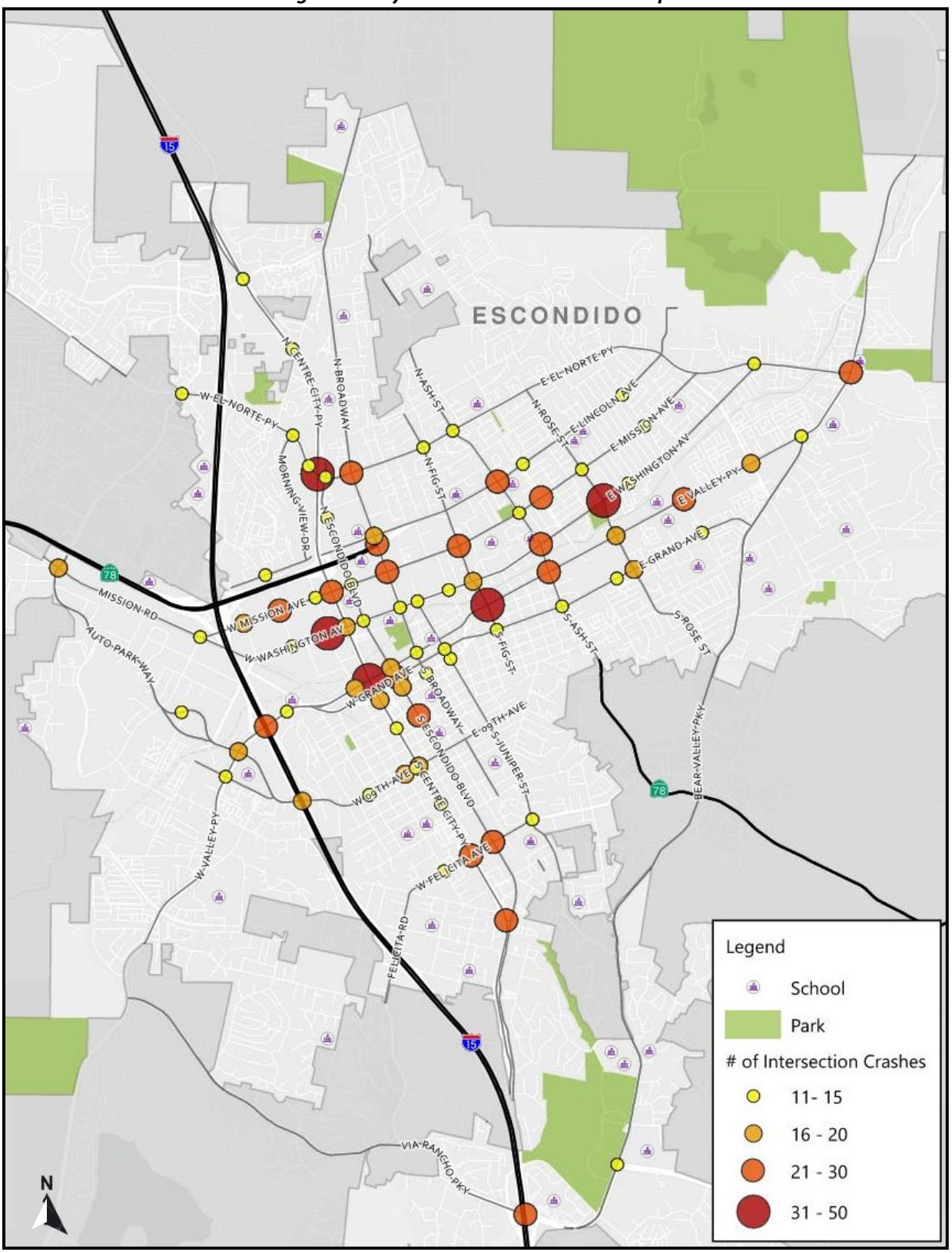


Figure 2: Citywide Mid-Block Crash Map

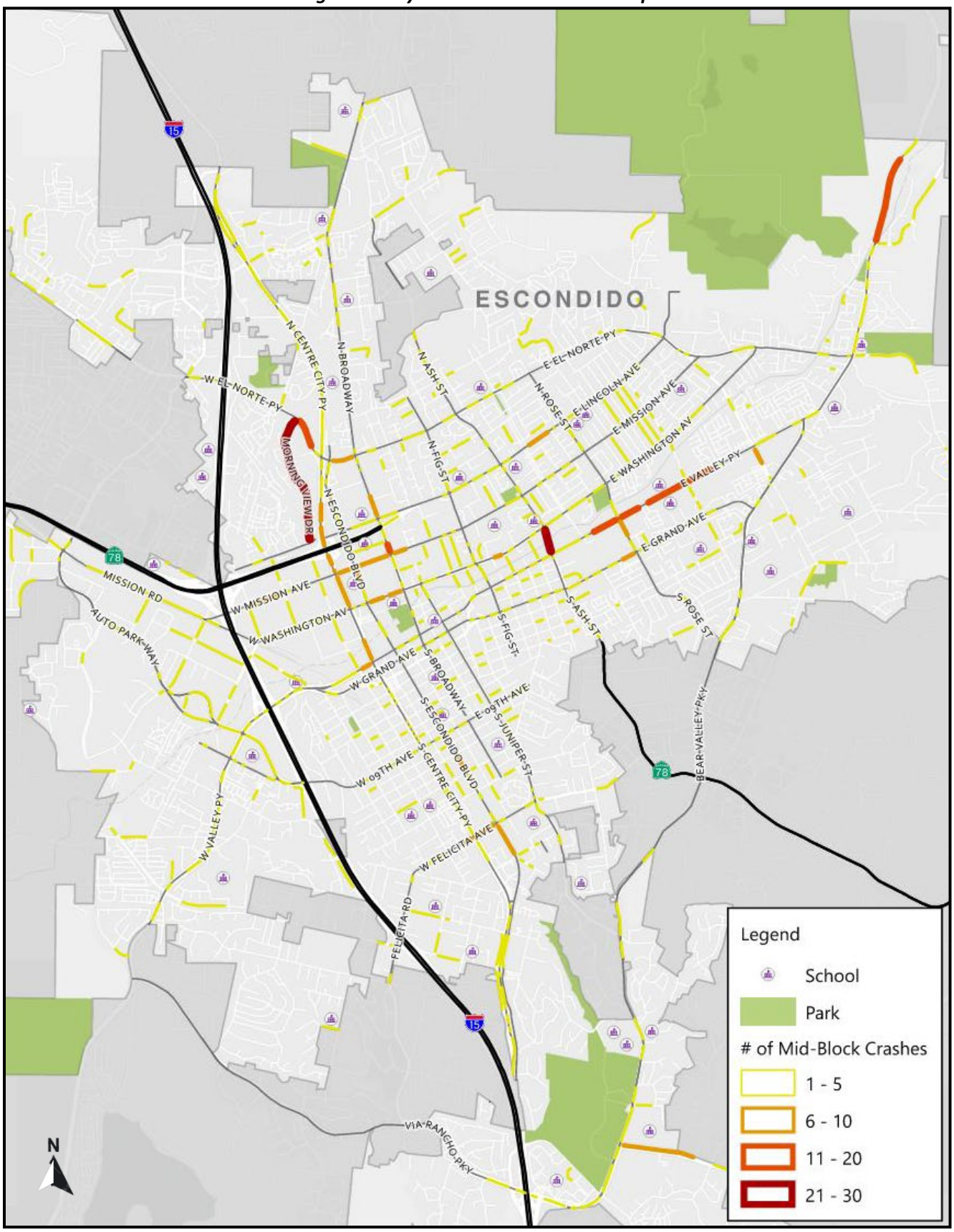


Table 5: Top 10 Intersection Crash Locations (2016-2020)

	Intersection	Total Number of Crashes
1	Centre City Pkwy & El Norte Pkwy	49
2	Washington Ave & Quince St	40
3	Washington Ave & Rose St	38
4	Valley Pkwy & Fig St	35
5	Centre City Pkwy & Valley Pkwy	31
6	Washington Ave & Ash St*	30
7	Lincoln Ave & Ash St	29
8	Valley Pkwy & Ash St	29
9	Mission Ave & Fig St	28
10	Broadway & Mission Ave*	28

*Caltrans facility.

Table 6: Top 10 Mid-Block Crash Locations (2016 – 2020)

	Mid-Block Segments		Total Number of Crashes
1	Morning View Dr	El Norte Pkwy To Lincoln Ave	29
2	Valley Pkwy	Rose St to Midway Dr	29
3	Ash St*	Washington Ave To Valley Pkwy*	21
4	Valley Pkwy	Midway Dr to Quarry Glen Lane	19
5	Valley Center Road	Lake Wohlford Road To Northern City Limits	13
6	Broadway	Crest St To Mission Ave	12
7	El Norte Pkwy	Morning View Dr To Las Villas Way	12
8	Valley Pkwy	Harding St To Rose St	11
9	Mission Ave	Metcalf St To Rock Springs Road	10
10	Washington Ave	Escondido Blvd To Broadway	10

*Caltrans facility.

7.1.2. Crash Type Summary

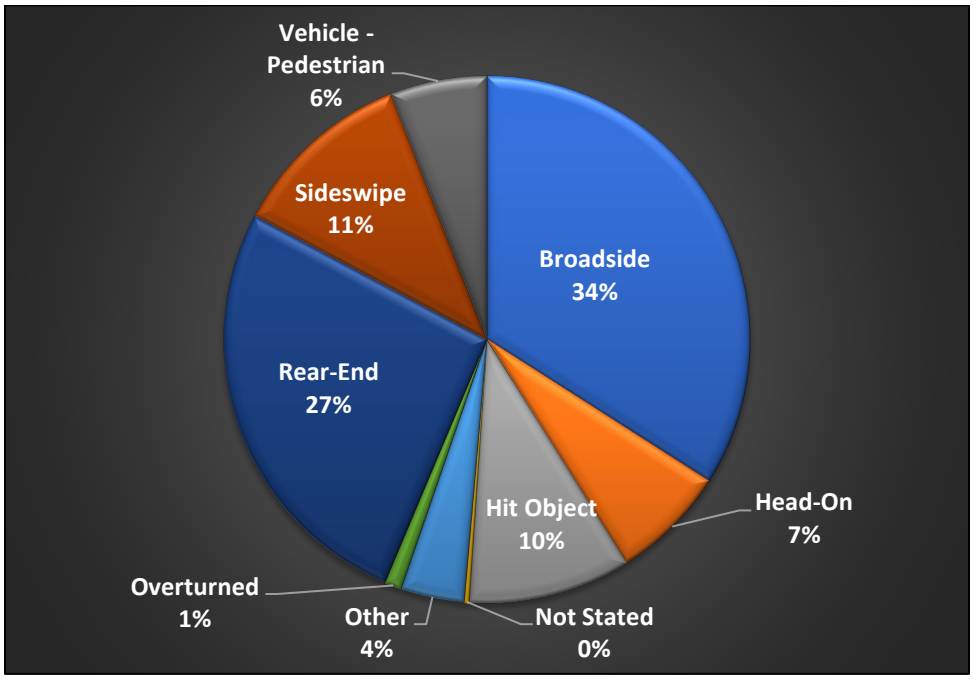
Table 7 includes a summary of the types of crashes that occurred during the analysis period. The three most common types of crashes were Broadside (34%), Rear-End (27%), and Sideswipe (11%), which combined comprise 72% of the total crashes, as shown in **Figure 3**. A description of each of these crash types is provided below:

1. **Broadside** – crashes that occur when the front of one vehicle strikes the side of another vehicle. These are also called T-bone or side impact crashes. These are typically caused by one driver's negligence, which may include running a red light and failing to yield right-of-way.
2. **Rear-End** – crashes that occur when a vehicle is struck from behind by the front of another vehicle. These types of crashes generally occur due to distracted, aggressive, drunk driving or driver fatigue.
3. **Sideswipe** – crashes that occur when the side of one vehicle makes contact with the side of another vehicle, either traveling in the same or opposite direction. The vehicles can be either traveling in the same direction or going in opposite directions and are often times called "blind spot accidents". These typically occur when one vehicle drifts into the adjacent travel lane due to factors such as blind spots, distracted driving, fatigued drivers, road rage and failure to yield right-of-way.

Table 7: Crash Types by Year

Crash Type	Year					Total	Percent
	2016	2017	2018	2019	2020		
Broadside	307	307	291	297	272	1,474	34%
Rear-End	218	254	247	238	189	1,146	27%
Sideswipe	83	102	97	98	108	488	11%
Hit Object	85	87	85	78	94	429	10%
Head-On	48	59	71	82	48	308	7%
Vehicle - Pedestrian	53	56	67	42	40	258	6%
Overturned	5	10	9	9	13	46	1%
Other	30	27	39	49	24	169	4%
Not Stated	5	1	-	6	2	14	0%
Total	**834**	**903**	**906**	**899**	**790**	**4,332**	**--**

Figure 3: Crash Types



7.1.3. Cause of Crash Summary

Table 8 summarizes the causes of the crashes that occurred during the analysis period for each year and **Figure 4** graphically shows the breakdown for all crashes. The three most common causes were Unsafe Speed (20%), followed closely by Auto Right-of-Way Violation (19%), and Driving Under Influence (DUI) (16%). A description of each of these crash causes is provided below:

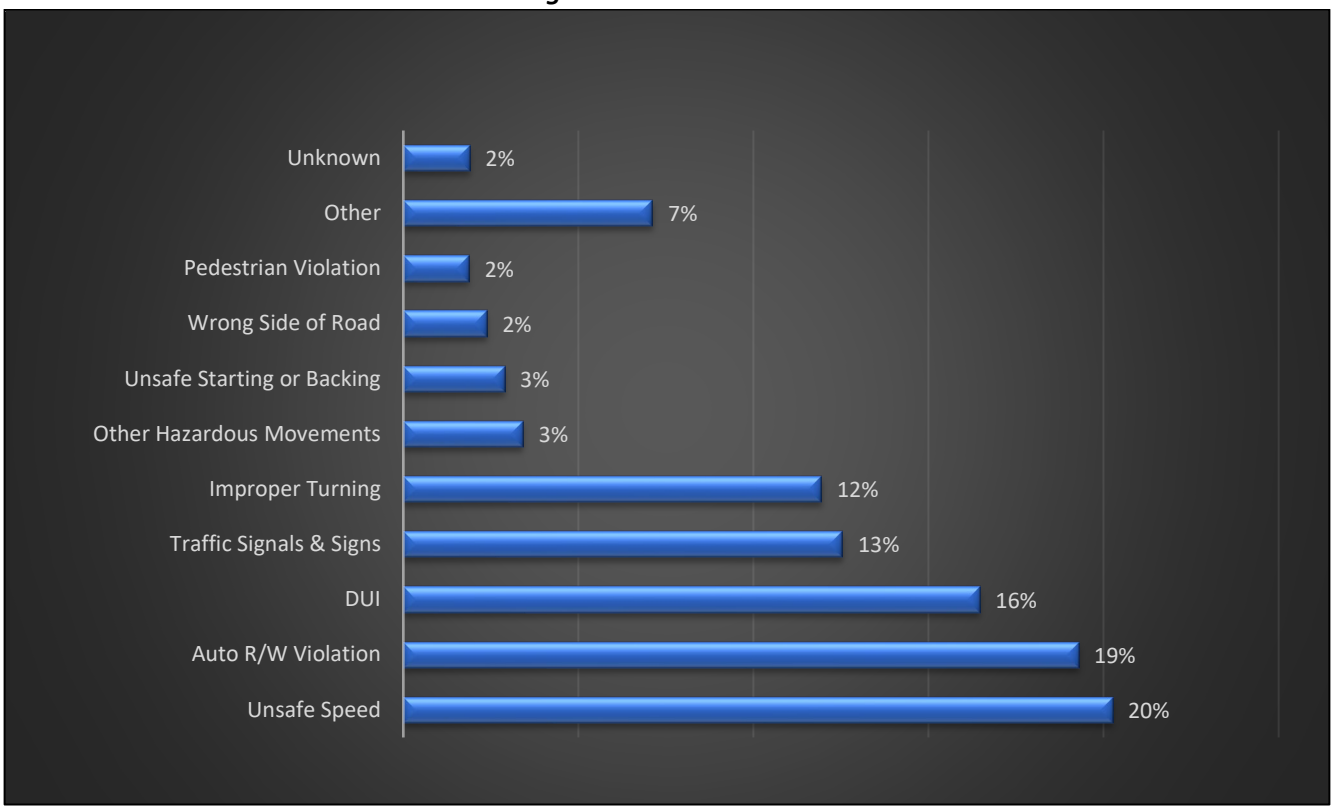
- **Unsafe speed** – crashes that are caused by motorists driving in excess of the posted speed limit or driving too fast for the roadway conditions. According to the Escondido Police Department, 'too fast for roadway conditions' crashes, are often reported as an Unsafe Speed Crash. These crashes can be a result of motorists following too closely to the vehicle in front of them, distracted driving, or vehicles that collide with a stopped vehicle in front of them.
- **Auto Right-of-Way Violation** – crashes that are caused by motorists failing to allow another vehicle (or pedestrian or bicyclist) to proceed before them in a traffic situation in accordance with the California Vehicle Code, such as assuming right-of-way while turning left at a green light (as opposed to a green arrow).
- **DUI** – crashes that are caused by motorists who operate a vehicle while their blood alcohol concentration levels exceed the allowable limits per the California Vehicle Code or impaired by drugs. DUIs are not considered in the evaluation of safety improvements but are included in the non-engineering emphasis areas such as Enforcement and Education.
- **Other Hazardous Movement** – crashes that are related to basic driver techniques and actions that have the potential to endanger the driver as well as others on the road. Examples include reckless driving, lane weaving, and slow vehicles not driving on the far-right lane.

Table 8: Cause of Crashes by Year

Crash Cause	Year					Total	Percent
	2016	2017	2018	2019	2020		
Unsafe Speed	171	198	192	185	131	877	20%
Auto R/W Violation	188	171	168	171	137	835	19%
Driving Under Influence	122	150	142	153	146	713	16%
Traffic Signals and Signs	115	112	112	99	105	543	13%
Improper Turning	82	101	113	110	112	518	12%
Other Hazardous Movement	21	19	43	35	30	148	3%
Unsafe Starting or Backing	21	33	26	21	24	125	3%
Wrong Side of Road	20	30	18	22	13	103	2%
Pedestrian Violation	20	20	17	12	12	81	2%
All Others*	53	52	61	77	64	307	7%
Unknown	25	17	22	21	19	104	2%
Total	**834**	**903**	**906**	**899**	**790**	**4,332**	**--**

*All Others includes hazardous parking, improper passing, not stated, other than improper turning, other than driver, ped r/w violation, impeding traffic, other equipment, ped or other under influence, and other.

Figure 4: Crash Causes



7.2. Detailed Crash Analysis

7.2.1. Crashes by Type

This section evaluates trends associated with the three most common crash types of crashes that occurred within the five-year study period. Analysis of which included Broadside, Rear-End, and Sideswipe accidents. Analysis and interpretation of this data will determine patterns for of where specific crash types occur. The analysis identify where the most common locations of these crash types citywide.

Broadside Crashes

A Broadside crash occurs when the front of one vehicle strikes the side of another vehicle. Broadside crashes typically occur at intersections and can be a result of drivers failing to yield or obey stop-controls, where a gap in traffic is misjudged, or a turning vehicle fails to yield the right-of-way to another vehicle.

When evaluating the cause of common Broadside crashes, it is important to consider the following physical conditions at the intersection and signal operations:

- What is the intersection control? – Signalized, unsignalized or a roundabout
- What is the signal phasing? – Permissive or protected left-turn phasing
- Are clear lines of sight available or are there sight distance issues?
- What is the traffic speed and the posted speed limit? What are vehicle speeds?
- Are there other roadway elements that might contribute to or worsen driving behaviors such as failure to yield and/or where gaps in traffic are mis-judged?

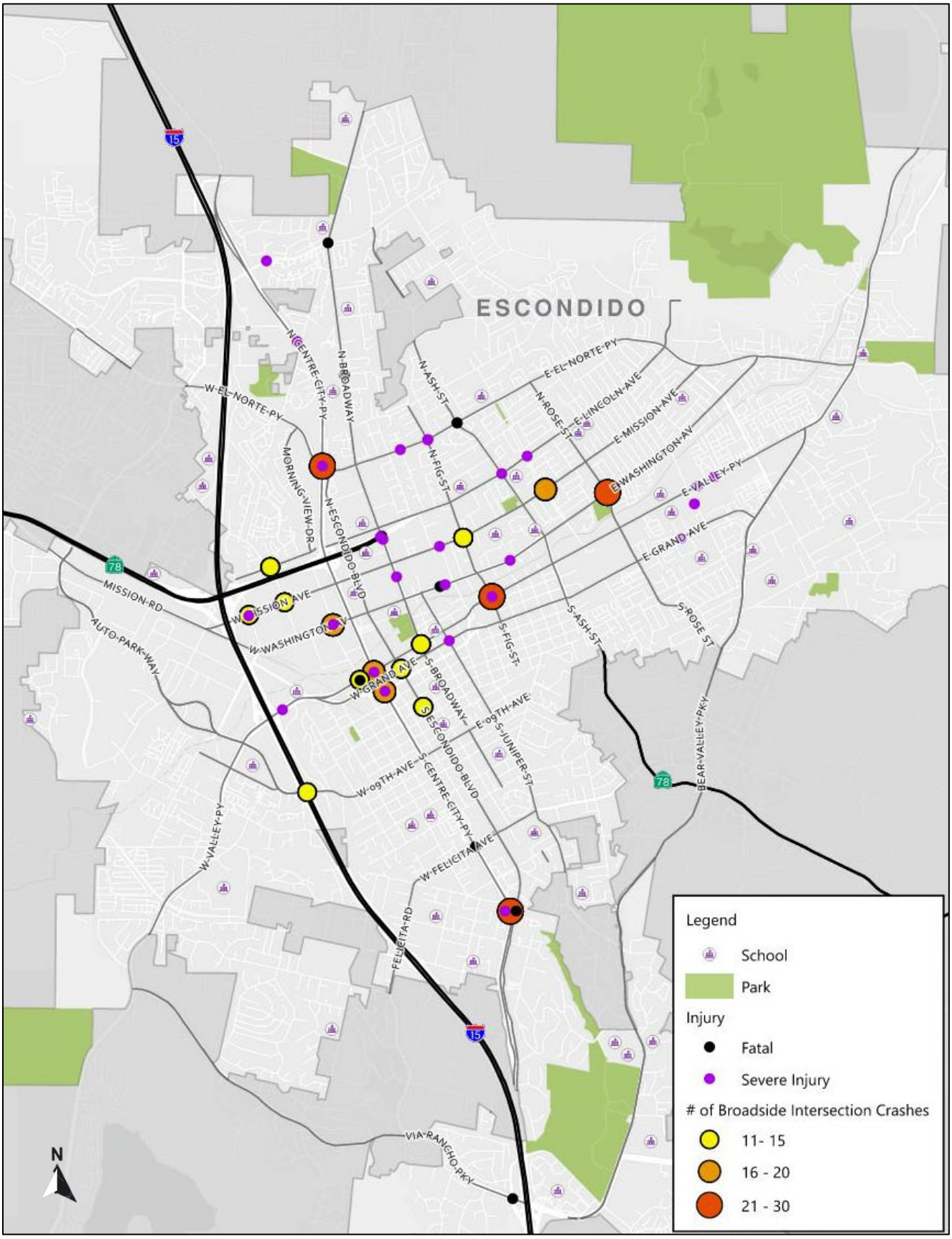
Within the study area, 1,487 Broadside crashes occurred. Ten of the crashes resulted in fatalities, 27 resulted in severe injury, 505 resulted in other visible injury, and 798 resulted in complaint of pain while the remaining 147 Broadside crashes were property damage only. **Table 9** lists the intersections where the highest number of Broadside crashes were reported, which considers the number of Broadside crashes within a 125-foot radius of the intersection.

Table 9: Most Frequent Broadside Crash Locations

	Intersection	Number of Broadside Crashes
1	Centre City Pkwy & Escondido Blvd	24
2	Washington Ave & Rose St	23
3	Centre City Pkwy & El Norte Pkwy	22
4	Valley Pkwy & Fig St	21
5	Harding St & Mission Ave	19
6	Quince St & Washington Ave	18
7	Centre City Pkwy & Valley Pkwy	18
8	Centre City Pkwy & 2nd Ave	16
9	Mission Ave & Rock Springs Road	15
10	Escondido Blvd & Grand Ave	15

Figure 5 depicts the location, severity and intensity of Broadside crashes. As shown, the Broadside crashes are concentrated at major signalized intersections such as Centre City Parkway & Escondido Boulevard, Washington Avenue & Rose Street, and Centre City Parkway & El Norte Parkway. The map focuses on identifying locations with 11 or more Broadside crashes to highlight the priority areas within the City.

Figure 5: Broadside Crash Location Map



Rear-End Crashes

A crash is classified as a Rear-End crash when one vehicle crashes into the vehicle directly in front of it. Rear-End crashes often occur under congested conditions where motorists do not react in time to a slowing of traffic downstream, or in cases where drivers are distracted or tailgating under uncongested conditions.

When evaluating the cause of common Rear-End crashes, it is important to consider the following physical conditions and signal operations:

- What is the intersection control? – signalized, unsignalized, roundabout
- What is the signal phasing? – permissive or protected left-turn phasing
- Are dedicated right-turn or left turn lanes provided?
- Are there multiple driveways along a corridor where vehicles are frequently entering and exiting that result in a disruption in the traffic flow?
- Are vehicles queuing at an intersection such that they spill out of a turn lane into the adjacent through lane?
- What is the traffic speed and posted speed limit? Is speeding a concern? Is speeding observed? Everyone has concerns but is concern identified as valid?

Within the City limits, 1,146 Rear-End crashes occurred in the five-year study period. One of the crashes resulted in a fatality, six resulted in severe injury, 166 resulted in other visible injury, and 589 resulted in complaint of pain, while the remaining 384 Rear-End crashes were property damage only. **Table 10** lists the intersections where the highest number of Rear-End crashes were reported, which considers the number of Rear-End crashes within 125 feet of the intersection.

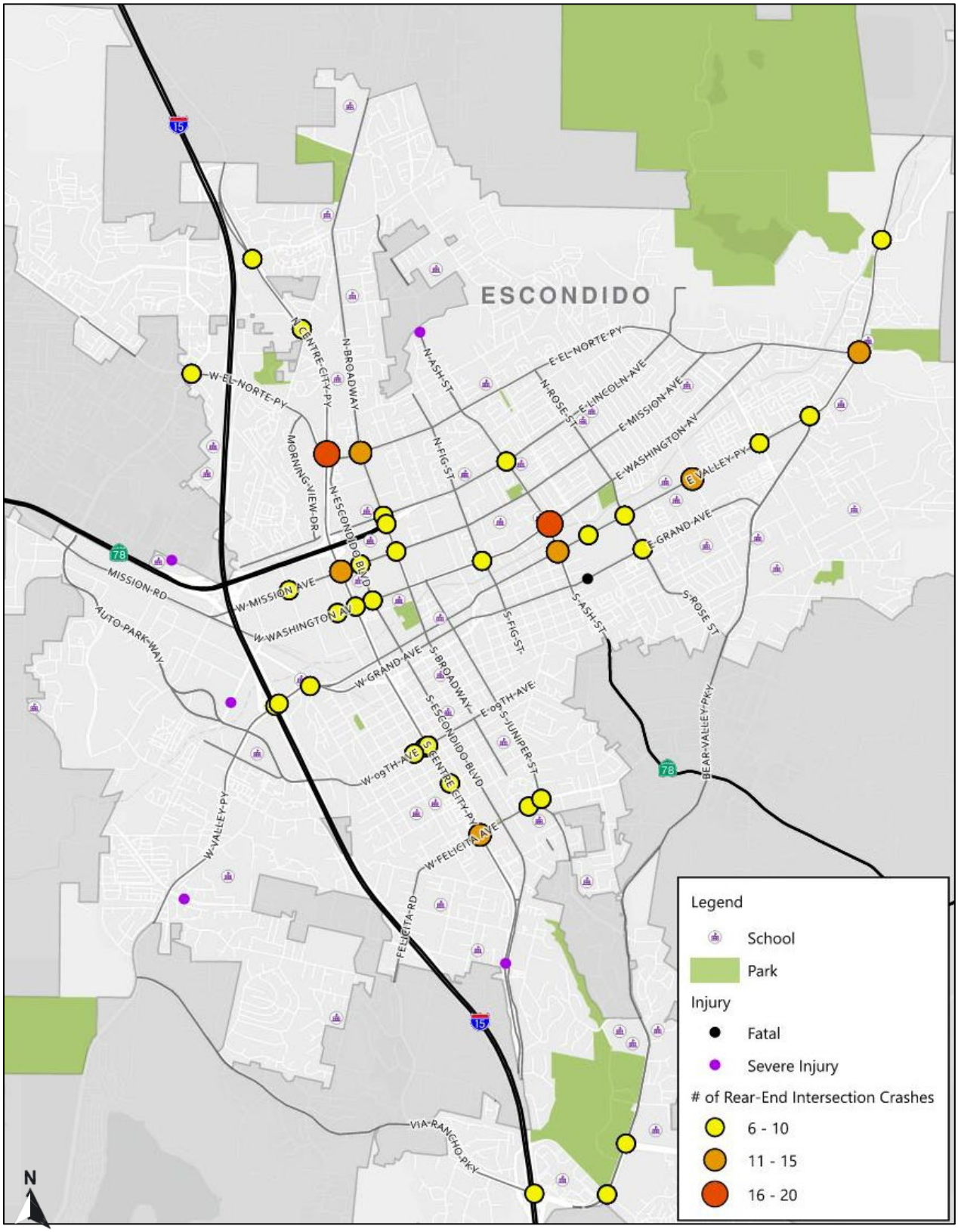
Table 10: Most Frequent Rear-End Crash Locations

	Intersection	Number of Rear-End Crashes
1	El Norte Pkwy & Centre City Pkwy	18
2	Ash St & Washington Ave *	16
3	Broadway & El Norte Pkwy	15
4	Valley Pkwy & Ash St *	15
5	Mission Ave & Centre City Pkwy	15
6	Valley Pkwy & El Norte Pkwy	13
7	Valley Pkwy & Midway Dr	13
8	Centre City Pkwy & Felicita Ave	12
9	Valley Pkwy & Citrus Ave	9
10	Broadway & Lincoln Ave *	9

Caltrans facility

Figure 6 illustrates the location, severity and intensity of Rear-End crashes within the City. As illustrated below, Rear-End crashes occurred at major signalized intersections such as El Norte Parkway & Centre City Parkway, Ash Street & Washington Avenue, and Broadway & El Norte Parkway. The map focuses on identifying locations with 6 or more Rear-End crashes to highlight the priority areas within the City.

Figure 6: Rear-End Crash Location Map



Sideswipe Crashes

Sideswipe crashes occur when the side of one vehicle makes contact with the side of another vehicle, either traveling in the same or opposite directions. They typically occur when one vehicle moves out of a travel lane before it is safe to do so. In many cases, the cause of a Sideswipe crash is the result of a driver who is distracted, over-correcting the steering wheel, or impaired by drugs or alcohol rather than the result of the roadway conditions.

When evaluating the cause of common Sideswipe crash locations, it is important to consider the following physical roadway conditions:

- What is the roadway alignment? – Straight, curved, vertical or horizontal alignment?
- What is the travel lane width and number of travel lanes?
- Are there friction factors such as on-street parking and raised medians?
- What is the distance between stop controls? – greater than ¼ mile

Within the study area, a total of 488 Sideswipe crashes occurred. One of the crashes resulted in a fatality, six resulted in severe injury, 72 resulted in other visible injury, and 128 resulted in complaint of pain while the remaining 281 Sideswipe crashes were property damage only. **Table 11** below lists the intersections where the highest number of Sideswipe crashes were reported, which considers the number of Sideswipe crashes within 125 feet of the intersection.

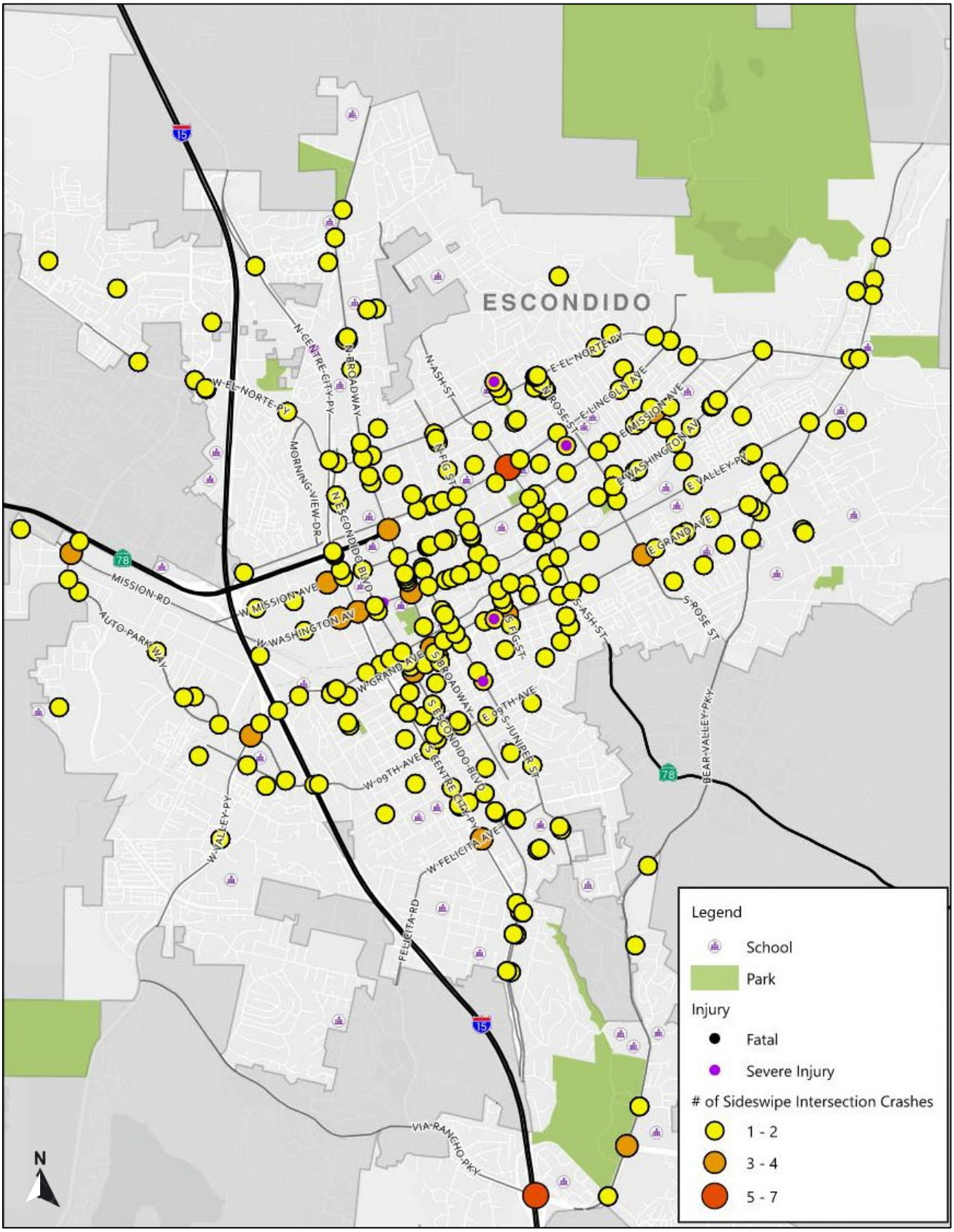
Table 11: Most Frequent Sideswipe Crash Locations

	Intersection	Number of Sideswipe Crashes
1	Via Rancho Pkwy & I-15 NB Ramp *	7
2	Ash St & Lincoln Ave	5
3	Mission Road & Auto Park Way	4
4	Mission Ave & Quince St	4
5	Mission Ave & Midway Dr	3
6	Grand Ave & Rose St	3
7	Broadway & Washington Ave *	3
8	Centre City Pkwy & Washington Ave	3
9	Grand Ave & Fig St	3
10	Washington Ave & Quince St	3

*Caltrans facility.

Figure 7 depicts the location, severity and intensity of Sideswipe crashes. As shown, the highest concentration of Sideswipe crashes occurs at Via Rancho Parkway & I-15 Northbound Ramp and Ash Street & Lincoln Avenue. The map shows the majority of Sideswipe crashes are evenly distributed throughout the City with most intersections only reporting 1 to 2 crashes. The same scenario was found when evaluating the mid-block Sideswipe locations, which were not highly concentrated on a few roadway segments but spread evenly throughout the City. For purposes of this analysis, the intersections where the highest Sideswipe crashes occurred were identified in Table 11 to help determine appropriate countermeasures at these locations.

Figure 7: Sideswipe Crash Location Map



7.2.2. Crashes by Cause

The following sections analyze the three most common crash causes in further depth, which include Unsafe Speed, Auto Right-of-Way Violations, and Driving Under the Influence (DUI).

Unsafe Speed Crashes

Of the 4,332 reported crashes, the attributed cause of the crash was Unsafe Speed for 877 of those crashes (20%). Crashes where unsafe speed was the attributed crash cause were examined further based on location. Unsafe Speed crashes are primarily caused by motorists following too closely to the vehicle in front of them, the result of distracted driving, or vehicles crashing into a stopped vehicle in front of them.

When evaluating the cause of common Unsafe Speed crash locations, it is important to consider the following physical roadway conditions:

- What is the roadway alignment? – Straight, curved, vertical or horizontal alignment?
- What is the travel lane width and number of travel lanes?
- Are there friction factors such as on-street parking and raised medians?
- What is the distance between stop controls? – greater than ¼ mile
- Are there other roadway elements that might contribute to or worsen driving behaviors such as failure to yield when turning left or right and/or where gaps in traffic is mis-judged?

Table 12 lists the roadway segments where the highest number of Unsafe Speed crashes were reported, which considers the number of mid-block Unsafe Speed crashes. As shown, Ash Street from Washington Avenue to Valley Parkway and Centre City Parkway from Mission Avenue to Washington Avenue both have seven Unsafe Speed crashes reported along these segments.

Table 12: Most Frequent Unsafe Speed Crash Corridor Locations

	Roadway Segment	Number of Unsafe Speed Crashes
1	Ash St From Washington Ave To Valley Pkwy *	7
2	Centre City Pkwy From Mission Ave To Washington Ave	7
3	Valley Center Road From Lake Wohlford Road To Northern City Limits	6
4	Valley Pkwy From Rose St To Paramount St	6
5	Centre City Pkwy From Gannon Place To Valley Pkwy	6
6	Morning View Dr From El Norte Pkwy To Lincoln Ave	5
7	Valley Pkwy From Eureka Dr To Beven Dr	4
8	Valley Pkwy From Midway Dr To Quarry Glen	4
9	Mission Ave From Beech St To Ash St	4
10	Centre City Pkwy From Las Villas Way To Decatur Way	3

*Caltrans facility.

Figure 8 illustrates the Unsafe Speed mid-block crashes reported within the City. As shown, many of the Unsafe Speed crashes are located along Valley Parkway and other major arterials such as Ash Street and Centre City Parkway.

Figure 8: Unsafe Speed Crash Location Map

Auto Right-of-Way Violation Crashes

A total of 835 crashes were attributed to Auto Right-of-Way Violation, which equates to 19% of the total reported crashes. In accordance with the California Vehicle Code, these are crashes that are caused by motorists failing to allow another vehicle (or pedestrian or bicyclist) to proceed before them in a traffic situation.

When evaluating the cause of common Auto Right-of-Way Violation crash locations, it is important to consider the following physical roadway conditions and signal operations:

- What is the intersection control? – Signalized, unsignalized with stop/yield-controlled, roundabout
- What is the signal phasing? – Permissive or protected left-turn phasing
- Are there concerns with sight distance as motorists turn left or right onto a roadway?
- Are there other roadway elements that might contribute to or worsen driving behaviors such as failure to yield when turning left or right and/or where gaps in traffic is mis-judged?

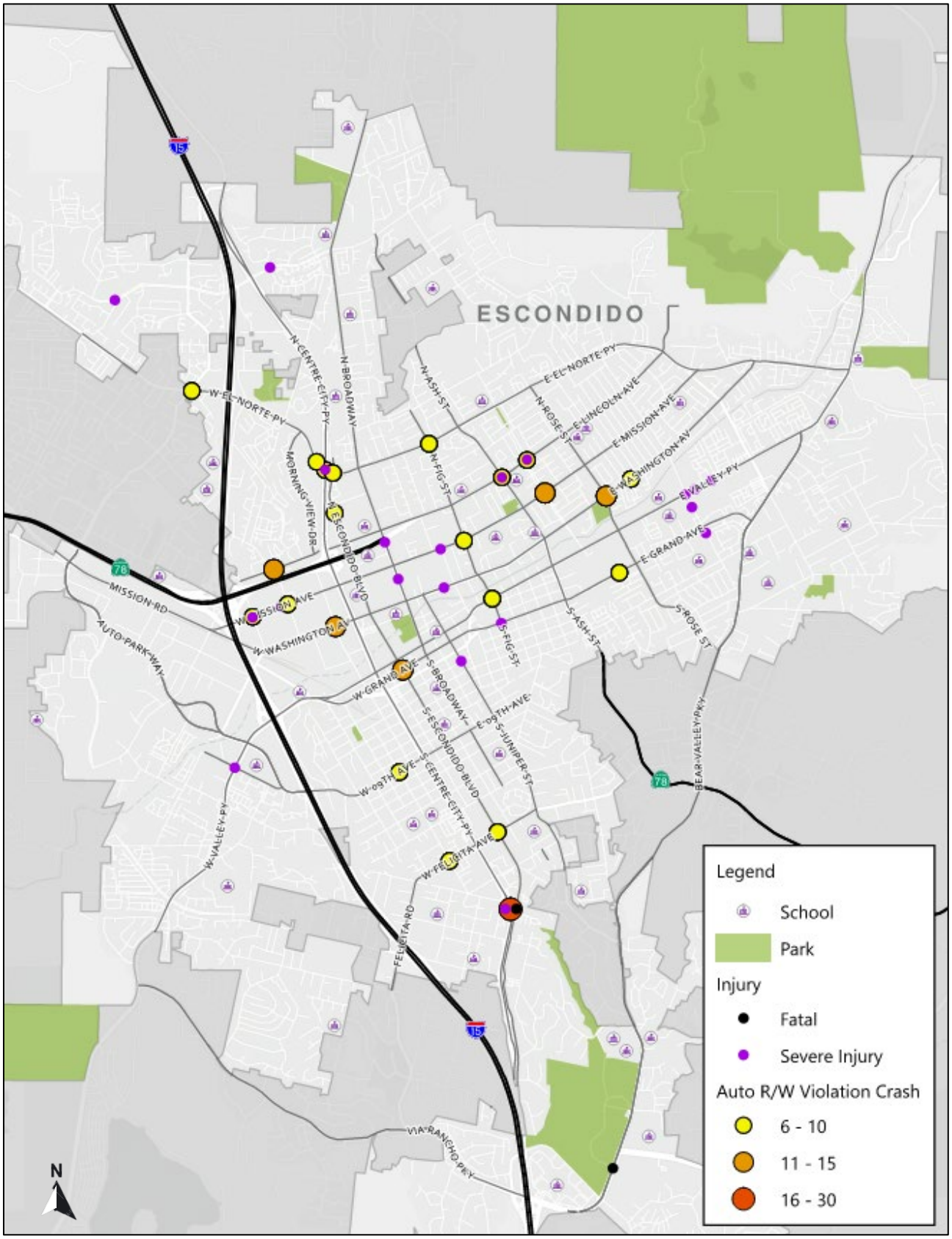
Table 13 below lists the intersections where the highest number of Auto Right-of-Way Violation crashes were reported, considering both the crash severity and the number of Auto Right-of-Way Violation crashes within 125 feet of the intersection. As shown in the table, Centre City Parkway & Escondido Boulevard has the highest number of Auto Right-of-Way Violation crashes in the City with a total of 25.

Table 13: Most Frequent Auto Right-of-Way Violation Crash Locations

	Intersection	Number of Auto R/W Crashes
1	Centre City Pkwy & Escondido Blvd	25
2	Harding St & Mission Ave	13
3	Quince St & Washington Ave	13
4	Washington Ave & Rose St	12
5	Rock Springs Road & Lincoln Ave	11
6	Escondido Blvd & Grand Ave	11
7	Washington Ave & Begonia St	10
8	Centre City Pkwy & El Norte Pkwy	9
9	Mission Ave & Fig St	9
10	Grand Ave & Rose St	8

In **Figure 9**, the Auto Right-of-Way Violation crash locations are spread throughout the City. The highest concentration of crashes occurred at Centre City Parkway & Escondido Boulevard with one fatality and one severe injury reported. The map shows locations with six or more Auto Right-of-Way Violation crashes to highlight the priority areas within the City.

Figure 9: Auto Right-of-Way Violation Crash Location Map



DUI Crashes

Of the 4,332 reported crashes, DUIs were a factor in 713 of those crashes (16%). According to the California Office of Traffic Safety (OTS) collision ranking in 2018, the City of Escondido is ranked 8 out of 59 throughout San Diego County in terms of alcohol-involved crashes. While DUI crashes cannot be fully resolved through countermeasures or design changes, educational programs and enforcement can be increased to reduce DUI crashes. DUIs are not considered in the evaluation of safety improvements but are included in the non-engineering emphasis areas such as Enforcement and Education.

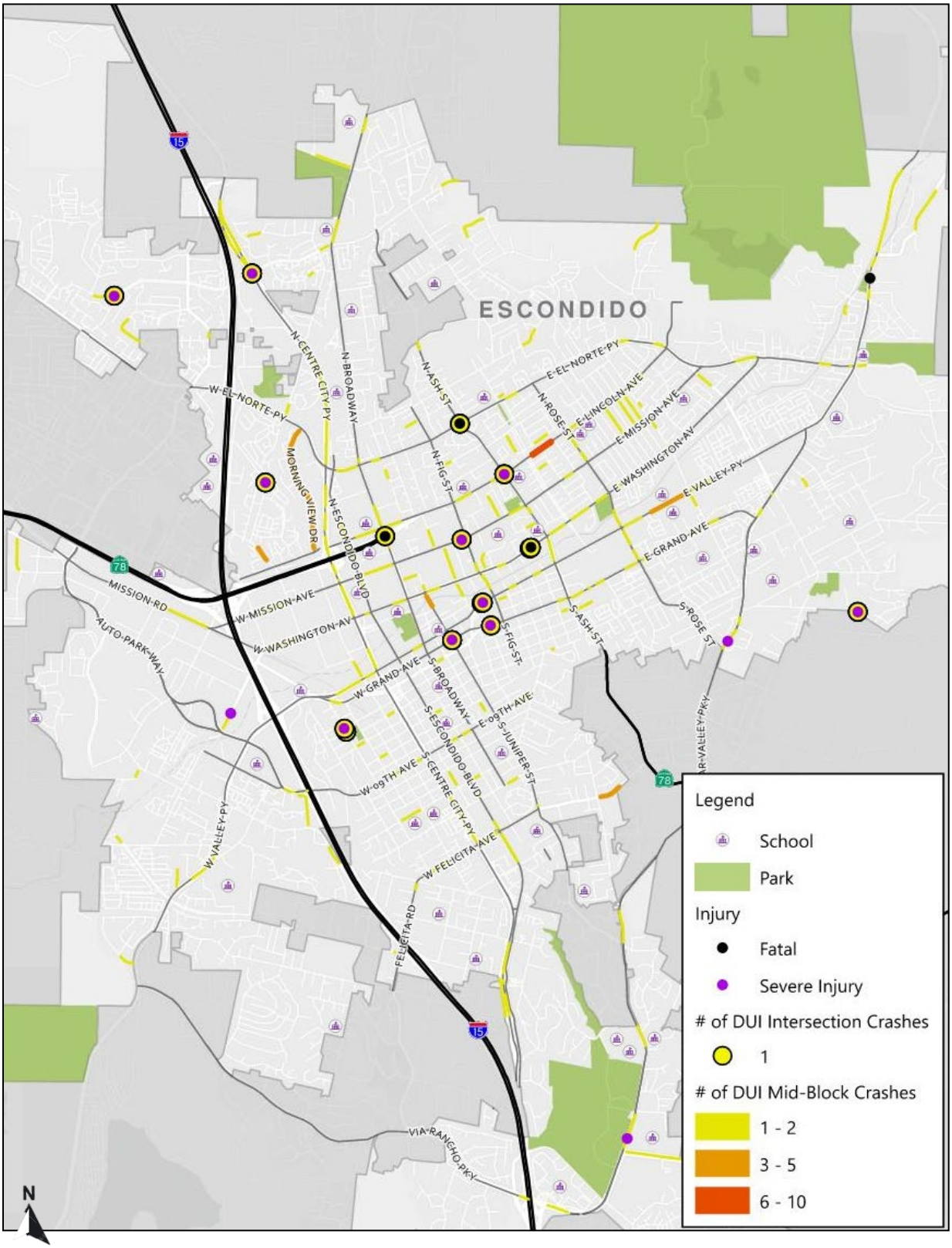
Table 14 lists the most common roadways where DUI-related crashes occurred between 2016 and 2020. Lincoln Avenue from Harding Street to Mill Street is reported to have the highest concentration of DUI crashes. The roadways listed are all thoroughfares with high volumes that run through differing land uses, including restaurants, retail, and residential.

Table 14: Most Common Locations for DUI Crashes

	Roadway Segment	Number of DUI Crashes
1	Lincoln Ave From Harding St To Mill St	6
2	Morning View Dr From El Norte Pkwy To Lincoln Ave	4
3	Valley Pkwy From Roadliner Ave To Midway Dr	4
4	Juniper St From Washington Ave To Clark St	3
5	17th Ave From Encino Dr To Landee Dr	3
6	Rock Springs Road From Crystal Springs Ln To Lincoln Ave	3
7	Valley Center Road From Lake Wohlford Road To Northern City Limits	2
8	Lake Wohlford Road From Lake Wohlford Court To Oakvale Road	2
9	Valley Pkwy From Beven Dr To Wohlford Dr	2
10	Nutmeg St From Sonia Place To Sunset Heights Road	2

Figure 10 illustrates the location, severity and intensity of DUI crashes within the City. As illustrated on the map, DUI crashes occurred at major signalized intersections such as El Norte Parkway & Ash Street, SR-78 & Broadway, and Washington Avenue & Beech Street. The map focuses on identifying intersection and mid-block locations with DUI crashes within the City.

Figure 10: DUI Crash Location Map



Variation of Crash Causes Based on Non-Motorized Modes

As discussed previously, the top three reported crash causes in the City of Escondido for all crashes over the past five years have been Unsafe Speed, Auto Right-of-Way Violations, and DUI. Since crash causes often vary by mode, **Table 15** summarizes the crash causes for pedestrian- and bicycle-involved collisions. As shown, pedestrian violation is the most reported cause of pedestrian-involved collisions. Pedestrian violations may include crossing against a "Don't Walk" signal, crossing at mid-block (non-intersection/jaywalking), or interfering with traffic at controlled intersections by crossing at an inappropriate time. Additionally, Auto Right-of-Way Violations were the primary cause of bicycle-involved crashes. Motorists are required to yield right-of-way to bicyclists at intersections, however, the bicyclist may not be visible to the motorist resulting in a bicycle-involved collision.

Table 15: Most Frequent Crash Causes by Mode

Crash Cause	Percent of Pedestrian-Involved Crashes	Percent of Bicycle-Involved Crashes	Percent of All Reported Crashes
Pedestrian Violation	32%	1%	2%
Other Hazardous Movement	31%	3%	3%
Ped R/W Violation	8%	--	--
Improper Turning	6%	13%	12%
Auto R/W Violation	4%	21%	**19%**
Traffic Signals and Signs	3%	8%	13%
Driving Under Influence	2%	1%	17%
Unsafe Speed	2%	7%	20%
Wrong Side of Road	--	33%	2%

Figure 11 shows the location, crash severity and cause of pedestrian-involved crashes throughout the City.

Figure 12 shows the location, crash severity and cause of bicycle-involved crashes. As shown on both maps, Auto Right-of-Way Violation is the cause for pedestrian and bicycle involved crashes specifically along major corridors such as Mission Avenue, Washington Avenue, and Valley Parkway.

Figure 11: Pedestrian Involved Crash Location Map

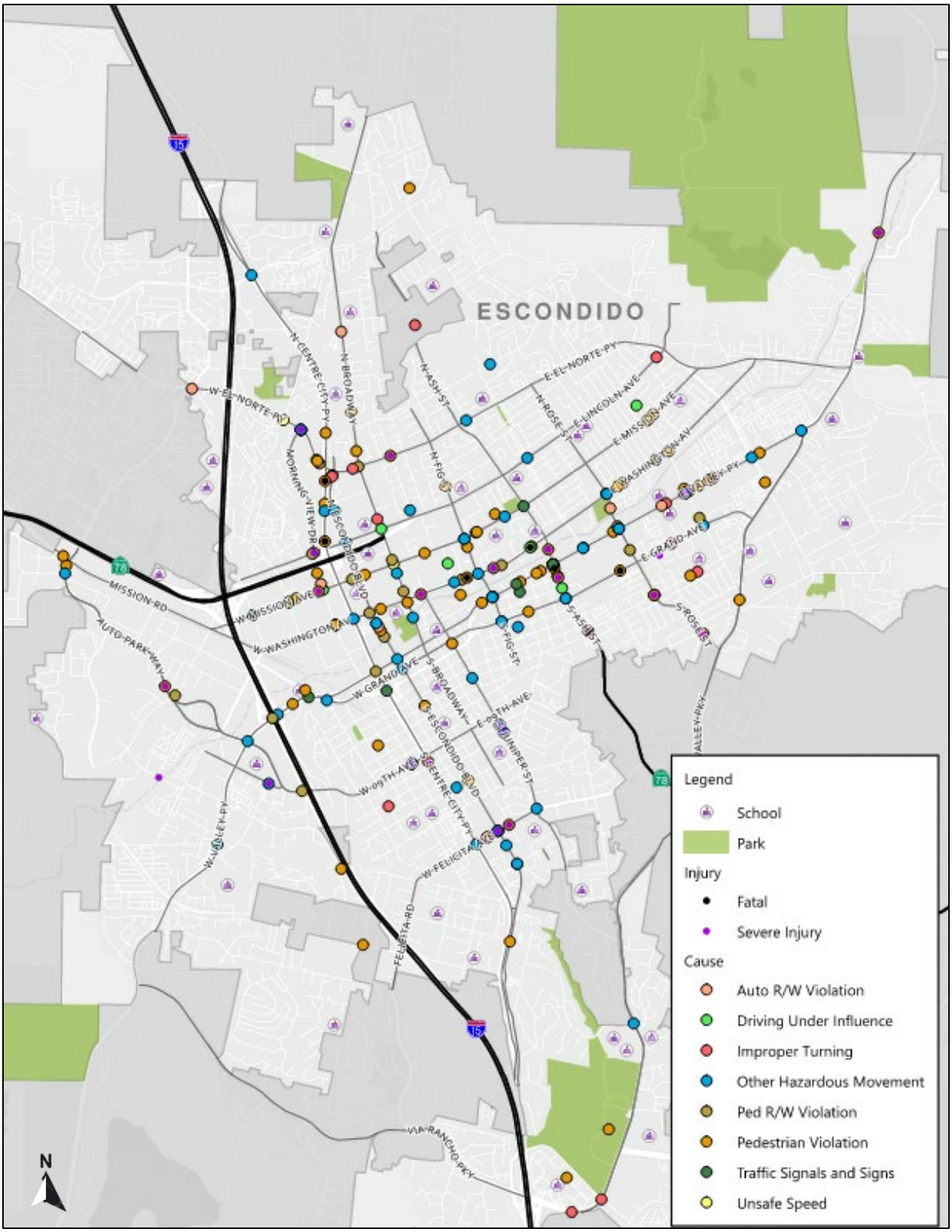
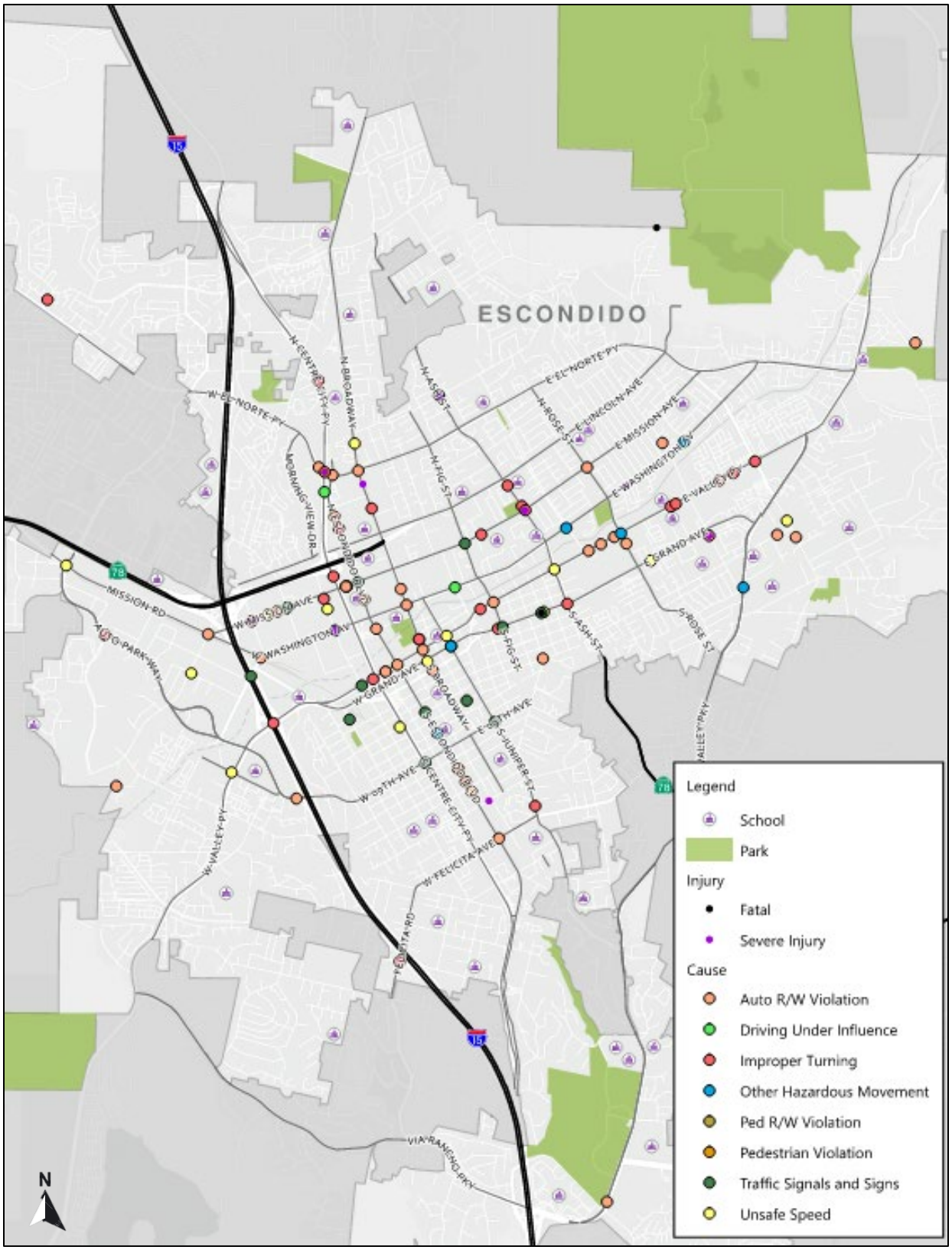


Figure 12: Bicycle Involved Crash Location Map



7.3. Crash Severity

Table 16 shows the summary of crash severity by year and **Figure 13** visually displays the crash severity for all crashes over the analysis period. Severe injuries include traumatic brain injuries, spinal cord injuries that result in partial or total paralysis, loss of an arm, leg, eyesight, or hearing and injuries that result in permanent damage to an organ or loss of function of an organ.

Of the total 4,332 reported crashes, 1% (33) resulted in fatalities, 2% (95) resulted in severe injury, 28% (1,210) resulted in other visible injury, and 43% (1,900) resulted in complaint of pain. Additionally, 26% (1,140) of crashes resulted in property damage only.

Table 16: Crash Injury Types by Year

Crash Severity Types	Year					Total	Percent
	2016	2017	2018	2019	2020		
Fatal	8	8	4	7	6	33	1%
Severe Injury	21	13	18	21	22	95	2%
Other Visible Injury	237	251	244	270	196	1,198	28%
Complaint of Pain	376	419	423	344	316	1,878	43%
Property Damage Only	192	212	217	257	250	1,128	26%
Total	**834**	**903**	**906**	**899**	**790**	**4,332**	**--**

Figure 13: Crash Severity (All Crashes)

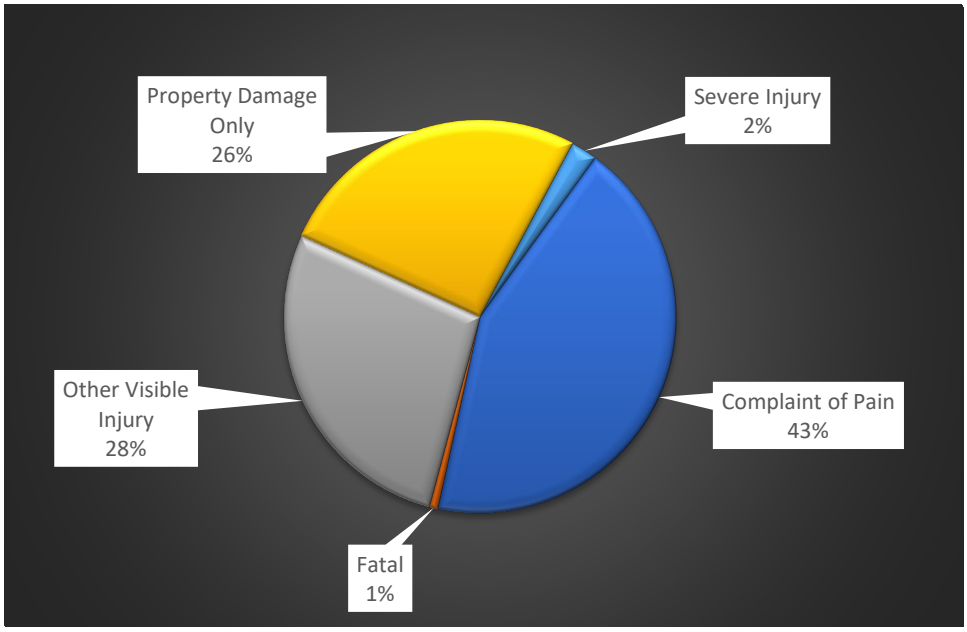


Table 17 below summarizes the types of object each motor vehicle crash was involved with by year and by crash severity (fatal crashes and severe injury crashes). As shown, most crashes involved another motor vehicle. While only 6% of all crashes involved a pedestrian, 30% of fatal crashes involved a pedestrian.

Table 17: Motor Vehicle Involved With (Year 2016 to 2020)

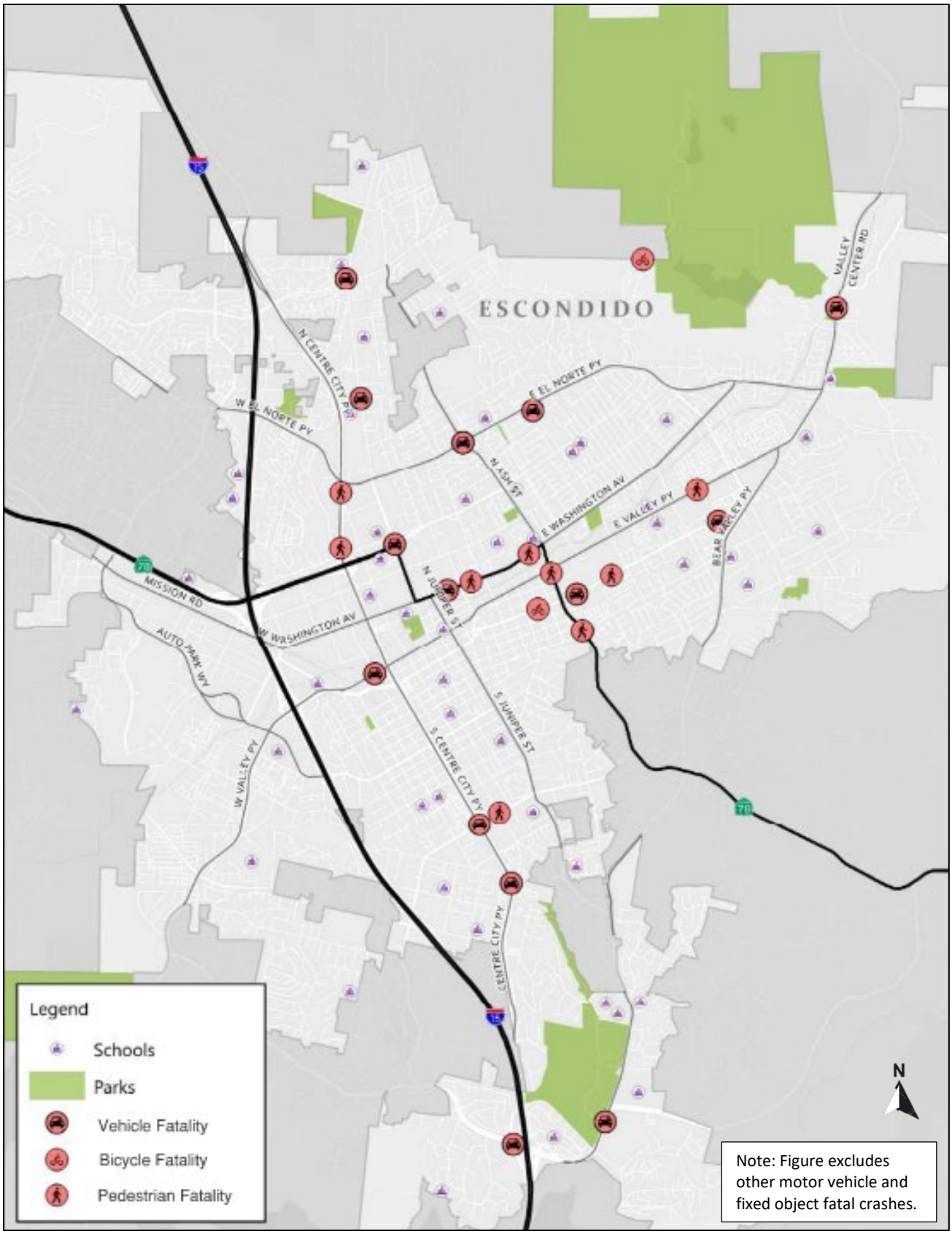
All Crashes							
Involved	Year					Total	Percent
	2016	2017	2018	2019	2020		
Other Motor Vehicle	566	593	608	587	489	2,843	66%
Parked Motor Vehicle	66	100	97	115	108	486	11%
Fixed Object	78	76	82	78	88	402	9%
Pedestrian	47	56	63	45	40	251	6%
Bicycle	45	40	36	43	27	191	4%
Non - Collision	8	11	10	14	22	65	2%
Other Object	13	13	7	5	8	46	1%
Motor Vehicle on Other Roadway	2	11	2	9	8	32	1%
Blank	9	2	1	2	0	14	0%
Animal	0	1	0	1	0	2	0%
Total	**834**	**903**	**906**	**899**	**790**	**4,332**	---
Fatal Crashes							
Involved	Year					Total	Percent
	2016	2017	2018	2019	2020		
Other Motor Vehicle	3	5	3	2	1	14	42%
Pedestrian	3	1	1	2	3	10	30%
Fixed Object	1	1	0	2	0	4	12%
Non – Collision	0	0	0	0	1	1	3%
Other Object	1	0	0	0	0	1	3%
Parked Motor Vehicle	0	1	0	0	0	1	3%
Total	**8**	**8**	**4**	**7**	**6**	**33**	---
Severe Injury Crashes							
Involved	Year					Total	Percent
	2016	2017	2018	2019	2020		
Other Motor Vehicle	11	8	10	5	6	40	42%
Pedestrian	4	3	4	7	7	25	26%
Fixed Object	3	2	1	3	3	12	13%
Bicycle	2	0	2	2	3	9	9%
Parked Motor Vehicle	1	0	1	4	1	7	7%
Non - Collision	0	0	0	0	2	2	2%
Total	**21**	**13**	**18**	**21**	**22**	**95**	---

7.3.1. Crash Fatalities

Locations where crashes resulted in fatalities were examined further to determine any potential trends. **Figure 14** shows the location of the fatalities by travel mode (bicycle, pedestrian, and vehicle). Fatalities involving motor vehicles generally occurred along the following corridors: Washington Avenue from Juniper Street to Ash Street, Centre City Parkway from El Norte Parkway to Felicita Avenue, Ash Street from El Norte Parkway to Valley Parkway, and at intersections along Ash Street/San Pasqual Valley Road (SR-78).

As shown, pedestrian fatalities occurred near the intersections of local roadways along Ash Street/San Pasqual Valley Road (SR-78) from Oak Hill Drive to Washington Avenue (3 pedestrian fatalities) and Centre City Parkway from Lincoln Parkway (SR-78) to El Norte Parkway (2 pedestrian fatalities).

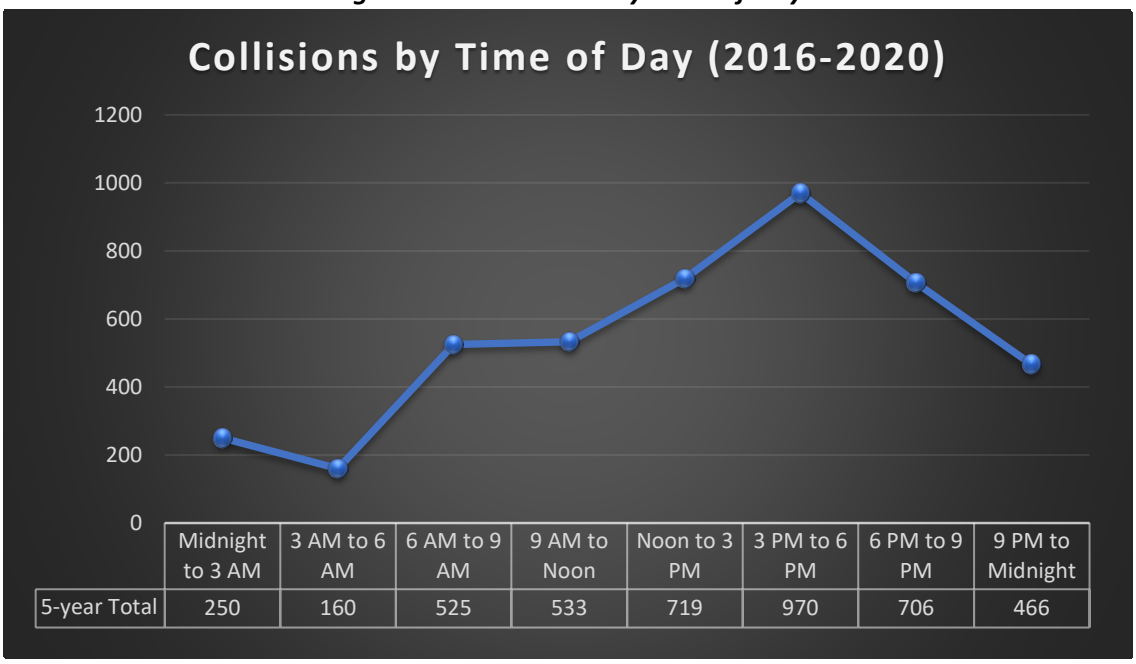
Figure 14: Fatal Crashes by Mode



7.4. Time of Day Analysis

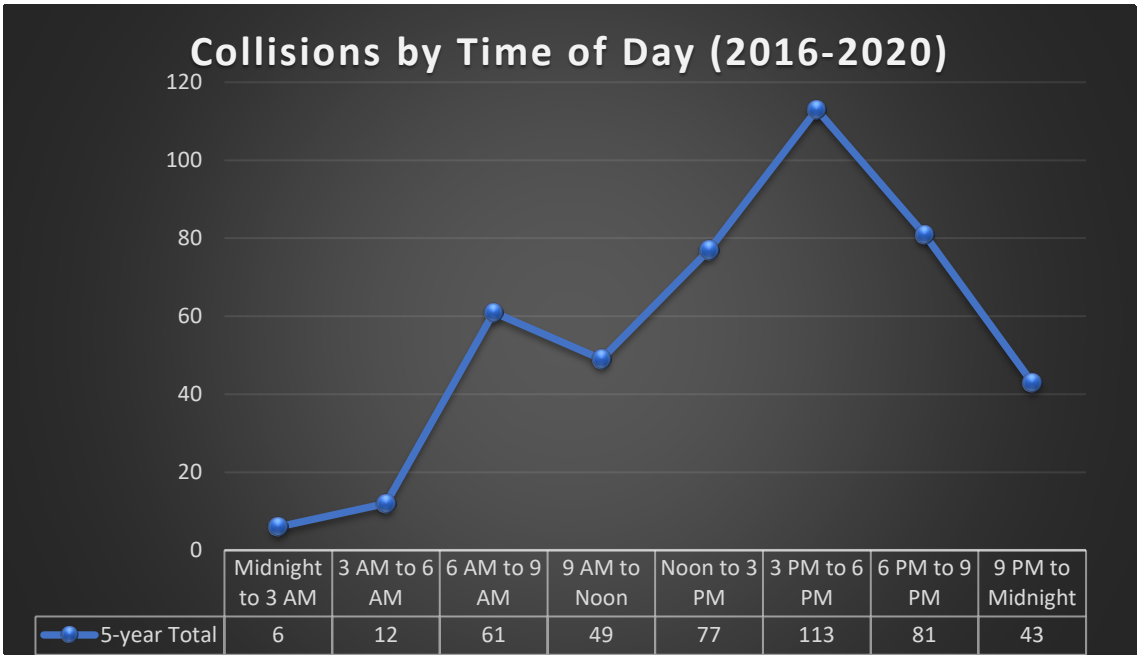
Figure 15 shows the breakdown of crashes by 3-hour time periods throughout the day. As would be expected, the period from 6 AM to 6 PM experienced the greatest number of crashes (970), as this time period is consistent with when most traffic occurs on local roads. A further breakdown shows that the highest number of crashes occurred during the 3-hour period from 3 PM to 6 PM. This is a somewhat expected finding since the evening peak commuting time periods generally fall between 3 PM and 6 PM.

Figure 15: All Crashes by Time of Day



Pedestrian and bicycle crashes are also most likely to occur from 3 PM to 6 PM, as shown in **Figure 16**.

Figure 16: Pedestrian and Bicycle Crashes by Time of Day



As shown in **Table 18**, the leading cause for pedestrian-involved crashes from 3 PM to 6 PM are pedestrian violations with 41%. For bicycle-involved crashes, the leading cause is bicyclists riding on the wrong side of the road (33%) and auto right-of-way violations (29%). Educational programs can be useful in reducing the number of pedestrian and bicycle involved crashes.

Table 18: Most Frequent Crash Causes by Mode (3 PM to 6 PM)

Crash Cause	Percent of Pedestrian-Involved Crashes	Percent of Bicycle-Involved Crashes	Percent of All Reported Crashes
Pedestrian Violation	41%	--	2%
Other Hazardous Movement	26%	--	3%
Ped R/W Violation	7%	--	--
Improper Turning	7%	9%	10%
Auto R/W Violation	3%	29%	**25%**
Traffic Signals and Signs	--	5%	10%
Driving Under Influence	2%	--	10%
Unsafe Speed	--	5%	25%
Wrong Side of Road	--	33%	3%

7.5. Bicycle and Pedestrian Crashes

Bicyclists and pedestrians are among the most vulnerable roadway users and are more likely to sustain severe injuries when involved in a collision with a motor vehicle. Understanding the cause, severity, and location of crashes involving these vulnerable roadways users is imperative to reducing the number of bicyclist and pedestrian fatalities and injuries on the City's roads. **Table 19** lists the top 10 intersections where the highest concentration of pedestrian and bicycle involved crashes occurred.

Table 19: Most Common Pedestrian and Bicycle Involved Crash Locations

Intersection		Number of Crashes		
		Pedestrian	Bicycle	Total
1	Ash St & Valley Pkwy *	7	3	**10**
2	Midway Dr & Valley Pkwy	6	2	8
3	Valley Pkwy & Fig St	6	2	8
4	Valley Pkwy & Rose St	8	0	8
5	Mission Ave & Escondido Blvd	2	5	7
6	9th Ave & Quince St	4	2	6
7	Mission Ave & Quince St	4	2	6
8	El Norte Pkwy & Escondido Blvd	6	0	6
9	Escondido Blvd & Felicita Ave	1	4	5
10	Quince St & Washington Ave	2	3	5

*Caltrans facility.

As shown in the Table 19, Ash Street at Valley Parkway is reported to have seven pedestrian-involved crashes and three bicycle-involved crashes which is the highest in the City. The shopping centers surrounding this intersection suggest increased pedestrian activity. Further analysis of reported bicycle and pedestrian crashes is presented in the subsequent sections below.

7.5.1. Pedestrian Involved Crashes

Within the five-year analysis period (January 2016 to December 2020), 251 pedestrian-involved crashes were reported, which included 9 fatal crashes (4%) and 25 severe injury crashes (10%). **Figure 17** shows the percentage of injury types for all pedestrian involved crashes during the analysis period.

Figure 14 shows the location of nine crashes that resulted in pedestrian fatalities during the study period. Two fatal crashes occurred along Centre City Parkway north of Mission Avenue, the SR-78 portion of Washington Avenue, and the SR-78 portion of Ash Street, totaling six fatal pedestrian-involved crashes. The remaining occurred along Valley Parkway, Felicita Avenue, and Grand Avenue. A total of 13 pedestrians were killed in these nine crashes.

In particular, two pedestrian fatalities occurred at Oak Hill Drive & San Pasqual Valley Road. According to the Crossroads data, one of the fatalities was due to a distracted driver causing the driver to run off the road hitting the pedestrian on the side of the road. The other pedestrian fatality at this location was due to the driver hitting the pedestrian in the road. Both of these crashes occurred at night.

One pedestrian fatality and two severe injuries involving pedestrians occurred at the intersection of Escondido Boulevard at Felicita Avenue. According to the Crossroads data, the pedestrian was fatally struck by a vehicle while crossing the intersection outside of the crosswalk. Two pedestrians were severely injured while crossing the same intersection in the crosswalk during the day. One pedestrian was hit by a driver making an eastbound to southbound right turn and the other pedestrian was hit by a driver making a westbound to southbound left-turn.

Figure 17: Crash Severity of Pedestrian-Involved Crashes

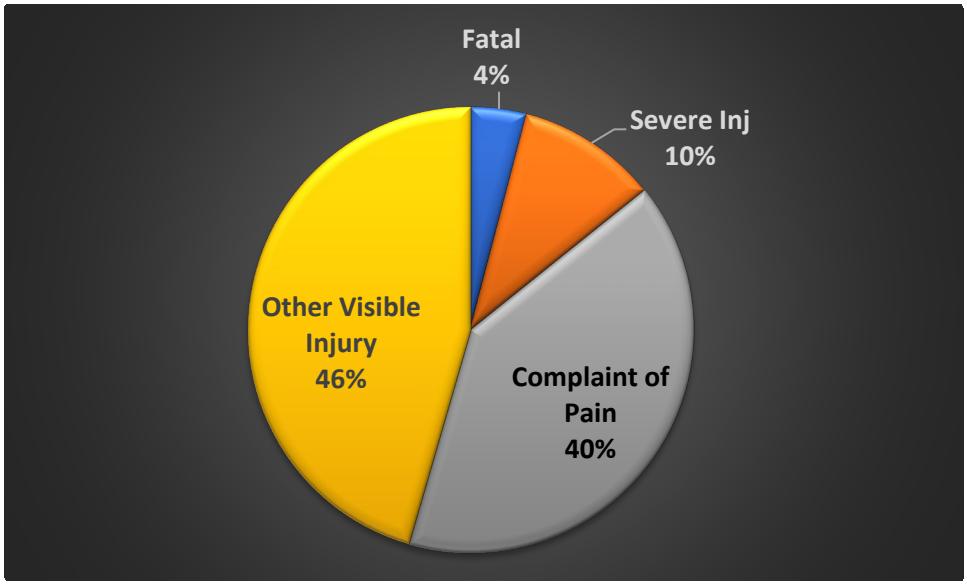


Table 20 shows the percent of the identified pedestrian actions at crashes involving pedestrians. Reported pedestrian actions generally involved crossing in crosswalk while at the intersection (48%) or crossing the street not in a crosswalk (28%). Pedestrians crossing in a crosswalk at an intersection includes marked or unmarked crosswalks where curb ramps are provided on either side of the intersection. The “Not in Road” pedestrian action refers to pedestrians that are either on a sidewalk or on the shoulder when hit by a vehicle.

Table 20: Pedestrian Actions

Pedestrian Action	Count	Percent
Crossing in Crosswalk at Intersection	120	48%
Crossing Not in Crosswalk	71	28%
Not in Road	30	12%
In Road	26	10%
Crossing in Crosswalk Not at Intersection	4	2%

As previously discussed in **Section 2.2.2** of this document and shown below in **Table 21**, the three most common reported causes of pedestrian-involved crashes were pedestrian violation (32%), other hazardous movement (31%), and unknown (9%). "Unknown" indicates that the cause of the crash could not be determined by the reporting officer. A review of the crash reports for the "Unknown" crashes cause found that many of these are hit and runs or crashes that occurred at night.

Table 21: Causes of Pedestrian-Involved Crashes

Cause	Count	Percent
Pedestrian Violation	79	32%
Other Hazardous Movement	77	31%
Unknown	22	9%
Ped R/W Violation	21	8%
Improper Turning	15	6%
Auto R/W Violation	10	4%
Traffic Signals and Signs	8	3%
Driving Under Influence	6	2%
Unsafe Speed	4	2%
Unsafe Starting or Backing	5	2%

Table 22 shows the breakdown of pedestrian-involved crashes by the age group of the pedestrian. As shown, the majority of pedestrians fall within the age of 15 to 64 years old (76%).

Table 22: Pedestrian -Involved Crashes by Age Group

Age Group of the Pedestrian	Count	Percent
Younger than 5 Years	2	1%
5-14 Years	29	11%
15-24 Years	55	22%
25-44 Years	72	28%
45-64 Years	65	26%
65-74 Years	19	8%
75 and older	11	4%

Table 23 shows the breakdown of pedestrian-involved crashes by speed limit and severity. As shown, the majority of crashes at each severity level occur on roadways with a speed limit of 35 MPH.

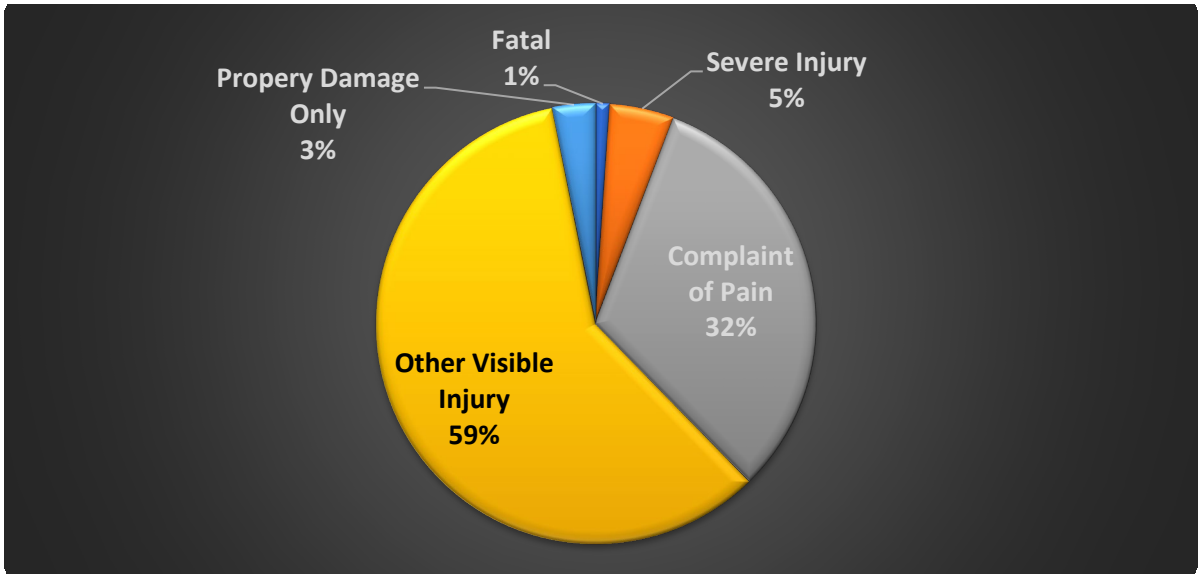
Table 23: Pedestrian-Involved Crashes by Speed Limit and Severity

Speed Limit	Severity					Total	Percent
	Complaint of Pain	Fatal	Other Visible Injury	Property Damage Only	Severe Injury		
35 MPH	56	4	71	5	11	147	59%
25 MPH	14	1	12		3	30	12%
45 MPH	10	3	11		1	25	10%
Other	8		7	2	2	19	8%
30 MPH	4		6		3	13	5%
65 MPH	2	2	2		1	7	3%
15 MPH	3	--	2	--	--	5	2%
40 MPH			1		3	4	2%
60 MPH	--	--	--	--	1	1	<1%

7.5.2. Bicycle Involved Crashes

During the analysis period, 191 bicycle-involved crashes were reported, of these crashes, two were fatalities (1%) and an additional 183 injuries (96%). **Figure 18** shows the injury types for all bicycle involved crashes during the analysis period.

Figure 18: Crash Severity of Bicycle-Involved Crashes



As discussed previously, the most common reported cause of bicycle-involved crashes was wrong side of road (33%) which could indicate cyclists riding on the wrong side of the road, auto right-of-way violation (21%) which refers to the motorist in a vehicle not yielding the right-of-way to the bicyclists, and improper turning (13%) referring to when the bicyclists does not use the appropriate turning signals (by hand) to turn left or right or change lanes. **Table 24** presents a list of all the bicycle-involved crash causes and the breakdown by percentage.

Table 24: Bicycle-Involved Crash Cause

Bicycle-Involved Crash Cause	Count	Percent
Wrong Side of Road	61	33%
Auto R/W Violation	39	21%
Improper Turning	25	13%
Traffic Signals and Signs	15	8%
Unsafe Speed	14	7%
Impeding Traffic	5	3%
Improper Passing	2	1%
Driving Under Influence	2	1%
Not Stated	2	1%
Other Hazardous Movement	6	3%
Other Improper Driving	3	2%
Other Than Driver	2	1%
Pedestrian Violation	1	1%
Unknown	8	4%
Unsafe Lane Change	1	1%
Unsafe Starting or Backing	1	1%

Table 25 shows the breakdown of bicyclist-involved crashes by the age group of the bicyclist. As shown, the majority of bicyclists fall within the age of 15 to 64 years old accounting for 85% of the crashes. The age group with the highest percentage of bicycle-involved crashes were 45 to 64 years old (32%).

Table 25: Bicyclist -Involved Crashes by Age Group

Age Group of the Bicyclist	Count	Percent
Younger than 5 Years	0	0%
5-14 Years	13	6%
15-24 Years	50	23%
25-44 Years	66	30%
45-64 Years	70	32%
65-74 Years	19	9%
75 and older	1	0%

Table 26 shows the breakdown of bicyclist-involved crashes by speed limit and severity. As shown, the majority of crashes at each severity level occur on roadways with a speed limit of 35 MPH.

Table 26: Bicyclist-Involved Crashes by Speed Limit and Severity

Speed Limit	Severity					Total	Percent
	Complaint of Pain	Fatal	Other Visible Injury	Property Damage Only	Severe Injury		
15 MPH	1	--	--	--	--	1	<1%
25 MPH	5	--	16	--	2	23	12%
30 MPH	4	--	9	--	--	13	7%
35 MPH	42	2	58	4	6	112	59%
40 MPH	1	--	2	--	--	3	2%
45 MPH	2	--	16	--	1	19	10%
50 MPH	--	--	1	--	--	1	<1%
65 MPH	1	--	3	1	--	5	3%
Other	5	--	8	1	--	14	7%

7.6. Hot Spot Locations - Intersections

Intersection 'hot spots' are identified as locations both with high crash frequency and severity of crashes. Hot spots were identified as the locations with both the greatest frequency and the greatest severity when compared to other crash locations. This was determined by reviewing the number of crashes at each intersection and assigning a cost associated with the severity of each crash consistent with Appendix D: Benefit/Cost Ratio Calculations, from the *Local Roadway Safety, A Manual for California's Local Road Owners* (Version 1.5, April 2020).

Table 27 shows the cost assumptions utilized in the analysis. This process assigns a greater weight to crashes that resulted either in severe injuries or fatalities and a lower weight on crashes that resulted in property damage only.

Table 27: Crash Costs

Crash Severity	Location Type	Crash Cost
Fatal / Severe Injury	Signalized Intersection	$ 1,590,000
	Non-Signalized Intersection	$ 2,530,000
	Roadway	$ 2,190,000
Other Visible Injury	All	$ 142,300
Complaint of Pain	All	$ 80,900
Property Damage Only	All	$ 13,300

Source: *Local Roadway Safety, A Manual for California's Local Road Owners*, Appendix D (Version 1.5, April 2020)

The following tables also present crash rates for the top hot spot intersections. The crash rates are provided for information purposes as this metric is not a factor in the HSIP benefit/cost ratio evaluation or the HSIP application. The calculation of crash rates is a standard traffic engineering industry method used to normalize the total number of crashes at an intersection compared to the total volume of traffic. The equation to determine a crash rate is as follows:

$$\text{Crash Rate (per 1 Million Entering Vehicles)} = \frac{\text{Number of Crashes x 1,000,000}}{\text{Traffic Volume Entering the Intersection Daily x 365 Days per Year x Number of Years}}$$

In order to calculate the crash rates, the number of crashes for each corridor were obtained from the 5-year data set and the average daily traffic (ADT) volumes were obtained from a Travel Forecast Model prepared for the City of Escondido by the San Diego Association of Governments (SANDAG). The SANDAG model included ADT volumes from the base year 2012 and forecast year 2035. To estimate the year 2021 ADT volumes, a growth rate for each segment was calculated using the base 2012 ADT volumes and forecast 2035 ADT volumes and applied this growth rate to calculate the 2021 ADTs within the City.

Tables 28-30 present a 'filtering' of the City's Hot Spots, with Table 28 showing the top intersections, including Caltrans facilities, as well as intersections that have received improvements since the pre-determined crash analysis period of 2016 through 2020. **Table 29** extracts the Caltrans projects, and **Table 30** also extracts recently improved or near-term scheduled improvements. The point of this study and this 'filtering' is to show intersections that are the best candidates for HSIP funding, so this list doesn't include projects that are not eligible.

Table 28: Intersection Hot Spots

Intersection		Number of Crashes						Intersection Control Type	Crash Cost	Crash Rate
		Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	PDO	Total			
1	Centre City Pkwy & El Norte Pkwy	0	3	12	27	8	50	Signalized	$8,768,300	0.54
2	Escondido Blvd & Felicita Rd	1	2	10	12	4	29	Signalized	$7,217,000	0.42
3	Midway Dr & Valley Pkwy	0	3	8	12	10	33	Signalized	$7,012,200	0.61
4	Centre City Pkwy & Escondido Blvd	1	1	11	14	0	27	Unsignalized	$5,877,900	0.50
5	Quince St & Washington Ave	0	1	14	16	10	41	Signalized	$5,009,600	0.90
6	Quince St & 9th Ave	0	2	7	7	4	20	Signalized	$4,795,600	0.54
7	Valley Pkwy & Fig St	0	1	10	20	4	35	Signalized	$4,684,200	0.87
8	Mission Ave & Fig St	0	1	10	16	5	32	Signalized	$4,373,900	0.57
9	El Norte Pkwy & Ash St	2	0	5	4	1	12	Signalized	$4,228,400	0.17
10	Centre City Pkwy & Valley Pkwy	0	1	8	16	4	29	Signalized	$4,076,000	0.38
11	Mission Ave & Broadway St *	0	0	13	25	4	42	Signalized	$3,925,600	0.47
12	Washington Ave & Rose St	0	0	13	25	3	41	Signalized	$3,912,300	1.14

Intersection		Number of Crashes						Intersection Control Type	Crash Cost	Crash Rate
		Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	PDO	Total			
13	Centre City Pkwy & Felicita Ave	1	0	6	16	5	28	Signalized	$3,804,700	0.34
14	Centre City Pkwy & 9th Ave	0	1	8	7	5	21	Signalized	$3,361,200	0.28
15	Valley Pkwy & Quince St	1	0	8	7	4	20	Signalized	$3,347,900	0.36
16	Mission Ave & Ash St	0	1	7	8	2	18	Signalized	$3,259,900	0.35
17	Mission Ave & Metcalf St	0	1	3	15	1	20	Signalized	$3,243,700	0.56
18	Morning View Dr & Lincoln Ave	0	1	2	3	2	8	Unsignalized	$3,016,300	0.90
19	Centre City Pkwy & Iris Ln	0	1	6	6	2	15	Signalized	$2,955,800	0.28
20	Morning View Dr & El Norte Pkwy	0	1	4	9	1	15	Signalized	$2,900,600	0.30
21	Juniper St & 10th Ave	0	1	1	2	2	6	Unsignalized	$2,860,700	0.46
22	Grand Ave & Gayland St	0	1	1	2	1	5	Unsignalized	$2,847,400	0.28
23	Broadway St & El Norte Pkwy	0	0	10	16	8	34	Signalized	$2,823,800	0.35
24	Valley Pkwy & 9th Ave	0	1	5	6	2	14	Signalized	$2,813,500	0.21
25	Mission Ave & Quince St	0	1	4	7	6	18	Signalized	$2,805,300	0.34
26	Washington Ave & Elm St (East) *	0	1	1	1	1	4	Unsignalized	$2,766,500	0.12
27	Broadway St & Leslie Ln	1	0	1	0	1	3	Unsignalized	$2,685,600	0.19
28	Juniper St & Grand Ave	0	1	4	6	2	13	Signalized	$2,671,200	0.59
29	Mission Ave & Rock Springs Road	0	0	9	16	6	31	Signalized	$2,654,900	0.66
30	El Norte Pkwy & Ivy St	0	1	0	1	1	3	Unsignalized	$2,624,200	0.04
31	Centre City Pkwy & Country Club Ln	0	1	3	7	1	12	Signalized	$2,596,500	0.18
32	Lincoln Ave & Harding St (East)	0	1	2	8	3	14	Unsignalized	$2,561,700	0.39
33	Juniper St & 11th Ave (North)	0	1	0	0	1	2	Unsignalized	$2,543,300	0.15

Intersection		Number of Crashes						Intersection Control Type	Crash Cost	Crash Rate
		Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	PDO	Total			
34	Mission Ave & Centre City Pkwy **	0	0	9	13	9	31	Signalized	$2,452,100	0.28
35	Midway Dr & Grand Ave	0	1	1	7	6	15	Signalized	$2,378,400	0.56
36	Escondido Blvd & Grand Ave	0	0	8	15	1	24	Signalized	$2,365,200	0.93

Note: PDO = Property Damage Only
*Caltrans facility.

Table 29 adjusts the top 35 intersection hot spot locations by removing intersections that are Caltrans maintained facilities

Table 29: Intersection Hot Spots (without Caltrans)

Intersection		Number of Crashes						Intersection Control Type	Crash Cost	Crash Rate
		Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	PDO	Total			
1	Centre City Pkwy & El Norte Pkwy	0	3	12	27	8	50	Signalized	$8,768,300	0.54
2	Midway Dr & Valley Pkwy	0	3	8	12	10	33	Signalized	$7,012,200	0.61
3	Centre City Pkwy & Escondido Blvd	1	1	11	14	0	27	Unsignalized	$5,877,900	0.50
4	Quince St & Washington Ave	0	1	14	16	10	41	Signalized	$5,009,600	0.90
5	Quince St & 9th Ave	0	2	7	7	4	20	Signalized	$4,795,600	0.54
6	Valley Pkwy & Fig St	0	1	10	20	4	35	Signalized	$4,684,200	0.87
7	Mission Ave & Fig St	0	1	10	16	5	32	Signalized	$4,373,900	0.57
8	El Norte Pkwy & Ash St	2	0	5	4	1	12	Signalized	$4,228,400	0.17
9	Centre City Pkwy & Valley Pkwy	0	1	8	16	4	29	Signalized	$4,076,000	0.38
10	Washington Ave & Rose St	0	0	13	25	3	41	Signalized	$3,912,300	1.14
11	Centre City Pkwy & Felicita Ave	1	0	6	16	5	28	Signalized	$3,804,700	0.34
12	Centre City Pkwy & 9th Ave	0	1	8	7	5	21	Signalized	$3,361,200	0.28

Intersection		Number of Crashes						Intersection Control Type	Crash Cost	Crash Rate
		Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	PDO	Total			
13	Valley Pkwy & Quince St	1	0	8	7	4	20	Signalized	$3,347,900	0.36
14	Mission Ave & Ash St	0	1	7	8	2	18	Signalized	$3,259,900	0.35
15	Mission Ave & Metcalf St	0	1	3	15	1	20	Signalized	$3,243,700	0.56
16	Morning View Dr & Lincoln Ave	0	1	2	3	2	8	Unsignalized	$3,016,300	0.90
17	Centre City Pkwy & Iris Ln	0	1	6	6	2	15	Signalized	$2,955,800	0.28
18	Morning View Dr & El Norte Pkwy	0	1	4	9	1	15	Signalized	$2,900,600	0.30
19	Juniper St & 10th Ave	0	1	1	2	2	6	Unsignalized	$2,860,700	0.46
20	Grand Ave & Gayland St	0	1	1	2	1	5	Unsignalized	$2,847,400	0.28
21	Broadway & El Norte Pkwy	0	0	10	16	8	34	Signalized	$2,823,800	0.35
22	Valley Pkwy & 9th Ave	0	1	5	6	2	14	Signalized	$2,813,500	0.21
23	Mission Ave & Quince St	0	1	4	7	6	18	Signalized	$2,805,300	0.34
24	Broadway & Leslie Ln	1	0	1	0	1	3	Unsignalized	$2,685,600	0.19
25	Juniper St & Grand Ave	0	1	4	6	2	13	Signalized	$2,671,200	0.59
26	Mission Ave & Rock Springs Road	0	0	9	16	6	31	Signalized	$2,654,900	0.66
27	El Norte Pkwy & Ivy St	0	1	0	1	1	3	Unsignalized	$2,624,200	0.04
28	Centre City Pkwy & Country Club Ln	0	1	3	7	1	12	Signalized	$2,596,500	0.18
29	Lincoln Ave & Harding St (East)	0	1	2	8	3	14	Unsignalized	$2,561,700	0.39
30	Juniper St & 11th Ave (North)	0	1	0	0	1	2	Unsignalized	$2,543,300	0.15
31	Mission Ave & Centre City Pkwy	0	0	9	13	9	31	Signalized	$2,452,100	0.28
32	Midway Dr & Grand Ave	0	1	1	7	6	15	Signalized	$2,378,400	0.56
33	Escondido Blvd & Grand Ave	0	0	8	15	1	24	Signalized	$2,365,200	0.93

Note: PDO = Property Damage Only
** Recent improvements have been made at these locations

Table 30 summarizes the top intersection hot spot locations, but without Caltrans facilities and intersections where the City has done certain improvements since 2020 (the last year of crash period examined) that would have improved the safety aspects of certain intersections or segments. The City also has projects scheduled, either as City projects or developer-funded projects, that will improve intersections to the point that the crash causal factors identified in the 2016-2020 period are no longer valid. We don't want these intersections to be within the list of HSIP-eligible intersection, since this represents locations most in need of safety funds to address crash causes from the 2016-20 time period.

Table 30: Intersection Hot Spots (without Caltrans and recent/future improvements)

Intersection		Number of Crashes						Intersection Control Type	Crash Cost	Crash Rate
		Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	PDO	Total			
1	Centre City Pkwy & El Norte Pkwy	0	3	12	27	8	50	Signalized	$8,768,300	0.54
2	Midway Dr & Valley Pkwy	0	3	8	12	10	33	Signalized	$7,012,200	0.61
3	Centre City Pkwy & Escondido Blvd	1	1	11	14	0	27	Unsignalized	$5,877,900	0.50
4	Quince St & Washington Ave	0	1	14	16	10	41	Signalized	$5,009,600	0.90
5	Quince St & 9th Ave	0	2	7	7	4	20	Signalized	$4,795,600	0.54
6	Valley Pkwy & Fig St	0	1	10	20	4	35	Signalized	$4,684,200	0.87
7	Mission Ave & Fig St	0	1	10	16	5	32	Signalized	$4,373,900	0.57
8	El Norte Pkwy & Ash St	2	0	5	4	1	12	Signalized	$4,228,400	0.17
9	Centre City Pkwy & Valley Pkwy	0	1	8	16	4	29	Signalized	$4,076,000	0.38
10	Washington Ave & Rose St	0	0	13	25	3	41	Signalized	$3,912,300	1.14
11	Centre City Pkwy & Felicita Ave	1	0	6	16	5	28	Signalized	$3,804,700	0.34
12	Centre City Pkwy & 9th Ave	0	1	8	7	5	21	Signalized	$3,361,200	0.28
13	Valley Pkwy & Quince St	1	0	8	7	4	20	Signalized	$3,347,900	0.36
14	Mission Ave & Ash St	0	1	7	8	2	18	Signalized	$3,259,900	0.35
15	Mission Ave & Metcalf St	0	1	3	15	1	20	Signalized	$3,243,700	0.56

Intersection		Number of Crashes						Intersection Control Type	Crash Cost	Crash Rate
		Fatal	Severe Injury	Other Visible Injury	Complaint of Pain	PDO	Total			
16	Morning View Dr & Lincoln Ave	0	1	2	3	2	8	Unsignalized	$3,016,300	0.90
17	Centre City Pkwy & Iris Ln	0	1	6	6	2	15	Signalized	$2,955,800	0.28
18	Morning View Dr & El Norte Pkwy	0	1	4	9	1	15	Signalized	$2,900,600	0.30
19	Juniper St & 10th Ave	0	1	1	2	2	6	Unsignalized	$2,860,700	0.46
20	Grand Ave & Gayland St	0	1	1	2	1	5	Unsignalized	$2,847,400	0.28
21	Broadway & El Norte Pkwy	0	0	10	16	8	34	Signalized	$2,823,800	0.35
22	Valley Pkwy & 9th Ave	0	1	5	6	2	14	Signalized	$2,813,500	0.21
23	Mission Ave & Quince St	0	1	4	7	6	18	Signalized	$2,805,300	0.34
24	Juniper St & Grand Ave	0	1	4	6	2	13	Signalized	$2,671,200	0.59
25	Mission Ave & Rock Springs Road	0	0	9	16	6	31	Signalized	$2,654,900	0.66
26	El Norte Pkwy & Ivy St	0	1	0	1	1	3	Unsignalized	$2,624,200	0.04
27	Centre City Pkwy & Country Club Ln	0	1	3	7	1	12	Signalized	$2,596,500	0.18
28	Lincoln Ave & Harding St (East)	0	1	2	8	3	14	Unsignalized	$2,561,700	0.39
29	Juniper St & 11th Ave (North)	0	1	0	0	1	2	Unsignalized	$2,543,300	0.15
30	Midway Dr & Grand Ave	0	1	1	7	6	15	Signalized	$2,378,400	0.56
31	Escondido Blvd & Grand Ave	0	0	8	15	1	24	Signalized	$2,365,200	0.93

Note: PDO = Property Damage Only

The project team will determine which of these hot spot locations and crash data would be eligible for HSIP funding based on the current crash trends and the appropriate countermeasures to address the given safety concern. Locations with prior HSIP funding are identified in **Table 28** and discussed further in **Section 5** of this report.

7.7. Hot Spot Locations - Corridors

The following hot spot corridors have been identified previously during the review of the top 10 mid-block crash location map (Figure 2) as listed in **Tables 31 & 32** from highest to lowest number of crashes. Roadway segments with the same number of crashes were then ordered by the higher crash rate provided in Section 7.8.

Table 31: Mid-Block Segment Hot Spots (with Caltrans)

#	Roadway	From	To	Total Crashes
1	Morning View Dr	El Norte Pkwy	Lincoln Ave	29
2	Valley Pkwy	Rose St	Midway Dr	29
3	Valley Pkwy	Midway Dr	Quarry Glen Ln	19
4	Valley Center Road	Lake Wohlford Road	Northern City Limits	13
5	* Broadway	Crest St	Mission Ave	12
6	El Norte Pkwy	Morning View Dr	Las Villas Way	12
7	Valley Pkwy	Harding St	Rose St	11
8	Mission Ave	Metcalf St	Rock Springs Road	10
9	Washington Ave	Escondido Blvd	Broadway	10
10	Centre City Pkwy	Mission Ave	Washington Ave	9

* Caltrans facility

Table 32: Mid-Block Segment Hot Spots (no Caltrans)

#	Roadway	From	To	Total Crashes
1	Morning View Dr	El Norte Pkwy	Lincoln Ave	29
2	Valley Pkwy	Rose St	Midway Dr	29
3	Valley Pkwy	Midway Dr	Quarry Glen Ln	19
4	Valley Center Rd	Lake Wohlford Rd	Northern City Limits	13
5	El Norte Pkwy	Morning View Dr	Las Villas Way	12
6	Valley Pkwy	Harding St	Rose St	11
7	Mission Ave	Metcalf St	Rock Springs Road	10
8	Washington Ave	Escondido Blvd	Broadway	10
9	Centre City Pkwy	Mission Ave	Washington Ave	9
10	Grand Ave*	Midway Dr	Rose St	35

*Grand Ave total includes all crashes in the segment from Rose Street to Midway Drive (1/2 mile)

These ten corridors were further examined by calculating average crash rates and comparing those crash rates to those rates for similar facilities.

7.8. Roadway Segment Crash Rate Analysis

The calculation of crash rates is a standard traffic engineering industry method used to determine the relative safety of a roadway segment by accounting for the exposure to traffic volumes and length of the segment. The equation to determine a crash rate is as follows:

$$\text{Crash Rate (per 1 Million Vehicle Miles Traveled)} = \frac{\text{Number of Crashes x 1,000,000}}{\text{Average Daily Traffic Volume x 365 Days per Year x Number of Years x Length of Roadway Segment}}$$

In order to calculate the crash rates, the number of crashes for each corridor were obtained from the January 2016 to December 31, 2020 data set and the average daily traffic (ADT) volumes were obtained from a Travel Forecast Model prepared for the City of Escondido by the San Diego Association of Governments (SANDAG). The SANDAG model included ADT volumes from the base year 2012 and forecast year 2035. To estimate the year 2021 ADT volumes, a growth rate for each segment was calculated using the base 2012 ADT volumes and forecast 2035 ADT volumes and applied this growth rate to calculate the 2021 ADTs within the City. The length of the segment in miles was also utilized to calculate the crash rate per million vehicle miles traveled. The crash rates calculated for each corridor were compared to data obtained from the Caltrans *2018 Crash Data on California State Highways*, specifically the year 2018 data for District 11 roadways that are categorized into roadway cross-section types. The Caltrans' average crash rates utilized in this analysis are as follows:

- 2 and 3 lane roadways = 0.73
- 4+ lane undivided roadways = 1.01
- 4+ lane divided roadways = 1.03

Table 33 summarizes the crash rate calculations. As shown, the calculated crash rates for eight of the ten hot spot locations were greater than the crash rates for similar facilities within District 11 (San Diego County).

Table 33: Roadway Segment Crash Rate Analysis

Roadway	From	To	Length of Segment (miles)	Average Daily Traffic Volume	No. of Years of Data	No. of Crashes	Crash Rate (1)	Average Crash Rate for Similar Facilities (2)	Rate / Average
Morning View Dr	El Norte Pkwy	Lincoln Ave	0.87	5,200	5	29	3.51	0.73	4.81
Valley Pkwy	Rose St	Midway Dr	0.51	19,800	5	29	0.84	1.03	0.82
Valley Pkwy	Midway Dr	Quarry Glen Ln	0.22	22,100	5	19	2.14	1.03	2.08
Valley Center Road	Lake Wohlford Road	Northern City Limits	0.84	38,700	5	13	0.22	1.03	0.21
*Broadway	Crest St	Mission Ave	0.09	27,800	5	12	2.63	1.01	2.60
El Norte Pkwy	Morning View Dr	Las Villas Way	0.22	22,300	5	12	1.34	1.03	1.30
Valley Pkwy	Harding St	Rose St	0.27	18,100	5	11	1.23	1.03	1.20
Mission Ave	Metcalf St	Rock Springs Road	0.25	11,100	5	10	1.97	1.03	1.92
Washington Ave	Escondido Blvd	Broadway	0.25	16,000	5	10	1.37	1.03	1.33
Centre City Pkwy	Mission Ave	Washington Ave	0.23	24,500	5	9	0.88	1.03	0.85

(1) Crashes per Million Vehicle Miles Traveled
(2) Source: Caltrans 2018 Crash Data on California State Highways; District 11 Rates (2018) in Million Vehicle Miles. Crash rates for similar facilities are based on California District 11 average rates for 2/3 lane (2/3 Ln), 4+ lane undivided (4 + Und), 4+ lane divided (4 + Div) facilities.
(3) Crash rates greater than the statewide average are highlighted in blue.
* Caltrans facility

8. Emphasis Areas & Countermeasures

8.1. Emphasis Areas

The City's LRSP is a tool that is intended to assist City staff in most effectively focusing education, enforcement, engineering, and emergency response resources towards the highest priority systemic and location specific crash trends for safety improvements. The crash data combined with professional engineering judgement was used to identify applicable safety projects that have a definite and measurable safety benefit. Using the crash data described in the previous section of this report and input from the Stakeholders, Michael Baker and City staff identified three (3) major emphasis areas for the City. **Table 31** presents the three emphasis areas along with performance measures and strategies to improve safety. DUIs are not considered in the evaluation of safety improvements but are included in the non-engineering emphasis areas such as Enforcement and Education.

Caltrans LRSP process was followed in order to compete for grant funding that will help address roadway safety needs throughout the City.

8.2. Countermeasures

Based on a thorough review of the crash types and causes at each of the top 35 intersections and top 10 roadway segments with the highest concentration of crashes, the project team selected appropriate countermeasures to reduce the likelihood of future crashes. The *Local Roadway Safety, A Manual for California's Local Road Owners, (*Version 1.5, April 2020) prepared by Caltrans, with support from FHWA and SafeTREC, was used as a guide for selecting countermeasures and corresponding Crash Reduction Factors (CRF) for this LRSP. CRF's represent the proportion of crashes that are expected to be eliminated from a location as a result of receiving a specific safety improvement i.e. specific countermeasure.

Caltrans' *Local Roadway Safety Manual* provides a list of countermeasures that are sorted into 3 categories: Signalized Intersections, Non-Signalized Intersections, and Roadway Segments. Pedestrian and bicycle-related countermeasures have been included in each of these categories. Caltrans has established key requirements and procedures for projects to allow agencies maximum flexibility in combining countermeasures and locations into a single project, while ensuring all projects can be consistently ranked on a statewide basis.

1.) A maximum of three (3) individual countermeasures can be utilized in the Benefit / Cost (B/C) ratio for a project.
2.) If the project involves multiple locations, the locations must have the same safety improvements and thus exactly the same countermeasures.
3.) If a project selects to install a traffic signal i.e. countermeasure NS03 at a location, additional countermeasures cannot be utilized in the B/C ratio calculation for the project.

In this LRSP, a total of ten (10) projects have been identified for HSIP funding. The ten different projects along with the countermeasures, locations, project costs, benefit costs, and B/C ratios associated with each project are provided on the following pages. The combination of countermeasures that were selected for each project and location was selected to provide the most competitive applications for HSIP grant funding. **Table 34** provides a list of the top 35 intersections with the corresponding project. Projects were evaluated for the top 10 roadway segments with the highest volume of crashes but were ultimately removed from the list of projects to pursue HSIP grant funding due to low B/C ratios.

Table 34: LRSP Emphasis Areas

Emphasis Area	General Targets	Recommended Strategies	Projects
Improve Intersection Safety	1.) Reduce annual intersection-related fatalities from 6 in Year 2020 to 3 or fewer in Year 2035 (a 50-percent reduction). 2.) Reduce annual intersection-related serious injuries from 22 in Year 2020 to 16 or fewer in Year 2035 (a 25-percent reduction).	1.) Reduce the number of conflict points and provide better guidance for motorists at intersections. 2.) Develop a system to track and evaluate countermeasure effectiveness at high-crash intersections. 3.) Create intersection safety checklists for existing conditions and new design.	**Project 3:** Add Left Turn Phasing & Marked Pedestrian Crossings (Signalized) **Project 5:** Install Traffic Signal (Unsignalized)
Increase Non-Motorized Road User Safety	1.) Reduce annual pedestrian-related fatalities and serious injuries from 10 (3 fatalities and 7 serious injuries) in Year 2020 to fewer than 7 in Year 2035 (a 30-percent reduction). 2.) Reduce annual bicycle-related serious injuries from 3 in Year 2020 to 1 or 0 in Year 2035 (a 33-percent reduction).	1.) Conduct periodic roadway safety assessments of locations with growing traffic and pedestrian/bicycle volumes and locations at greatest risk for pedestrian/bicycle fatalities and injuries and share information with other local partners. 2.) Implement effective countermeasures for problem areas as determined by roadway safety assessments. 3.) Conduct public education and outreach to motorists to raise awareness of pedestrian and bicyclist safety needs.	**Project 1:** Add Pedestrian Countdown Head & Lead Pedestrian Interval (Signalized) **Project 2:** Add Left Turn Phasing & Lead Pedestrian Interval (Signalized) **Project 4:** New Marked Pedestrian Crossings with Rectangular Rapid Flashing Beacons (Unsignalized) **Project 6:** Improve Pedestrian Crossing Safety
Speed Management	1.) Reduce annual crashes related to Unsafe Speed from 131 in Year 2020 to 98 or fewer in Year 2035 (a 25-percent reduction). 2.) Reduce the 85th percentile speeds on Arterials and Collectors throughout the City by 5 MPH or more in Year 2035	1.) Change the driving culture by conducting and supporting public education and outreach activities that elevate the awareness of the dangers of aggressive driving. 2.) Communicate the factors associated with aggressive driving to the transportation engineering and planning communities. 3.) Increase enforcement targeting aggressive driving.	**Project 5:** Install Traffic Signal (Unsignalized)

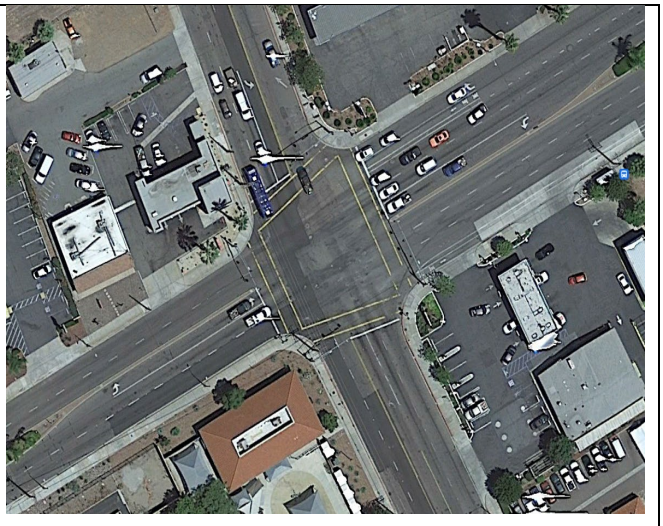
PROJECT #1: Add Pedestrian Countdown Signal Head & Lead Pedestrian Interval			
Countermeasures:			
	S02 Improve signal hardware: lenses, back plates with retroreflective borders, mounting and number.	**S17PB** Install pedestrian countdown signal heads.	**S21PB** Modify signal phasing to implement a leading pedestrian interval.
Crash Reduction Factor	*15%*	25%	25%
Expected Life	*10 years*	20 years	10 years
HSIP Funding Eligibility	*100%*	100%	100%

Signalized Intersection Locations:

1.) Centre City Pkwy & El Norte Pkwy
2.) Midway Dr & Valley Pkwy
3.) Centre City Pkwy & Valley Pkwy
4.) Centre City Pkwy & Felicita Ave
5.) Valley Pkwy & Quince St
6.) Mission Ave & Ash St
7.) El Norte Pkwy & Broadway
8.) Valley Pkwy & 9th Ave
9.) Mission Ave & Quince St
10.) Grand Ave & Juniper St
11.) Centre City Pkwy & Country Club Ln
12.) Midway Dr & Grand Ave

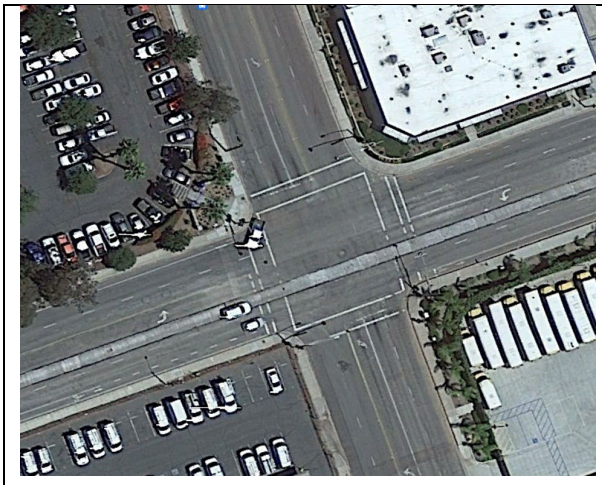
Total Expected Benefit (B):	Total Project Cost (C):	Benefit Cost Ratio (B/C):
$24,042,479	**$573,400**	**41.93**

Centre City Pkwy & El Norte Pkwy



Midway Dr & Valley Pkwy

PROJECT #2: Add Left Turn Phasing & Lead Pedestrian Interval			
Countermeasures:			
	S02 Improve signal hardware: lenses, back plates with retroreflective borders, mounting and number.	**S07** Provide protected left-turn phase (where left-turn lane already exists).	**S21PB** Modify signal phasing to implement a leading pedestrian interval.
Crash Reduction Factor	15%	30%	60%
Expected Life	10 years	20 years	10 years
HSIP Funding Eligibility	100%	100%	100%
Signalized Intersection Locations:			
1.) Washington Ave & Quince St 2.) Mission Ave & Fig St 3.) Washington Ave & Rose St 4.) Centre City Pkwy & 9th Ave			
Total Expected Benefit (B):	**Total Project Cost (C):**	**Benefit Cost Ratio (B/C):**	
$26,379,896	**$1,179,600**	**22.36**	



Washington Ave & Quince St

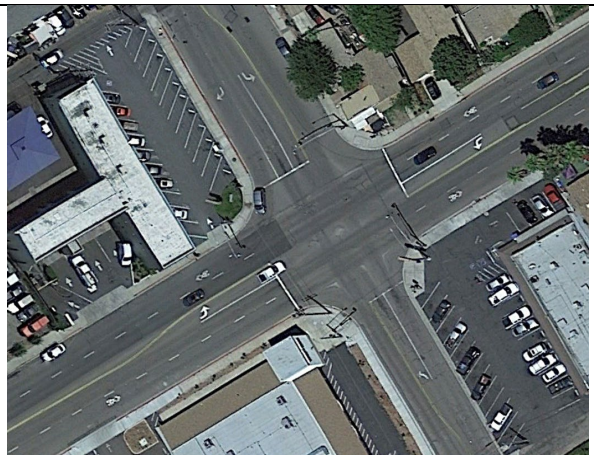
Mission Ave & Fig St

PROJECT #3: Add Left Turn Phasing & Marked Pedestrian Crossings			
Countermeasures:			
	S02 Improve signal hardware: lenses, back plates with retroreflective borders, mounting and number.	**S07** Provide protected left-turn phase (where left-turn lane already exists).	**S18PB** Install pedestrian crossing.
Crash Reduction Factor	15%	30%	60%
Expected Life	10 years	20 years	10 years
HSIP Funding Eligibility	100%	100%	100%

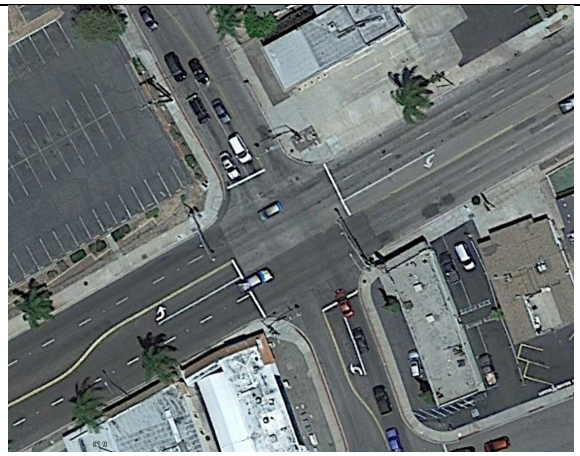
Signalized Intersection Locations:

1.) Quince St & 9th Ave
2.) Valley Pkwy & Fig St
3.) Mission Ave & Metcalf St
4.) Centre City Pkwy & Iris Ln
5.) Mission Ave & Rock Springs Road
6.) Escondido Blvd & Grand Ave

Total Expected Benefit (B):	Total Project Cost (C):	Benefit Cost Ratio (B/C):
$35,985,917	**$1,968,400**	**18.28**



Quince St & 9th Ave



Valley Pkwy & Fig St

PROJECT #4: Add Leading Ped Interval & Marked Pedestrian Crossings			
Countermeasures:			
	S02 Improve signal hardware: lenses, back plates with retroreflective borders, mounting and number.	**S21PB** Modify signal phasing to implement Leading Ped Interval	**S18PB** Install pedestrian crossing.
Crash Reduction Factor	15%	60%	60%
Expected Life	10 years	10 years	10 years
HSIP Funding Eligibility	100%	100%	100%
Signalized Intersection Locations:			
1.) El Norte Pkwy & Ash St 2.) El Norte Pkwy & Morning View Dr			
Total Expected Benefit (B):	**Total Project Cost (C):**	**Benefit Cost Ratio (B/C):**	
$4,847,240	**$153,300**	**31.62**	

PROJECT #5: Install Traffic Signal*	
Countermeasures:	
	NS03 Install traffic signal.
Crash Reduction Factor	30%
Expected Life	20 years
HSIP Funding Eligibility	100%
Unsignalized Intersection Locations:	
• Centre City Pkwy & Escondido Blvd • Centre City Pkwy & Brotherton Rd	

Total Expected Benefit (B):	Total Project Cost (C):	Benefit Cost Ratio (B/C):
$9,327,800	**$1,500,000**	**6.22**

Centre City Pkwy & Escondido Blvd

Centre City Pkwy & Brotherton Rd

***New traffic signal at Centre City Pkwy & Brotherton Rd with modifications to geometry at Centre City Pkwy & Escondido Blvd.**

PROJECT #6: Install Pedestrian Crossing Safety Improvements

Countermeasures:

- S17PB Install pedestrian countdown signal heads
- S18PB Install pedestrian crossing
- NS19PB Install raised medians
- NS20PB Install pedestrian crossing at uncontrolled locations (new signs & markings only)
- NS21PB Install/upgrade pedestrian crossing at uncontrolled locations (w/enhanced safety features)
- NS22PB Install Rectangular Rapid Flashing Beacon (RRFB)
- NS23PB Install Pedestrian Signal (including Pedestrian Hybrid Beacon (HAWK))
- R08 Install raised median
- R32PB Install bike lanes
- R33PB Install Separated Bike Lanes
- R34PB Install sidewalk/pathway (to avoid walking along roadway)
- R35PB Install/upgrade pedestrian crossing (with enhanced safety features)
- R36PB Install raised pedestrian crossing
- R37PB Install Rectangular Rapid Flashing Beacon (RRFB)
- **Other**

Locations:

1.) Disadvantaged areas citywide

See the following crash maps that show disadvantaged communities zones within the City. The following are provided:

- **Intersection Crashes in Disadvantaged Areas**
- **Mid-Block Crashes in Disadvantaged Areas**
- **Pedestrian Involved Crashes in Disadvantaged Areas**
- **Bicycle Involved Crashed in Disadvantaged Areas**

Figure 19: Intersection Crashes in Disadvantaged Areas

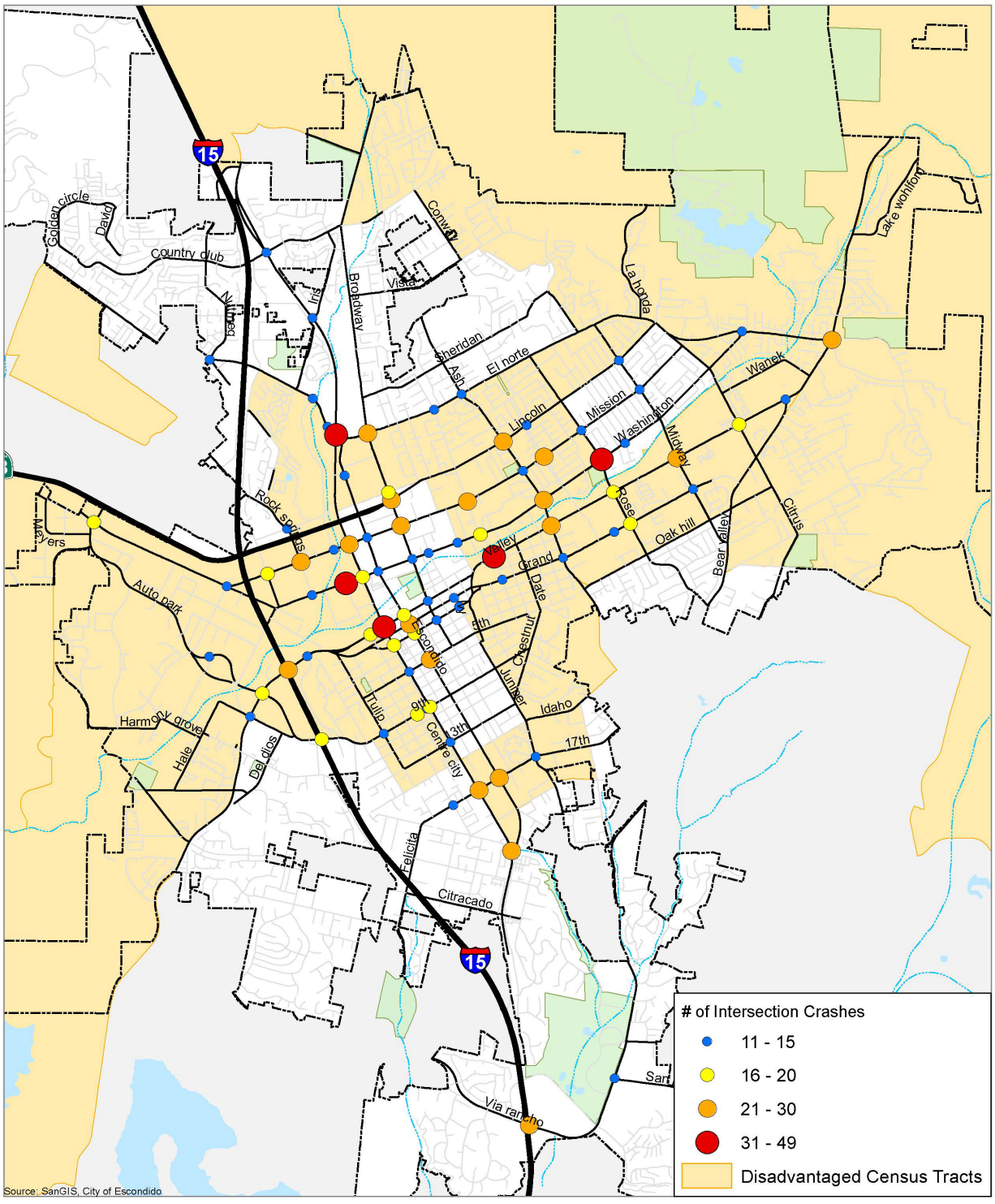


Figure 20: Mid-Block Crashes in Disadvantaged Areas

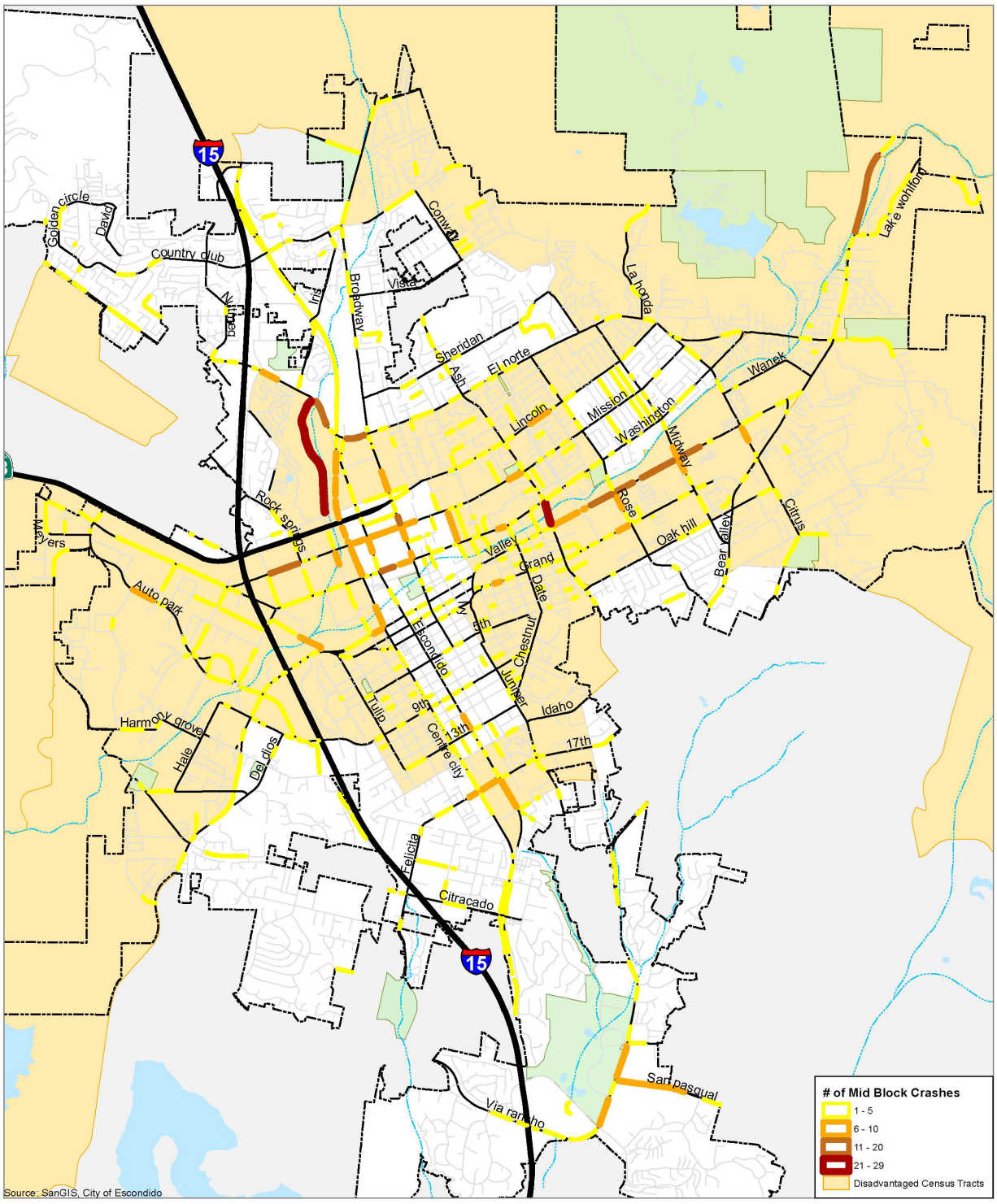
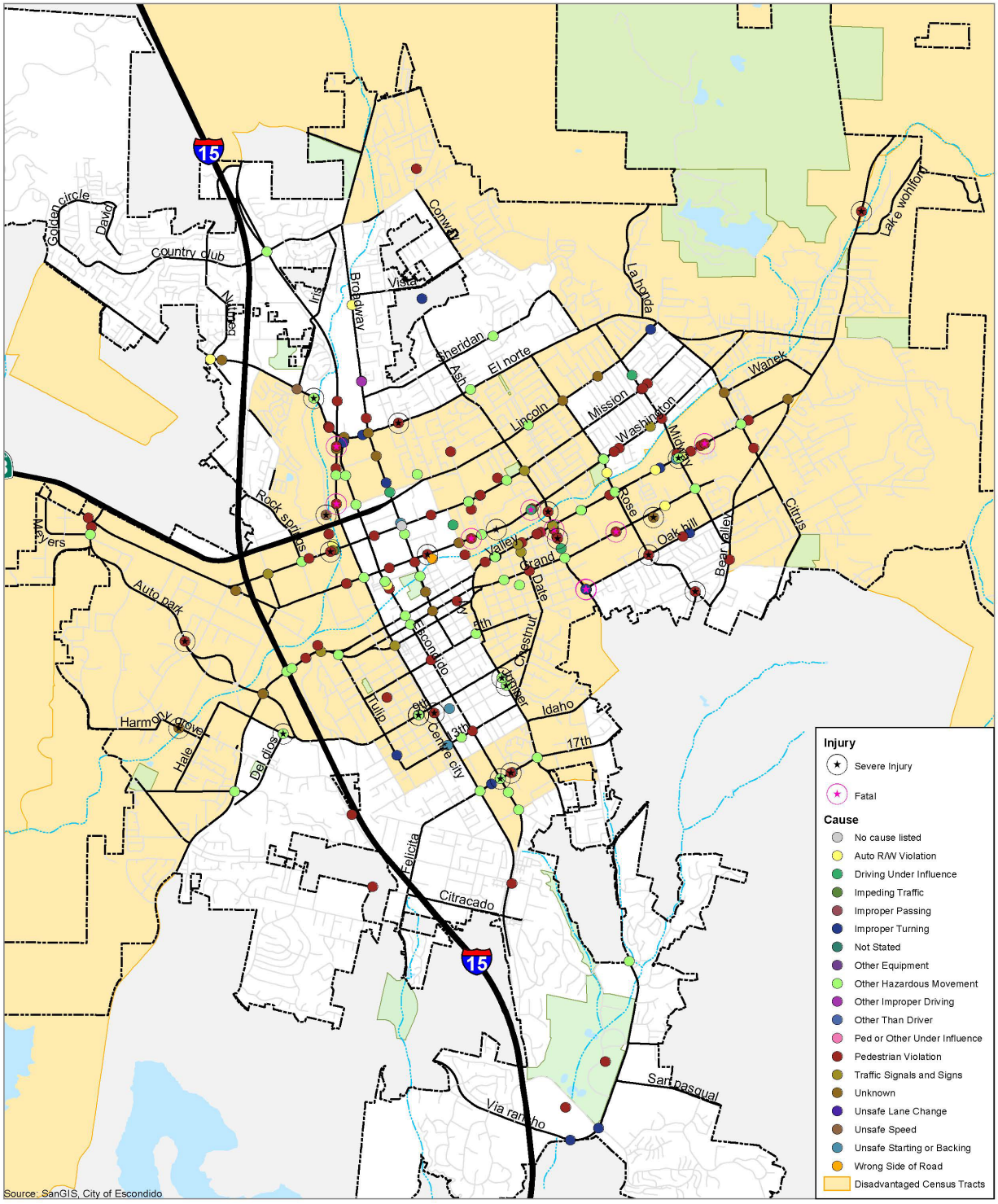


Figure 21: Pedestrian Involved Crashes in Disadvantaged Areas



0 0.5 Miles

Pedestrian Involved Crashes

ESCONDIDO City of Choice

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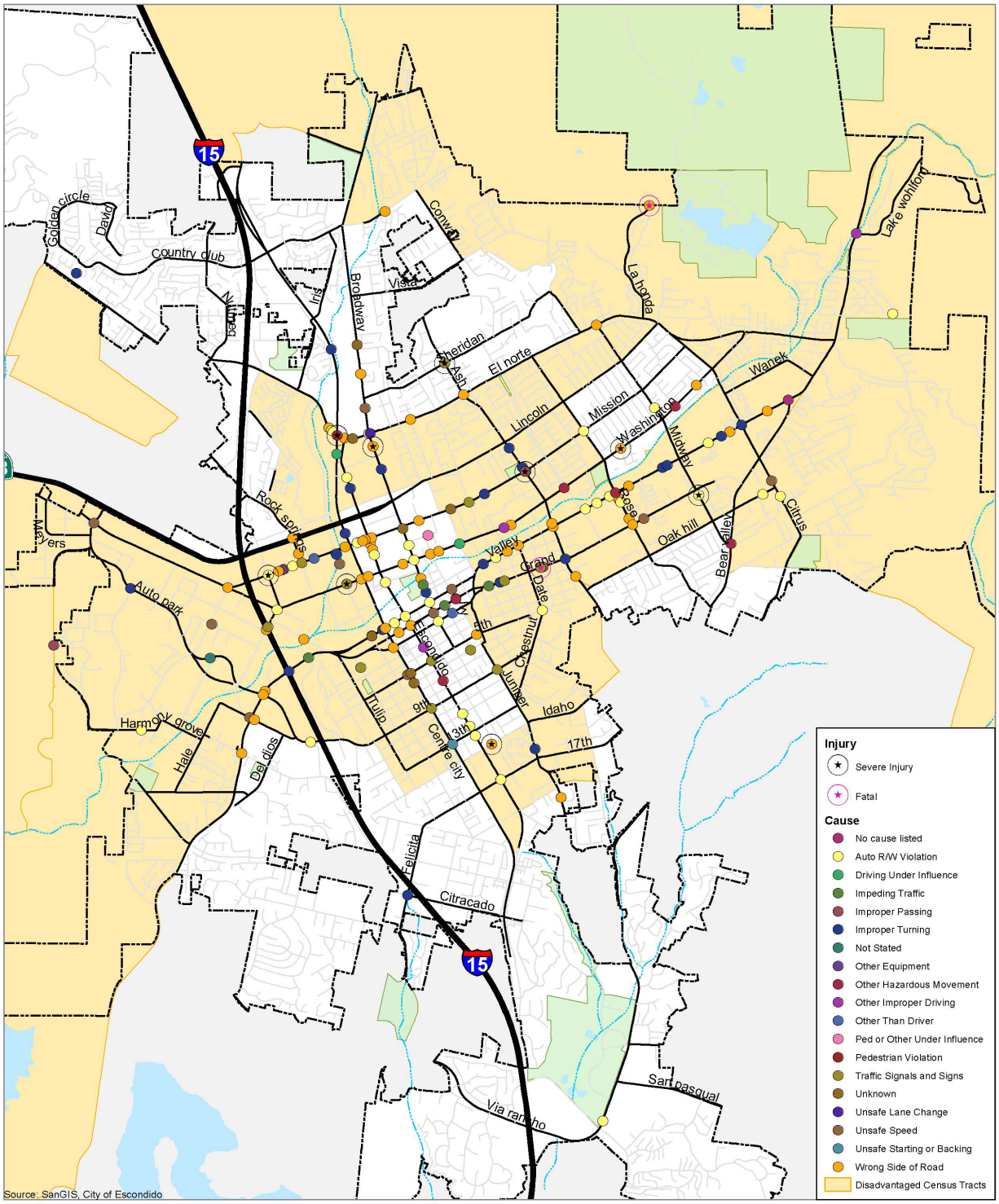
Figure 22: Bicycle Involved Crashes in Disadvantaged Areas



0 0.5 Miles

Bicycle Involved Crashes

ESCONDIDO City of Choice

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Table 35: Top Intersection Hot Spots & Associated Projects

Intersection		Total $ of Crashes	Total # of Crashes	Intersection Control Type	Project
1	Centre City Pkwy & El Norte Pkwy	$8,768,300	50	Signalized	Project #1
2	Midway Dr & Valley Pkwy	$7,012,200	33	Signalized	Project #1
3	Centre City Pkwy & S Escondido Blvd	$5,877,900	27	Unsignalized	Project #5
4	Quince St & Washington Ave	$5,009,600	41	Signalized	Project #2
5	Quince St & 9th Ave	$4,795,600	20	Signalized	Project #3
6	Valley Pkwy & Fig St	$4,684,200	35	Signalized	Project #3
7	Mission Ave & Fig St	$4,373,900	32	Signalized	Project #2
8	El Norte Pkwy & Ash St	$4,228,400	12	Signalized	Project #4
9	Centre City Pkwy & Valley Pkwy	$4,076,000	29	Signalized	Project #1
10	Washington Ave & Rose St	$3,912,300	41	Signalized	Project #2
11	Centre City Pkwy & Felicita Ave	$3,804,700	28	Signalized	Project #1
12	Centre City Pkwy & 9th Ave	$3,361,200	21	Signalized	Project #2
13	Valley Pkwy & Quince St	$3,347,900	20	Signalized	Project #1
14	Mission Ave & Ash St	$3,259,900	18	Signalized	Project #1
15	Mission Ave & Metcalf St	$3,243,700	20	Signalized	Project #3
16	Morning View Dr & Lincoln Ave	$3,016,300	8	Unsignalized	TBD
17	Centre City Pkwy & Iris Ln	$2,955,800	15	Signalized	Project #3
18	Morning View Dr & El Norte Pkwy	$2,900,600	15	Signalized	Project #4
19	Juniper St & 10th Ave	$2,860,700	6	Unsignalized	TBD
20	Grand Ave & Gayland St	$2,847,400	5	Unsignalized	TBD
21	Broadway & El Norte Pkwy	$2,823,800	34	Signalized	Project #1
22	Valley Pkwy & 9th Ave	$2,813,500	14	Signalized	Project #1
23	Mission Ave & Quince St	$2,805,300	18	Signalized	Project #1
24	Juniper St & Grand Ave	$2,671,200	13	Signalized	Project #1
25	Mission Ave & Rock Springs Road	$2,654,900	31	Signalized	Project #3
26	El Norte Pkwy & Ivy St	$2,624,200	3	Unsignalized	TBD
27	Centre City Pkwy & Country Club Ln	$2,596,500	12	Signalized	Project #1
28	Lincoln Ave & Harding St (East)	$2,561,700	14	Unsignalized	TBD
29	Juniper St & 11th Ave (North)	$2,543,300	2	Unsignalized	TBD
30	Midway Dr & Grand Ave	$2,378,400	15	Signalized	Project #1

9. Evaluation & Implementation

This section describes strategies the City may take to evaluate the success of this LRSP and steps needed to update the LRSP in the future. The effectiveness of safety improvements recommended in this LRSP should be evaluated following installation to ensure the project is operating as intended. This document should be considered a living document that is updated every 5 years to assess how well the implemented strategies have performed and update the crash data to identify new trends that might occur throughout the City.

The following strategies should be implemented to ensure the City's success in improving safety performance in Escondido:

- The City should meet periodically with the Transportation Community Safety Commission to oversee implementation of the safety improvements listed in the LRSP.
- Safety partners such as the Fire Department, Police Department, Recreation Department, and local school districts should meet on a yearly basis to discuss the effectiveness of the safety improvements.
- Develop a spreadsheet or database to track safety project installations and record 3 or more years of "before" and "after" crash information at those locations. Once countermeasures are constructed, schedule and track assessment dates to ensure they happen.
- Field observations should be conducted shortly after the project is completed by the Engineering Department to ensure the project is operating as intended.

Table 36 summarizes the educational programs and action items recommended to successfully improve safety throughout the City.

Table 36: LRSP Implementation Plan

Project #	HSIP Funding Cycle	Program	Action	Responsible Party	Timeline
1	Cycle 11	N/A	Apply for HSIP Grant Funding	City of Escondido	Year 2022 - 2023
2	Cycle 11	N/A	Apply for HSIP Grant Funding	City of Escondido	Year 2022 - 2023
3	Cycle 11	N/A	Apply for HSIP Grant Funding	City of Escondido	Year 2022 - 2023
4	N/A	N/A	Budget funding to pay for this project not HSIP eligible	City of Escondido	Year 2022 - 2023
5	N/A	N/A	Budget funding to pay for this project not HSIP eligible	City of Escondido	Year 2022 - 2023
6	N/A	N/A	Funding source to be determined	City of Escondido	N/A
	N/A	N/A	Apply for future grant funding pending further evaluation	City of Escondido	N/A
		Safe Routes to School	Partner with the EUHSD and EUSD to further support bicycling and walking.	Engineering Department	Annually – Up to 3 years (Year 2025)
		San Diego County Bicycle Coalition	Partner with the Coalition to promote awareness of bicyclists & and encourage the use of cycling to schools, businesses and the community.	Engineering Department	Annually – Up to 3 years (Year 2025)
		DUI Prevention	• Conduct DUI checkpoints on corridors with high concentration of DUI crashes at least 2x/year. • Increase awareness of the dangers of DUI by educating the public and students with assistance from City's Police Dept. and MADD. • Advertise and provide free transit service on major holidays to reduce the risk of DUI.	Police Department	Annually for the next 5 years (Year 2027)
		TransNet - Active Transportation Program Grant	• City should identify funding for ATP projects such as the Escondido Creek Bikeway Missing Link Project to encourage the use of bicycling and walking. • Further investigate ATP funding near local schools for safety improvements such as Mission Middle School, Pioneer Elementary	City of Escondido	Annually for the next 5 years (Year 2027)

Project #	HSIP Funding Cycle	Program	Action	Responsible Party	Timeline
			School, Juniper Elementary School, and LR Green Elementary School.		

CONCLUSION

The City prepared this LRSP to identify, analyze and prioritize roadway safety improvements on the local streets throughout the City. This LRSP identifies the top systemic crash patterns and top crash locations throughout the City, based on crash data collected from January 2016 through December 2020. The LRSP also provides the City a toolbox of countermeasures to address the systemic crash patterns and reduce crashes at the City's top crash locations. This LRSP provides the City with in-depth analysis of crash data that could be useful in determining safety improvements based on current programs outside of the HSIP grant funding process such as TPML, TSPL, and SRTS. In this LRSP, a total of three (3) projects involving 22 intersections have been identified for HSIP funding. The combination of countermeasures that were selected for each project and location was selected to provide the most competitive applications for HSIP grant funding. This document is considered a living document to be updated every 5 years to assess how well the implemented strategies have performed and update the crash data to identify new trends that might occur throughout the City.