



# STAFF REPORT

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May 25, 2022  
File Number 1050-70

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## SUBJECT

### LOCAL ROADWAY SAFETY PLAN

## DEPARTMENT

Development Services

## RECOMMENDATION

Request the City Council adopt Resolution No. 2022-64, approving the Local Roadway Safety Plan ("LRSP") and authorizing the City Engineer to submit applications for Highway Safety Improvement Program ("HSIP") grant funding.

Staff Recommendation: Approval (Development Services Department: Julie Procopio)

Presenters: Edd Alberto, Traffic Engineer and Craig Williams, Associate Engineer

## FISCAL ANALYSIS

The cost of preparation of the LRSP was paid for through a \$72,000 HSIP grant from Caltrans with \$18,000 in matching funds from the City.

## PREVIOUS ACTION

On September 23, 2020, the City Council authorized the acceptance of grant funding to prepare a LRSP.

## BACKGROUND

### What is a Local Roadway Safety Plan?

A Local Road Safety Plan ("LRSP") provides a framework for identification, analysis, and prioritization of roadway safety improvements on local roads. The LRSP was developed using the process outlined by Caltrans to provide a systematic approach to providing safety improvements. The plan is data driven, using a comprehensive analysis of five years of collision data for the years of 2016-2020. The collision analysis provides various citywide collision statistics, such as collisions per year; collisions involved with vehicles, pedestrians, bicycles, or property; types of injury collisions; and collision causes. The process results in a list of improvements and actions that address the areas of highest need, as supported by the data.



# CITY of ESCONDIDO

## STAFF REPORT

The process to identify the highest priority locations began with an analysis of the collision data to determine high-frequency crash locations. These crash locations were then monetized by applying a 'crash cost' that considers the severity of each crash. The crash costs have been determined by the Federal Highway Administration ("FHWA"), and represent crash statistics nationwide. These costs are shown in **Table 1** below.

**Table 1: Crash Cost**

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 number and severity of crashes at each location were calculated to determine the list of 30 Hot Spot intersections. The locations were then evaluated and appropriate countermeasures were assigned to address collision types. The 30 Hot Spot intersections are shown in **Attachment 1**.

### **Countermeasures Designed to Improve Safety**

In addition to the crash-cost calculations discussed above, the FHWA has developed a series of proven improvements that have been shown to reduce the likelihood or severity for various types of crashes. These countermeasures, if applied to intersections with certain types of crashes, are each assigned Crash Reduction Factors, which are used as part of the equation to determine a calculated Benefit-Cost ratio.

For intersections identified in the LRSP, the predominant types of countermeasures included:

#### **Signalized Intersection Improvements**

- Improve signal visibility for motorists
  - Providing better visibility of intersection signals aids the drivers' advance perception of the upcoming intersection. Types of signal improvements include new LED lighting, signal back plates, retro-reflective tape outlining the back plates, or visors to increase signal visibility, larger signal heads, relocation of the signal heads, or additional signal heads.
- Provide 'Protected' left turns
  - Left turns are widely recognized as the highest-risk movements at signalized intersections. Providing protected left-turn phases (i.e., the provision for a specific phase for a turning movement that employs a "green arrow") for signalized intersections with



# CITY of ESCONDIDO

## STAFF REPORT

existing left turn pockets significantly improves the safety for left-turn maneuvers by removing the need for the drivers to navigate through gaps in oncoming vehicles. Where left turn pockets are not protected, the pedestrian and bicyclist crossing phase can conflict with these left turn maneuvers. Drivers focused on navigating the gaps of oncoming cars may not anticipate and/or perceive the non-motorized road users.

- Install pedestrian countdown signal heads
  - A pedestrian countdown signal contains a timer display and counts down the number of seconds left for a pedestrian to finish crossing the street. Countdown signals can re-assure pedestrians who are in the crosswalk when the flashing "DON'T WALK" interval appears that they still have time to finish crossing. These signals also have been shown to encourage more pedestrians to use the pushbutton rather than jaywalk and can encourage drivers to yield to pedestrians.
- Install pedestrian crossings
  - Adding pedestrian crossings has the opportunity to enhance pedestrian safety at locations noted as being problematic. Nearly one-third of all pedestrian-related crashes occur at or within 50 feet of an intersection. Crashes often involve a turning vehicle, a pedestrian either running across the intersection or darting out in front of a vehicle whose view was blocked just prior to the impact, or because of a driver violation (e.g., failure to yield right-of-way).
- Implement a Leading Pedestrian Intervals
  - A Leading Pedestrian Interval (LPI) gives pedestrians a 'head-start' to enter an intersection 3-7 seconds before vehicles are given a green indication. LPIs provide (1) increased visibility of crossing pedestrians; (2) reduced conflicts between pedestrians and vehicles; (3) Increased likelihood of motorists yielding to pedestrians; and (4) enhanced safety for pedestrians who may be slower to start into the intersection.

### Non-signalized Intersection Improvements

- install signals
  - Traffic signals have the potential to reduce the most severe type crashes, but will likely cause an increase in rear-end collisions. A reduction in overall injury severity is likely the largest benefit of traffic signal installation.

The collision types and characteristics of each location were assessed by the project team to determine applicable countermeasures. Locations with similar countermeasures were grouped into projects.

### Funding and Implementation of Proposed Improvements

A key grant program that is designed to address traffic safety needs is the Highway Safety Improvement Program (HSIP). On May 9, 2022, Caltrans announced the next HSIP call-for-projects. Grant applications



# CITY of ESCONDIDO

## STAFF REPORT

are due on September 12, 2022. The LRSP has identified three projects for which staff recommends application to HSIP in this cycle, totaling \$3.7 million in projects. If selected for grant funding, the HSIP will cover 85% of the cost of the project and the City would be required to provide matching funds of 15%. The preliminary CIP budget, presented to the City Council on May 11, 2022, includes the match funding.

The HSIP uses a Benefit-Cost Ratio (BCR) to prioritize projects for funding. The BCR provides a score that accounts for the crash severity cost; a crash reduction factor for each countermeasure; crash frequency; and the benefit for the years of service life for the countermeasure. Projects with a higher BCR would generally be more competitive candidates for HSIP funding. **Table 2** shows the projects identified in the LRSP that staff recommends application to HSIP for grant funding. These three projects include 22 of the 30 hot spot intersections. Project #2 and #3 include a countermeasure to implement left-turn phasing. These two projects will fund eight of the ten intersections from the City's Traffic Signal Priority List for modification to add left-turn phasing.

**Table 2: LRSP Projects (HSIP Candidate Projects)**

Project #	Potential Funding	Countermeasures	Project Locations
1	Cycle 11	<ul style="list-style-type: none"> <li>Improve Signal Visibility for Motorists</li> <li>Install Pedestrian Countdown Signals (to improve pedestrian crossing safety)</li> <li>Implement Leading Pedestrian Interval (to improve pedestrian crossing safety)</li> </ul>	<ul style="list-style-type: none"> <li>Centre City Pkwy &amp; El Norte Pkwy (#1)</li> <li>Midway Dr &amp; Valley Pkwy (#2)</li> <li>Centre City Pkwy &amp; Valley Pkwy (#3)</li> <li>Centre City Pkwy &amp; Felicita Ave (#11)</li> <li>Valley Pkwy &amp; Quince St (#13)</li> <li>Mission Ave &amp; Ash St (#14)</li> <li>El Norte Pkwy &amp; Broadway (#21)</li> <li>Valley Pkwy &amp; 9th Ave (#22)</li> <li>Mission Ave &amp; Quince St (#23)</li> <li>Grand Ave &amp; Juniper St (#24)</li> <li>Centre City Pkwy &amp; Country Club Ln (#27)</li> <li>Midway Dr &amp; Grand Ave (#30)</li> </ul>
2	Cycle 11	<ul style="list-style-type: none"> <li>Improve Signal Visibility for Motorists</li> <li>Provide 'Protected' Left Turns</li> <li>Implement Leading Pedestrian Interval (to improve pedestrian crossing safety)</li> </ul>	<ul style="list-style-type: none"> <li>Washington Ave &amp; Quince St (#4)</li> <li>Mission Ave &amp; Fig St (#7)</li> <li>Washington Ave &amp; Rose St (#10)</li> <li>Centre City Pkwy &amp; 9th Ave (#12)</li> </ul>
3	Cycle 11	<ul style="list-style-type: none"> <li>Improve Signal Visibility for Motorists</li> <li>Provide 'Protected' Left Turns</li> <li>Install Pedestrian Crossings</li> </ul>	<ul style="list-style-type: none"> <li>Quince St &amp; 9th Ave (#5)</li> <li>Valley Pkwy &amp; Fig St (#6)</li> <li>Mission Ave &amp; Metcalf St (#15)</li> <li>Centre City Pkwy &amp; Iris Ln (#17)</li> <li>Mission Ave &amp; Rock Springs Road (#25)</li> <li>Escondido Blvd &amp; Grand Ave (#31)</li> </ul>



# CITY of ESCONDIDO

## STAFF REPORT

The LRSP has identified two additional projects that do not appear to be good candidates for HSIP funding due to low project cost and low BCR, shown in **Table 3** below. For Project 4, staff recommends funding the cost of the improvements with TransNet funds. The necessary funds for Project 4 have been recommended in the Traffic Signal Improvements project included in the preliminary CIP budget presented to City Council on May 11, 2022. For Project 5, staff is investigating other grant funding programs that we expect will be released shortly, including most notably the Safe Streets for All program. In the interim, staff recommends design for a signal at Brotherton and Center City Parkway be completed. While collisions have occurred at S. Escondido and Centre City, the roadway geometry and benefits to pedestrian connectivity make Brotherton a better location for a new signal.

**Table 3: LRSP Projects (Non-HSIP Candidate Projects)**

Project #	Potential Funding	Countermeasures	Project Locations
4	To be budgeted	<ul style="list-style-type: none"><li>Improve Signal Visibility for Motorists</li><li>Install Pedestrian Crossings</li><li>Install Pedestrian Crossings</li></ul>	<ul style="list-style-type: none"><li>El Norte Pkwy &amp; Ash St (#8)</li><li>El Norte Pkwy &amp; Morning View Dr (#18)</li></ul>
5	To be budgeted	<ul style="list-style-type: none"><li>Install traffic signal.</li></ul>	<ul style="list-style-type: none"><li>Centre City Pkwy &amp; Escondido Blvd (Brotherton Rd) (#3)</li></ul>

The LRSP identifies proposed improvements for 24 of the 30 Hot Spot locations. These projects address the top 20 ranked locations in the LRSP. In addition, the LRSP recommends further study of six intersections. Further evaluation of these locations will be completed during FY22/23 to determine appropriate countermeasures.

### Additional Benefits of the LRSP

In addition to providing a prioritized list of traffic safety improvements, the LRSP provides a five-year snapshot of collision trends citywide. This data can be used to focus education and enforcement activities. The information provided in the document can assist the Police Department in targeted DUI enforcement and focused pedestrian safety education. In addition, the data can be used to inform the development of other programs such as the Traffic Management Priority List (TMPL), Traffic Signal Priority List (TSPL), and help prioritize partnerships related to Safe Routes to Schools (SRTS), and other grant funding opportunities.

The LRSP is considered a living document. It will be updated periodically to assess how well the implemented strategies have performed and to update the crash data for identifying new trends that might occur throughout the City.

The LRSP was presented to the Transportation and Community Safety Commission on February 24, 2022 where it was recommended to be forwarded to City Council for approval.



# CITY *of* ESCONDIDO

## STAFF REPORT

### ATTACHMENTS

- a. Attachment 1 – 30 Hot Spot Locations and Improvement Recommendations

### RESOLUTIONS

- a. Resolution 2022-64
- b. Resolution 2022-64 - Exhibit A – Local Roadway Safety Plan