# All Road Users

This section includes analysis and findings for total reported crashes. Subsequent sections focus exclusively on crashes involving pedestrians and bicyclists.

## SEVERITY BY ROAD USER

Table 37 presents reported crashes, organized by severity level and road user.

- Eighteen crashes were reported from 2015 through 2019.
- All but one reported crash are vehicle only or vehicle-fixed object, with one crash involving a pedestrian with a severity reported as a complaint of pain.
- Property damage only crashes account for 61 percent of reported crashes, while fatal/severe injury crashes are the least common with 1 percent of total crashes.

**Table 37: Crash Severity by Road User Involved**

| Road User Involved | Fatal (% of column) | Severe Injury (% of column) | Visible Injury (% of column) | Complaint of Pain (% of column) | Property Damage Only (% of column) | Total (% of column) |
|---|---|---|---|---|---|---|
| Pedestrian Involved | 0 (0%) | 0 (0%) | 1 (33%) | 0 (0%) | 0 (0%) | 1 (5%) |
| Bicycle Involved | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) |
| Vehicle Only or Vehicle-Fixed Object | 1 (100%) | 0 (0%) | 2 (67%) | 3 (100%) | 11 (100%) | 17 (95%) |
| Reported Crashes | 1 (5%) | 0 (0%) | 3 (23%) | 3 (17%) | 11 (61%) | 18 (100%) |
| Severity Share of Reported Crashes | 5% | 0% | 23% | 17% | 60% | 100% |

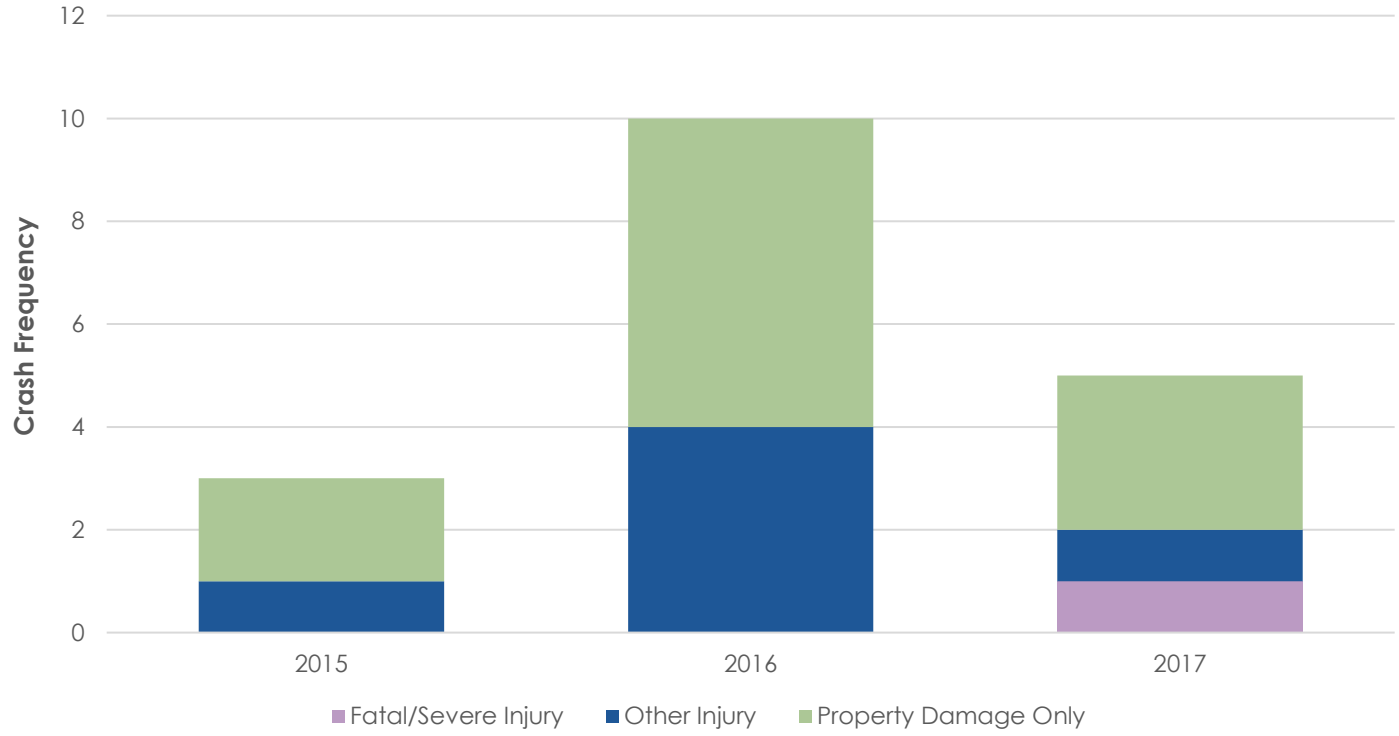
*Source: SWITRS, TIMS, Kittelson, 2021.*

The City of Huron is below the statewide average shares for crashes involving pedestrians, bicyclists, and motorcycles.

## YEAR, MONTH, AND WEATHER

Figure 80 shows year-over-year trends in the data by severity. All of the reported crashes in the five-year period were in 2015 through 2017, with no reported crashes in 2018 or 2019. The highest number of total annual crashes occurred in 2016. A lack of reporting could contribute to the absence of crashes for analysis in 2018 and 2019 (as well the totals in the other years shown).

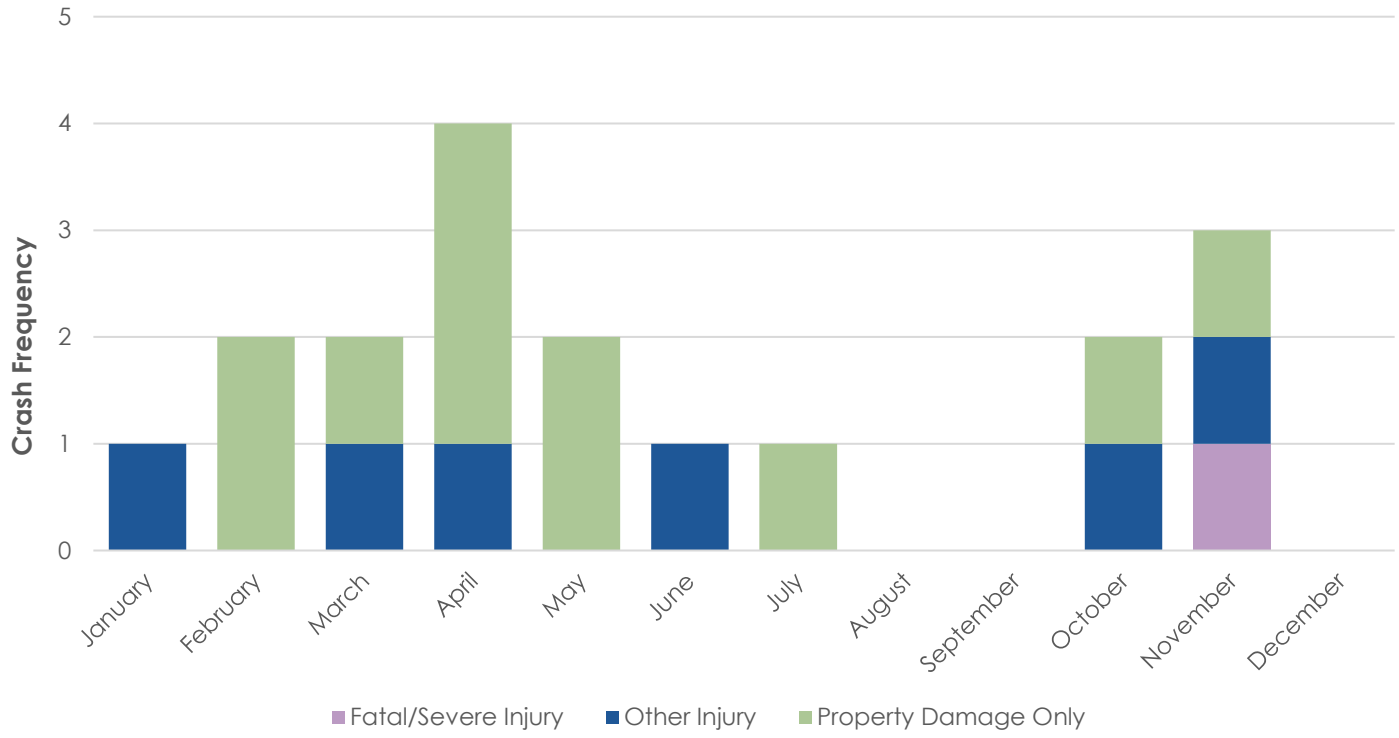
**Figure 80: Year-over-Year Trend in Crash Data by Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

Figure 81 shows the total crashes by month for the crash database; there is an average of 1.5 reported crashes per month. The highest number of crashes were reported in January (four crashes). Zero crashes were reported in August, September or December. However, given the limited number of reported crashes, no definitive monthly trends can be deduced from this data.

**Figure 81: Crashes by Month and Severity**




*Source: SWITRS, TIMS, Kittelson, 2021*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

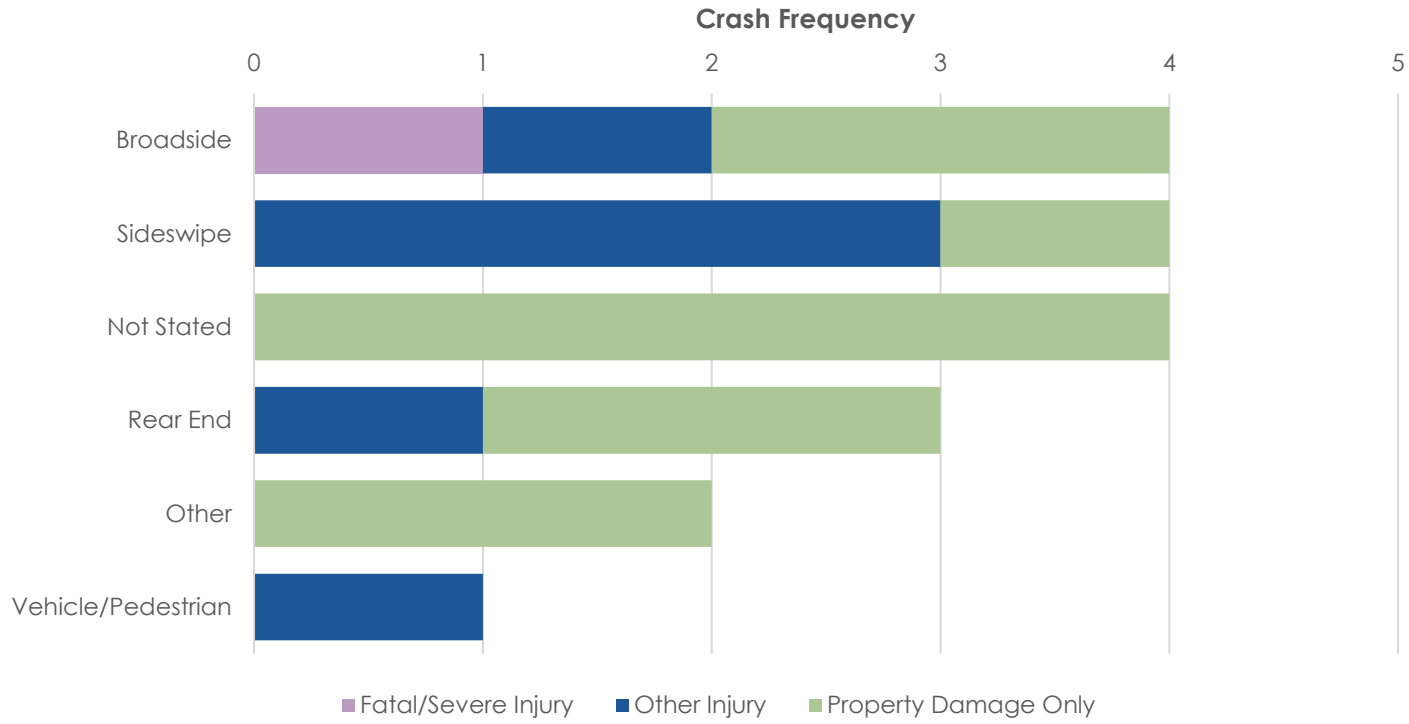
Most crashes reported in Huron took place in clear conditions (12 crashes). One reported crash occurred in cloudy conditions; weather condition for the remaining five crashes was not reported or coded as "other."

## COLLISION TYPE

Reported collision type gives an indication of the movements most frequently involved in crashes and in severe outcomes. Figure 82 shows the most frequent reported collision types by severity.

- The most frequently cited collision types are **sideswipe** and **broadside** (four each). Four crashes did not have a reported collision type, and three crashes were reported as **rear end**. There are no reported instances of hit object, head-on, or overturned crashes.
- The one reported fatal crash was a **broadside** collision.

**Figure 82: Crashes by Collision Type and Severity**



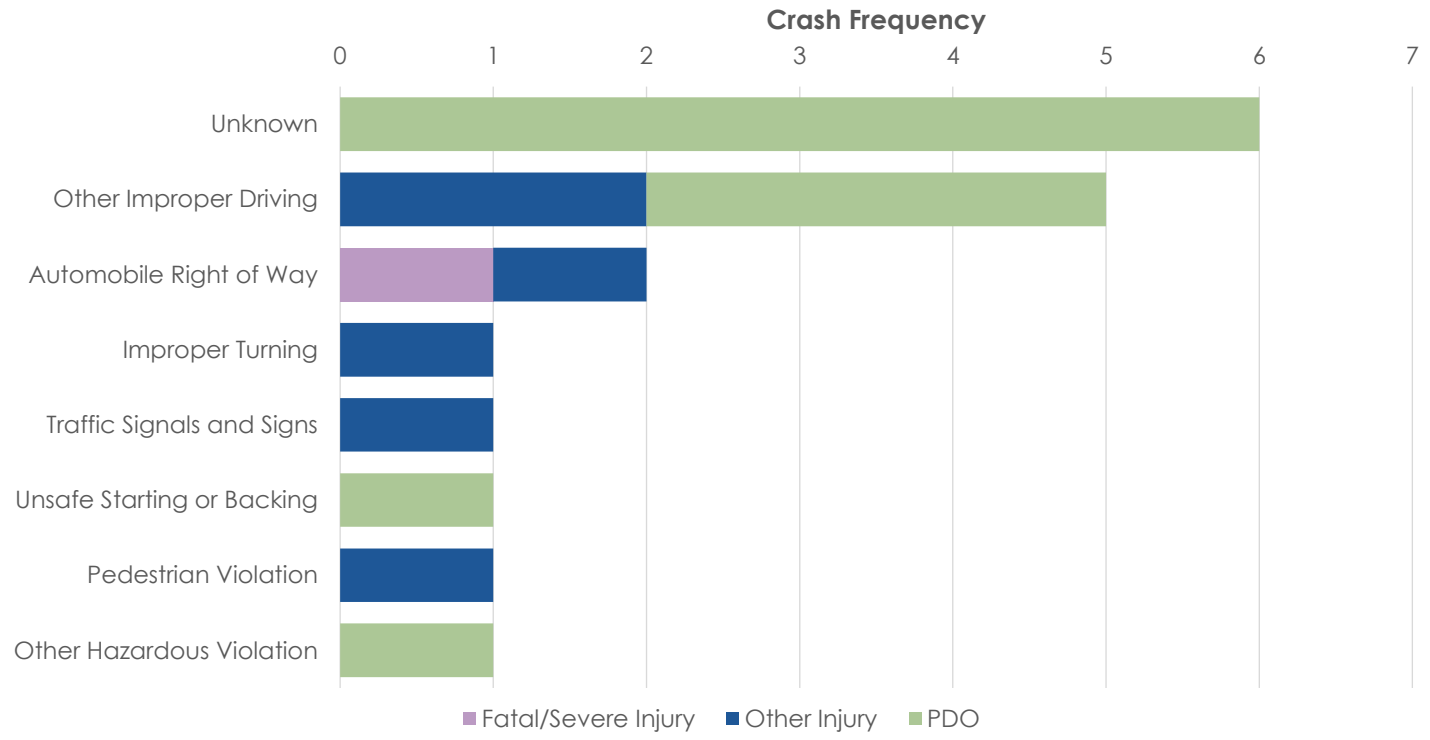

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## PRIMARY COLLISION FACTOR

Reporting officers identify a primary collision factor (PCF) for each crash from a select list. It is up to the officer's judgement and information available at the scene for them to select the factor that is most relevant. Officers select one from among a list of PCFs based on California Vehicle Code (CVC) and road user behavior. Figure 83 presents the most frequently cited PCFs.

- Six of the reported crashes do not have a reported PCF (33 percent).
- The most commonly reported PCF is **improper driving**[36], accounting for five of the reported crashes (27 percent).
- The PCF for the one reported fatal crash is **automobile right of way**[37]. This PCF is also reported for the one injury crash.

**Figure 83: Crashes by Reported PCF**



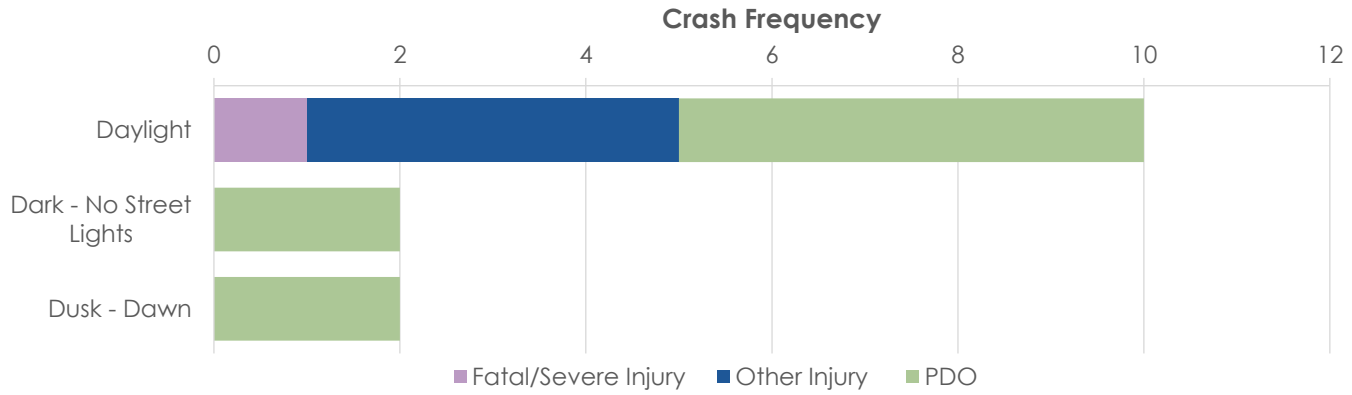

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Notes: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

[36] Reported PCF based on CVC violation indicating a failure while turning from a direct course without reasonable safety or not signaling appropriately.
[37] Reported PCF based on CVC violation indicating a driver turning failed to yield right-of-way to oncoming traffic.

## LIGHTING

Figure 84 shows crashes by reported lighting condition and severity. Crashes that occurred in daylight conditions account for 56 percent of reported crashes. All reported fatal and injury crashes were in daylight.

**Figure 84: Crashes by Lighting and Severity**

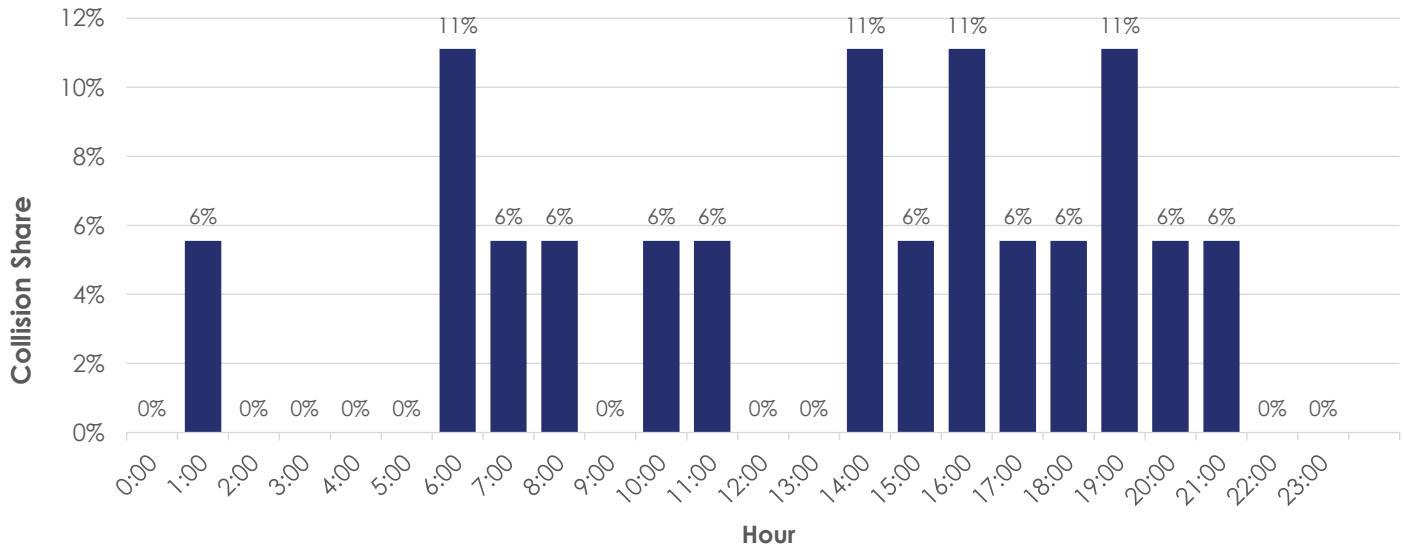



*Source: SWITRS, TIMS, Kittelson, 2021*
*Notes: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## TIME OF DAY

Figure 85 shows crashes by time of day. Crashes are fairly evenly distributed between the hours of 6 AM and 9 PM, with one crash outside of that window at 1 AM. Times shown below contain zero, one or two crashes.

**Figure 85: Crash Share by Time of Day**




*Source: SWITRS, TIMS, Kittelson, 2021.*

# Pedestrians

There were two reported crashes involving pedestrians. Both crashes resulted in other visible injuries. One crash took place in January, and the noted pedestrian action is "crossing in a crosswalk not at an intersection." The other crash took place in October, and the noted pedestrian action is "crossing not in a crosswalk." The lighting condition for both crashes is dark-no streetlights.

# Bicyclists

There were no crashes reported to involve bicyclists in Huron during the period from 2015-2019.

# Priority Locations

Kittelson identified priority intersections and segments in Huron using the annualized crash severity scores and excess predicted crashes described in the Data Summary and Analysis Approach sections (see the Introduction).

For intersection locations, the crash severity scores ranged from zero (no reported crashes during the five years) to 38.05. Figure 86 shows the results of the crash severity scoring. Figure 87 shows excess predicted crash scores by percentiles for intersection locations. For the half-mile roadway segments, the crash severity scores ranged from zero to 6.30. Crash severity score results for roadway segments are shown in Figure 88. Excess predicted crash score results are shown in Figure 89. Intersections or segments shown as not falling within one of the percentile breaks indicates there were no reported crashes at that location.

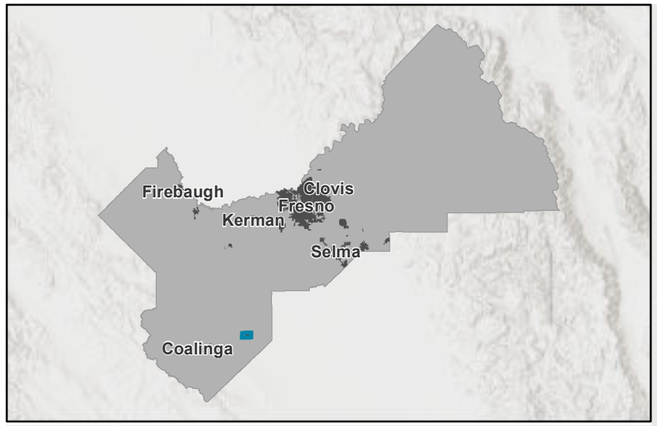
Table 38 presents the top 15 locations with the highest crash severity scores.

**Table 38. Top 15 Locations based on Crash Severity Score**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Complaint of Pain | PDO |
| **1** | PALMER AVE & GIFFIN AVE | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 | 0 |
| **2** | LASSEN AVE FROM PALMER AVE TO CITY LIMITS (NORTH) | Segment | 6.30 | 7 | 0 | 0 | 2 | 1 | 4 |
| **3** | LASSEN AVE & ELEVENTH ST | Unsignalized | 2.63 | 3 | 0 | 0 | 0 | 2 | 1 |
| **4** | MYRTLE AVE & ORANGE AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 1 | 0 | 0 |
| **5** | FOURTH ST & CENTRAL AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 1 | 0 | 0 |
| **6** | PALMER AVE & LASSEN AVE* | Unsignalized | 2.14 | 1 | 0 | 0 | 1 | 0 | 0 |
| **7** | NINTH ST & M ST | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 | 0 |
| **8** | SEVENTH ST & M ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **9** | M ST & FIFTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Complaint of Pain | PDO |
| **10** | STANFORD AVE & LOS ANGELES ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **11** | EIGHTH ST & M ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **12** | ELEVENTH ST & O ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **13** | TWELFTH ST & N ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **14** | AZTECA BLVD FROM TORNADO AVE TO 4TH ST | Segment | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **15** | GIFFIN DR FROM PARKSIDE APARTMENTS DR TO PALMER AVE | Segment | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |

*Note: PDO = Property Damage Only*





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**Crash Severity Score**

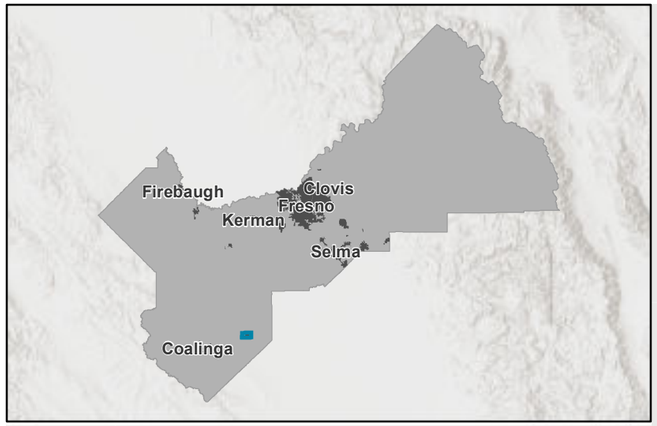
- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.165 Miles

Figure 86

**Intersection Crash Severity Scores**
**Jurisdiction Results: Huron**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




Huron

W PALMER AVE

S LASSEN AVE

GIFFIN AVE

MOUREN DR

L ST

M ST

ELEVENTH ST

NINTH ST

FOURTH ST

MYRTLE AVE

GRANADA AVE

TORNADO AVE

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**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile

City Limits

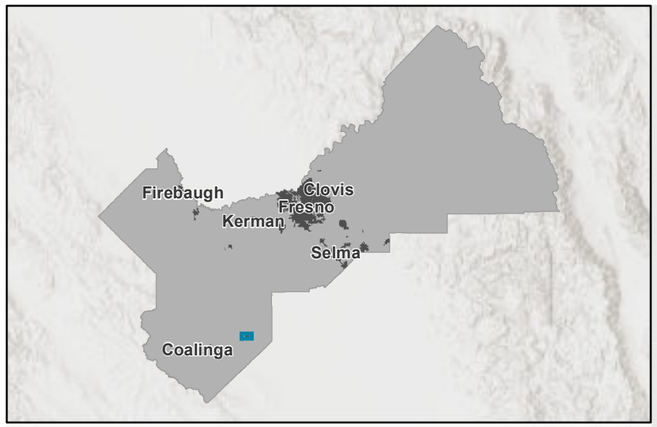
County Boundary

0 0.165 Miles

Figure 87

**Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Huron**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




S LASSEN AVE

W PALMER AVE

GIFFIN AVE

MOUREN DR

M ST

ELEVENTH ST

NINTH ST

FOURTH ST

MYRTLE AVE

GRANADA AVE

TORNADO AVE

Huron

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**Crash Severity Scores**

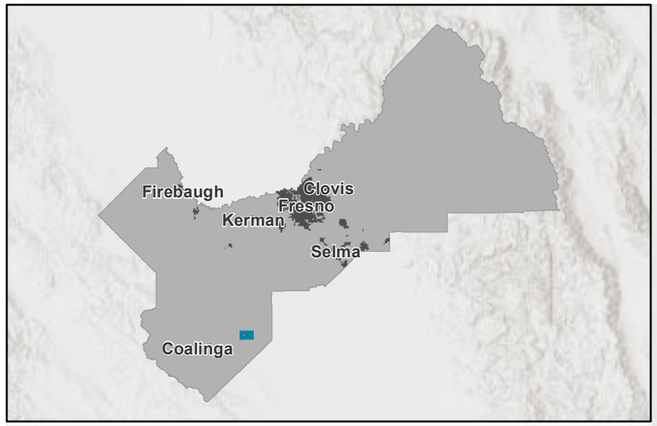
- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.195 Miles

Figure 88

## Roadway Crash Severity Scores
## Jurisdiction Results: Huron
## Fresno Council of Governments

KITTELSON & ASSOCIATES




S LASSEN AVE

W PALMER AVE

GIFFIN AVE

MOUREN DR

M ST

ELEVENTH ST

NINTH ST

Huron

FOURTH ST

MYRTLE AVE

GRANADA AVE

TORNADO AVE

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**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.195 Miles

Figure 89

**Roadway Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Huron**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

# EMPHASIS AREAS

Based on key trends in the crash data, emphasis areas for the City of Huron include broadside crashes, sideswipe crashes and rear end crashes. In addition, the data review suggests that the crash data available for the City may be incomplete, which limits the ability to systematically identify locations for improvement. Each of these areas is further discussed below.

## Broadside Crashes

A broadside crash occurs when the front of one vehicle hits the side of another vehicle. Broadside crashes were selected as an emphasis area due to the frequency and severity of these collision types. Broadside crashes are tied for the most frequent collision type and the one fatal crash reported is a broadside crash. As discussed below under Engineering Strategies, countermeasures are available targeted at broadside crashes.

## Sideswipe Crashes

Sideswipe crashes were selected as an emphasis area due to the frequency and severity of these collision types. Sideswipe crashes are tied for most frequent collision type and represent half of the six other injury crashes. As discussed below under Engineering Strategies, countermeasures are available targeted at sideswipe crashes.

## Rear End Crashes

Rear end crashes were identified as a focus area given their prevalence in reported crashes. Rear end crashes are the third most common collision type and one of the six other injury crashes is a rear end crash. As discussed below under Engineering Strategies, countermeasures are available targeted at rear end crashes.

## Improved Data Collection

Improved crash data collection is identified as an emphasis area as a lack of reporting could contribute to the absence of crashes for analysis in 2018 and 2019, as well the totals in 2015 through 2017. Having comprehensive data to work from is key to achieving the City's goals, namely using crash data to identify opportunities to improve roadway safety.

# STRATEGIES

The following subsections present engineering, education, emergency services, and enforcement strategies to help improve roadway safety across the City.

## Engineering Strategies

The injury collision types most reported in Huron were **broadside, sideswipe**, and **rear end** crashes. The fatal collision's primary collision factor was **automobile right of way** and the other most reported primary collision factors were **unknown** and **improper driving**. High priority countermeasures to address these collision types and primary collision factors are shown in Table 39.

**Table 39. High Priority Countermeasures**

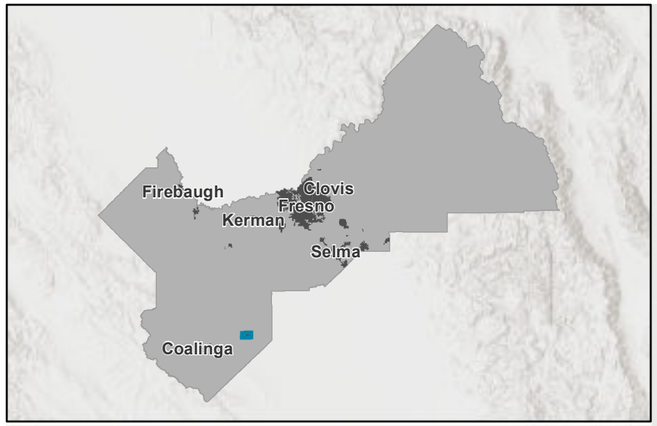
| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| **Roadway Countermeasures** | Street Lighting | R1 | Crashes at night |
| | Widen Shoulder | R15 | Sideswipe |
| | Improve Pavement Friction (High Friction Surface Treatment) | R21 | Rear end |
| | Install Centerline Rumble Strips/Stripes | R30 | Sideswipe |
| **Intersection Countermeasures** | Improve Signal Hardware: Lenses, Backplates with Retroreflective Border, Mounting Size, Number | S2 | Broadside, rear end |
| | Provide Advanced Dilemma-Zone Detection | S4 | Rear end |
| | Install Flashing Beacons as Advance Warning | S10/NS9 | Rear end |
| | Install/Upgrade Stop Signs or Intersection Warning/ Regulatory Signs | NS6 | Broadside |
| | Upgrade Intersection Pavement Markings | NS7 | Broadside |
| | Install Splitter Islands for Minor Street Approaches | NS13 | Broadside, rear end |
| **Pedestrian/Bicycle Countermeasures** | Install Sidewalk/Pathway | R34PB | Vehicle-pedestrian |
| | Install/Upgrade Pedestrian Crossing with Enhanced Features | R35PB | Vehicle-pedestrian |
| | Install Pedestrian Crossing | S18PB/NS20PB | Vehicle-pedestrian |
| | Install Raised Medians (or Refuge Islands) | NS19PB | Vehicle-pedestrian |
| | Install/Upgrade Pedestrian Crossing at Uncontrolled Locations (with Enhanced Safety Features) | NS21PB | Vehicle-pedestrian |

*Notes: The ID number references the Caltrans Manual Local Road Safety*
*There were no high priority roadway countermeasures listed for Huron. Roadway countermeasures listed were given a medium priority.*
*There were no high priority pedestrian/bicycle countermeasures listed for Huron. Pedestrian/bicycle countermeasures listed were given a medium priority.*

*Appendix B* contains the regional Countermeasures Toolbox which includes more detailed information regarding the countermeasures listed above.

The following figures and tables provide data on collision types and factors for the intersections and roadways with the highest crash scores. The locations with the highest crash scores may be top priorities for implementing countermeasures and pursuing grants. Huron can use the information about collision type and factors to identify potential countermeasures to apply, using the information in Table 39.

Figure 90 and Figure 91 present the top priority intersections and breakdown of the top collision types and primary collision factors, respectively. Figure 92 and Figure 93 present the top priority roadways and breakdown of the top collision types and primary collision factors, respectively.




Huron

W PALMER AVE

GIFFIN AVE

MOUREN DR

S LASSEN AVE

M ST

D ST

ELEVENTH ST

NINTH ST

FOURTH ST

MYRTLE AVE

GRANADA AVE

TORNADO AVE

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**Collision Type**

- Broadside

City Limits

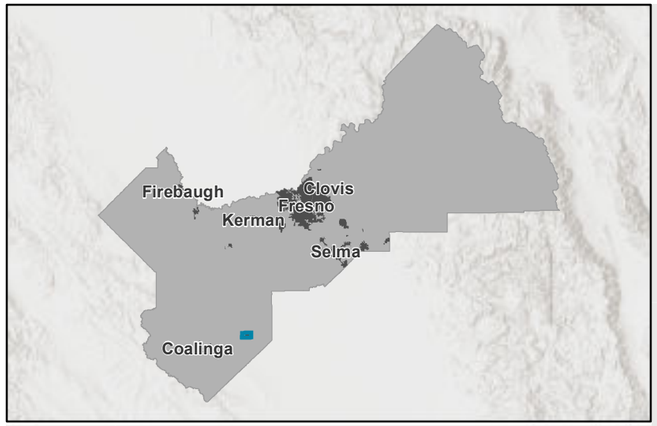
County Boundary

0 0.165 Miles

Figure 90

**Top Fatal/Severe Injury Intersection Collision Types**
**Jurisdiction Results: Huron**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




Huron

W PALMER AVE

GIFFIN AVE

MOUREN DR

S LASSEN AVE

M ST

P ST

ELEVENTH ST

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MYRTLE AVE

GRANADA AVE

TORNADO AVE

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**Primary Collision Factors**

- Automobile Right of Way
- Unknown
- Other Improper Driving

City Limits

County Boundary

0 0.165 Miles

KITTELSON & ASSOCIATES

Figure 91

**Top Fatal/Severe Injury Intersection Primary Collision Factors**
**Jurisdiction Results: Huron**
**Fresno Council of Governments**


## Collision Type

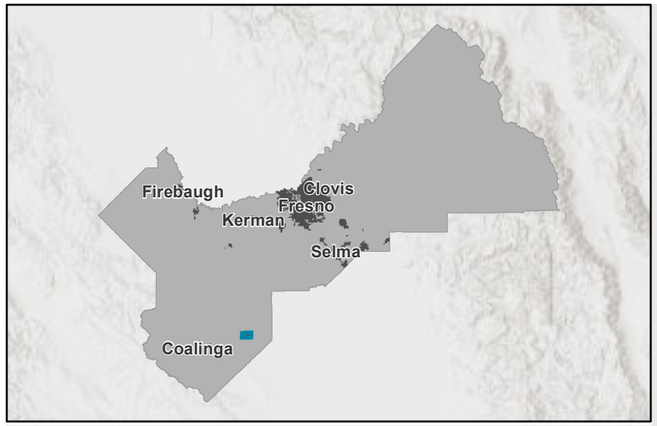
- Broadside
- Priority Roadways
- City Limits
- County Boundary

0 0.165 Miles

Figure 92

**Top Fatal/Severe Injury Roadway Collision Types**
**Jurisdiction Results: Huron**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




Huron

W PALMER AVE

MOUREN DR

D ST

M ST

S LASSEN AVE

ELEVENTH ST

NINTH ST

FOURTH ST

MYRTLE AVE

GRANADA AVE

TORNADO AVE

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**Primary Collision Factors**

- Unknown
- Other Improper Driving
- Priority Roadways
- City Limits
- County Boundary

0 0.165 Miles

Figure 93

## Top Fatal/Severe Injury Roadway Primary Collision Factors
## Jurisdiction Results: Huron
## Fresno Council of Governments

KITTELSON & ASSOCIATES

Table 40 and Table 41 provide information for the top 12 intersection locations (based on crash severity score), including control type (signalized or unsignalized), crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 40. Priority Intersections with Collision Type based on Top 3 Fatal/Severe Injury Collision Types**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Broad-side | Side-swipe | Rear End | Other |
| 1 | PALMER AVE & GIFFIN AVE | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 |
| 2 | LASSEN AVE & ELEVENTH ST | Unsignalized | 2.63 | 3 | 0 | 1 | 2 | 0 |
| 3 | MYRTLE AVE & ORANGE AVE | Unsignalized | 2.14 | 1 | 0 | 1 | 0 | 0 |
| 4 | FOURTH ST & CENTRAL AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| 5 | PALMER AVE & LASSEN AVE | Unsignalized | 2.14 | 1 | 0 | 1 | 0 | 0 |
| 6 | NINTH ST & M ST | Unsignalized | 1.22 | 1 | 1 | 0 | 0 | 0 |
| 7 | SEVENTH ST & M ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| 8 | M ST & FIFTH ST | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 |
| 9 | STANFORD AVE & LOS ANGELES ST | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 |
| 10 | EIGHTH ST & M ST | Unsignalized | 0.20 | 1 | 1 | 0 | 0 | 0 |
| 11 | ELEVENTH ST & O ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| 12 | TWELFTH ST & N ST | Unsignalized | 0.20 | 1 | 1 | 0 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 41. Priority Intersections with Primary Collision Factor based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Auto ROW | Unknown | Other Improper Driving | Other |
| 1 | PALMER AVE & GIFFIN AVE | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 |
| 2 | LASSEN AVE & ELEVENTH ST | Unsignalized | 2.63 | 3 | 1 | 1 | 1 | 0 |
| 3 | MYRTLE AVE & ORANGE AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 1 | 0 |
| 4 | FOURTH ST & CENTRAL AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| 5 | PALMER AVE & LASSEN AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| 6 | NINTH ST & M ST | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 |
| 7 | SEVENTH ST & M ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| 8 | M ST & FIFTH ST | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 |
| 9 | STANFORD AVE & LOS ANGELES ST | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 |
| 10 | EIGHTH ST & M ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| 11 | ELEVENTH ST & O ST | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 |
| 12 | TWELFTH ST & N ST | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three primary collision factors*

Table 42 and Table 43 provide information for the top three roadway segments (based on crash severity score), including roadway classification, crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 42. Priority Roadways Segments with Collision Type based on Top 3 Fatal/Severe Injury Collision Types**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Broad-side | Side-swipe | Rear End | Other |
| **1** | S Lassen Ave (city limits to north of Palmer Ave) | Arterial/Collector | 3.76 | 4 | 1 | 0 | 0 | 3 |
| **2** | Azteca Blvd (Fourth St to W Tornado Ave) | Local | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **3** | Giffin Ave (north of Mouren Dr to 11th St) | Arterial/Collector | 0.20 | 1 | 0 | 0 | 0 | 1 |

*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 43. Priority Roadways Segments with Primary Collision Factors based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Auto ROW | Unknown | Other Improper Driving | Other |
| **1** | S Lassen Ave (city limits to north of Palmer Ave) | Arterial/Collector | 3.76 | 4 | 0 | 0 | 0 | 4 |
| **2** | Azteca Blvd (Fourth St to W Tornado Ave) | Local | 0.20 | 1 | 0 | 0 | 1 | 0 |
| **3** | Giffin Ave (north of Mouren Dr to 11th St) | Arterial/Collector | 0.20 | 1 | 0 | 1 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three primary collision factors*

# Education Strategies

During Huron's Focus Group Meeting, opportunities for education were noted that include obeying traffic control, pedestrian crossing safety, and driving under the influence.

The Safe Roads Save Lives campaign is a marketing effort led by the Fresno COG, with the goals of:

- Educate all road users on safe transportation behaviors
- Increase safety for people walking and biking
- Highlight behaviors that cause the most crashes in Fresno County—speeding and distracted driving

The campaign Includes branding, social media strategies, print materials, radio and video resources, school resources, and a campaign website. Unincorporated Fresno County may find these materials helpful, especially those related to speeding and watching out for all roadway users.

The following activities are recommended for Huron, as resources allow, to implement the Safe Roads Save Lives campaign:

- Identify staff appropriate to attend a presentation by Fresno COG staff about the Safe Roads Save Lives campaign. Appropriate staff members include people associated with transportation engineering and planning, communications, traffic enforcement, school transportation, and other jurisdictional staff who work with the roadway system.
- Work with schools to distribute print materials and offer school-related transportation resources. Ensure that school communications are in both English and Spanish.
- Work with public information or communications staff to spread Safe Roads Save Lives materials throughout Huron through the following, at minimum:
    - Repost and link to Fresno COG posts that refer to the Safe Roads Save Lives campaign.
    - Have print materials (flyers, bumper stickers, pins, and postcards) available at transportation-related event and community festivals.
    - Work with the Fresno COG to identify a radio station to air a Safe Roads Save Lives radio public service announcement (PSA).
    - Have a direct link to Safe Roads Save Lives campaign website on the City's website.

## Emergency Services

Emergency service organizations depend on safe roadways and efficient communication processes to reach and effectively respond to emergencies. Each type of emergency services organization that serves Huron – law enforcement, fire, emergency medical services (EMS), California Highway Patrol – work independently and collaboratively to develop procedures that allow them to respond to incidents in their own jurisdictions as well as support others as needed. The following recommendations may help improve emergency services response as the various organizations update procedures and policies and continue to partner on roadway safety efforts:

- All roadway safety projects should be vetted by emergency service organizations to ensure that their design does not hamper access.
- As new emergency service and response procedures are developed, roadway safety improvement opportunities should be identified and implications of changes to response times should be considered.
- Huron staff should participate in periodic coordination calls between emergency response agencies to gather and share recent observations about crashes and hot spots, to understand emergent safety issues that may not have led to policy reports or yet be available through statewide crash reporting systems.

## Enforcement

Enforcement strategies can include programs or campaigns specifically focused on changing road user behavior through more visible and active enforcement of existing traffic laws, as well as focusing enforcement in areas that have historically been shown to have higher-than-average crash rates. Typically, the effectiveness of enforcement strategies is temporal, meaning they are effective at changing behavior for a discrete period of time – during and shortly after the increased enforcement activities.

The following enforcement strategies should be considered for Huron:

- Add additional crossing guards at high-concern locations. Train community members or collaborate with parks and recreation staff, if needed.
- Focus speed enforcement efforts at locations with high speed-related crash rates.
- Use automatic enforcement, such as red-light cameras and speed feedback signs along major corridors.

The effectiveness of each strategy should be measured and evaluated, considering the number of staff hours and amount of resources needed. The results should be reviewed and used to refine future enforcement activities.

Enforcement strategies should be undertaken with due caution to avoid inequitable enforcement activities and evaluated to determine the strategy's impact. More details about equitable enforcement can be found on page 8 (Introduction).

# EVALUATION AND IMPLEMENTATION

A key part of achieving the City's vision is consistently evaluating roadway safety performance and tracking progress towards the City's goals. The City will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

As feasible, it is recommended that the City of Huron update this LRSP every three to five years using updated crash data and the performance measures. Comparing the performance measures related to investments made with the crash data should provide a clear indication of the impact of the City's and safety partner's efforts. Future LRSPs may provide new emphasis areas and top priority locations that reflect progress made and new priorities based on trends in the data.

Activities for implementing the plan include:

- Identifying countermeasures and strategies for priority locations based on the crash data.
- Utilizing the Fresno COG Regional Safety Plan to implement regional strategies and share best practices.
- Exploring funding opportunities to implement priority strategies.
- Identifying activities to support the regional Safe Roads Save Lives campaign.
- Identifying enforcement strategies to implement and evaluate.
- Regularly coordinating with safety partner agencies to assess progress, identify opportunities to implement countermeasures and strategies, and identify opportunities for citizen involvement.
- Regularly collecting and organizing data to support evaluation of the LRSP.

# 7.0 CITY OF KERMAN

The City of Kerman has an approximate population of 15,767.[38] The average daily vehicle miles traveled is 72,117, and the City maintains approximately 49 total roadway centerline miles. The main roadways in the City include S Madera Ave, which runs from north to south, and W Whitesbridge Avenue, which runs from east to west. Based on the review of crash data conducted as part of the LRSP, pedestrians are overrepresented in fatal and severe injury crashes. The top four fatal and severe injury collision types in Kerman were **vehicle/pedestrian, head on, rear end,** and **hit object** crashes; the top three fatal and severe injury primary collision factors were **pedestrian right of way**, **driving or bicycling under the influence**, and **other violation**. The LRSP provides potential engineering, education, emergency services, and enforcement strategies tailored to Kerman's crash history and local priorities, as well as performance measures to evaluate progress.

## VISION AND GOALS

The City's vision for roadway safety is:

**Enable safe travel for people walking, biking, or moving in or with motorized vehicles on the City's public roadways.**

The City's roadway safety goals in support of the vision are:

1. Have zero fatal and severe injury crashes on the City roadways by 2026.
2. Prioritize safety in design of roadway improvements and access to new development.
3. Systemically implement safety countermeasures proven to reduce fatal and severe crashes.
4. Participate in regional activities to promote roadway safety as a priority investment.

[38] 2018 population. Source: California Department of Finance

# SAFETY PARTNERS

A variety of agency staff and community partners were involved throughout the development of this LRSP and played an integral role in identifying priorities, providing local context, and reviewing the existing conditions analysis. Many of the strategies identified in this plan will require coordination with these partners and their support of the City's effort to create a culture of roadway safety. Kerman's goals reflect the importance of participating in regional activities to promote roadway safety. While additional partners may be identified in the future, those involved in development of the LRSP include:

- Fresno Council of Governments
- Kerman Police Department
- Kerman Planning Commission
- Kerman Community Development
- Fresno County Rural Transit Agency
- Kerman Public Works
- Kerman School District
-

# PERFORMANCE MEASURES

Performance measures are used to track progress and a key element of making data-informed decisions. Performance measures that support the City's vision, goals, and emphasis areas include:

- Annual number of crashes (city-wide and at each of the top twenty priority locations)
- Annual number of fatal and severe injury crashes (city-wide and at each of the top twenty priority locations)
- Annual number of pedestrian and bicycle crashes (city-wide and at each of the top twenty priority locations)
- Annual number of rear end crashes (city-wide)
- Annual number of intersection crashes (city-wide)
- Investments made in roadway safety countermeasures (e.g. dollars spent, grants pursued, policies updated, partnerships developed)
- Investments made in education and enforcement strategies (e.g. dollars spent, grants pursued, partnerships developed)
- Coordination with other local agencies and/or safety partners (e.g. meetings held, projects pursued)

As part of plan implementation, the City will identify a process for annually tracking these performance measures to support future updates to this roadway safety plan.

# DATA SUMMARY

The primary data sets used to inform the technical analyses for the City's local road safety plan were crash data and roadway network information. As noted below, future updates could incorporate traffic volume data if widely available for locations across the City. In addition, feedback from a publicly available survey was documented for consideration in identifying issues and improvement strategies.

## Public Survey Feedback

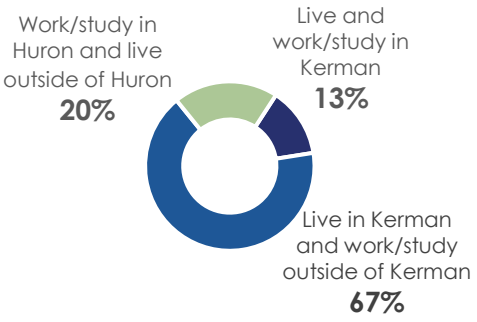
Toole Design Group worked with Fresno COG to develop an online survey and interactive webmap to provide the opportunity for public engagement on the LRSP. The goal was to collect both general and geographically specific feedback on safety problems, desired safety improvements in jurisdictions that are part of the MLRSP, as well as voluntary demographic information for Title IV reporting. Both activities were open from August 16, 2021 to September 20, 2021 and sought public feedback on spatial patterns of traffic safety concerns and desired improvements.

As the primary open public engagement opportunity during MLRSP development, the survey and interactive webmap served a crucial role in illuminating the community's traffic safety concerns and desired traffic safety improvements. Below is a summary of key findings from the online survey and interactive webmap specific to Kerman. More information on the methodology and overall findings of the survey are provided in *Appendix A*.

**15**
PEOPLE RESPONDED

**2**
LOCATIONS IDENTIFIED

**WHERE PARTICIPANTS WORK AND LIVE**




**MOST COMMON SAFETY CONCERNS**

- Crashes or near misses happen here
- Speeding or aggressive driving

- The survey asked respondents to provide input on the top road safety improvements needed in their communities. While the survey prompted participants to pick three improvements, some selected more than three responses. A total 42 responses were received for Kerman from 15 participants, with the most common desired improvement types including:
    - Rural road improvements to prevent run-off-road crashes(12 responses)
    - Maintenance of existing roads and streets (9 responses)
    - Speed enforcement (5 responses)
- Participants dropped points in the webmap in specific locations across Fresno County where they experienced road safety concerns. When leaving a point, participants could select from a list of traffic safety concerns and the kinds of travel impacted, with the ability to select as many responses as applicable. A text box gave participants the option to note what they think would make the location safer. A total of 2 locations were identified in Kerman, noting the following traffic safety concerns:
    - Crashes or near misses happen here (1 response)
    - Speeding or aggressive driving (1 response)
- The survey asked participants where they live and work or study, with the option to select from a list of jurisdictions or outside of Fresno County. The participants who selected Kerman included:
    - 2 who live and work/study in Kerman
    - 10 who live in Kerman and work/study outside of Kerman
    - 3 who work/study in Kerman and live outside of Kerman

## Crash Data

Kittelson worked with Fresno COG to assemble crash data for the city of Kerman using the Statewide Integrated Traffic Records System (SWITRS) database, supplemented with location information from the Transportation Injury Mapping System (TIMS) database maintained by SafeTREC at the University of California, Berkeley. Throughout this report, crashes are associated with a jurisdiction based on the reporting officer's assessment of location.

The crash database represents the time period from January 1, 2015 through December 31, 2019 and includes reported crashes that occurred on public streets. Within the assembled regional crash database, a total of 200 reported crashes are located in Kerman. Crash severity is coded according to the highest degree of injury exhibited, and the data used for this analysis includes the following coded severity levels (listed in descending order):

- Fatal: death from injuries sustained in the crash.
- Severe Injury: Injuries include, for example, broken bones, severe lacerations, or other injuries that go beyond the reporting officer's assessment of "other visible injuries."
- Other visible injury: An injury, other than those described above, that is evident to observers at the scene of the crash. For example, bruises or minor lacerations.

- Complaint of pain: Internal or other non-visible injuries. For example, a person limps or seems incoherent.
- Property damage only (PDO): No injuries sustained.

## Roadway Network Data

Kittelson developed a linear referencing system of all public roadways using the Fresno County roadway centerline file. This dataset was updated to develop a measurement system based on the total road length (as determined by roadway name) to locate crashes to a specific mile point along the network. The master roadway network for the County was used to spatially analyze and prioritize specific locations within each local jurisdiction.

## Traffic Volume Data

Traffic volume data was not consistently available at a sufficient level to be able to incorporate into the safety analysis. Future updates to the City's local road safety plan could incorporate traffic volume data, if available, to understand how crash frequency, severity, and type vary at different levels of traffic.

# EXISTING ROADWAY SAFETY PERFORMANCE

The findings in this section are based on the crash database, which includes reported crashes from January 1, 2015 through December 31, 2019. It is organized as follows:

- All Road Users
  - Severity by Road User
  - Year, Month, and Weather
  - Collision Type
  - Location, Collision Type, and Severity
  - Primary Collision Factor
  - Lighting
  - Time of Day
- Pedestrian-involved Crashes
  - Year and Month
  - Pedestrian Action and Location
  - Lighting
- Bicyclist-involved Crashes
  - Collision Type
  - Primary Collision Factor
  - Lighting

# All Road Users

This section includes analysis and findings for all reported crashes. Subsequent sections focus exclusively on crashes involving pedestrians and bicyclists.

## SEVERITY BY ROAD USER

Table 44 presents reported crashes, organized by severity level and road user. Notable trends include:

- 92 percent of total reported crashes are vehicle only or vehicle-fixed object, while 12 crashes (6 percent) involve a pedestrian and 4 crashes (2 percent) involve a bicycle.
- **Fatal/severe injury** crashes account for 1 percent of reported totals. **Property damage only** is the most common severity type at 60 percent, followed by **complaint of pain** at 22 percent and **visible injury** at 16 percent.

**Table 44: Crash Severity by Road User Involved**

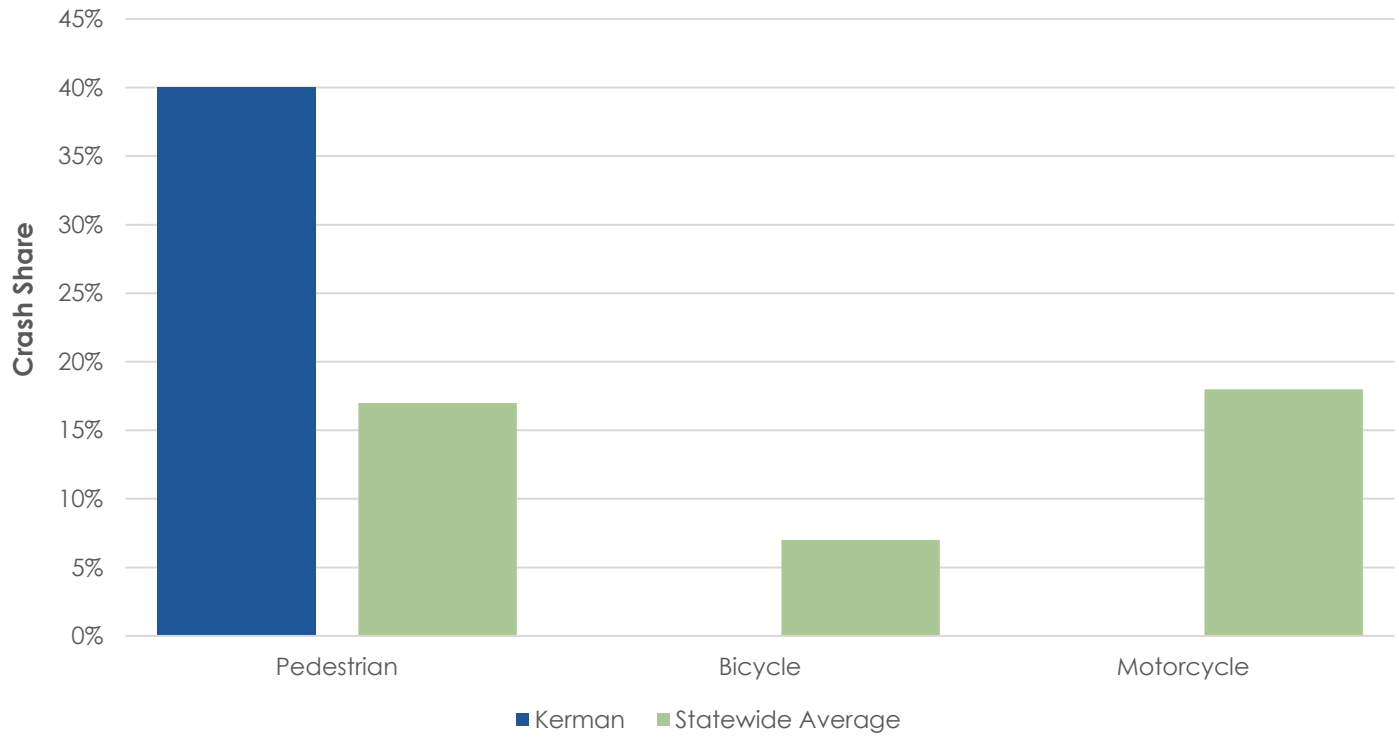
| Road Users Involved | Fatal (% of column) | Severe Injury (% of column) | Visible Injury (% of column) | Complaint of Pain (% of column) | Property Damage Only (% of column) | Total (% of column) |
|---|---|---|---|---|---|---|
| Pedestrian Involved | 1 (33%) | 1 (50%) | 6 (19%) | 3 (8%) | 1 (1%) | 12 (6%) |
| Bicycle Involved | 0 (0%) | 0 (0%) | 1 (3%) | 2 (4%) | 1 (1%) | 4 (2%) |
| Vehicle Only or Vehicle-Fixed Object | 2 (67%) | 1 (50%) | 25 (78%) | 38 (88%) | 118 (98%) | 184 (92%) |
| Reported Crashes | 3 (100%) | 2 (100%) | 32 (100%) | 43 (100%) | 120 (100%) | 200 (100%) |
| Severity Share of Reported Crashes | 1% | 1% | 16% | 22% | 60% | 100% |

*Source: SWITRS, TIMS, Kittelson, 2021.*

California's Strategic Highway Safety Plan (SHSP) includes 16 challenge areas to focus statewide resources and efforts. Three such challenge areas were crashes involving pedestrians, bicyclists, and motorcyclists. The SHSP analyzed the share of fatal and severe injury crashes involving each of these road users. Figure 94 compares crash trends Kerman to the statewide trends reported in the SHSP.

- The City of Kerman has no reported fatal/severe bicycle or motorcycle crashes.
- Pedestrian crashes are a higher share of fatal/severe injury crashes in Kerman compared to the statewide average.

**Figure 94: Fatal and Severe Injury Crash Shares Compared to Statewide Trends**

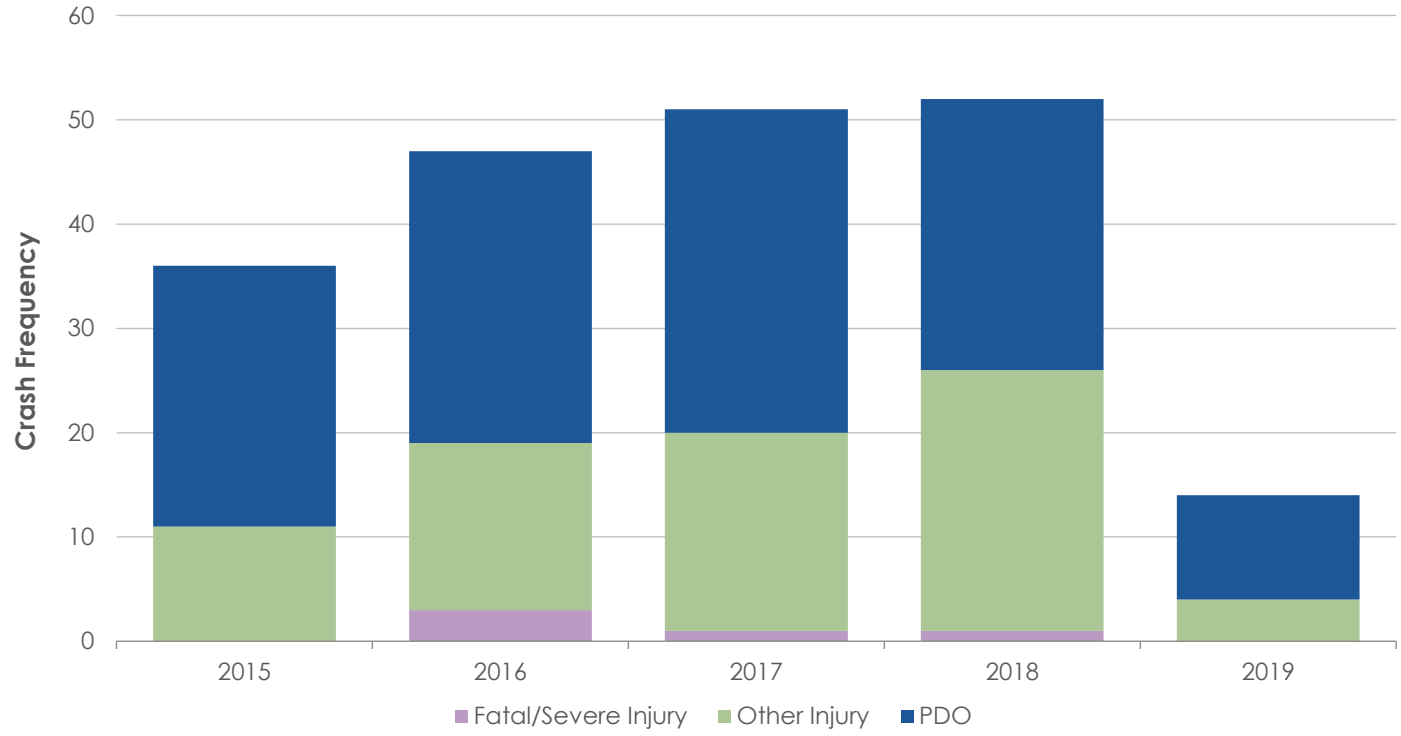



*Source: SHSP, SWITRS, TIMS, Kittelson, 2021.*

## YEAR, MONTH, AND WEATHER

Figure 95 shows year-over-year trends in the data by severity. The total number of reported crashes increased from 35 in 2015 to 52 in 2018, with an annual average of 40 crashes. The reported total crashes dropped to 14 in 2019. A lack of reporting may be attributable to the sharp decline in 2019 crashes in the data.

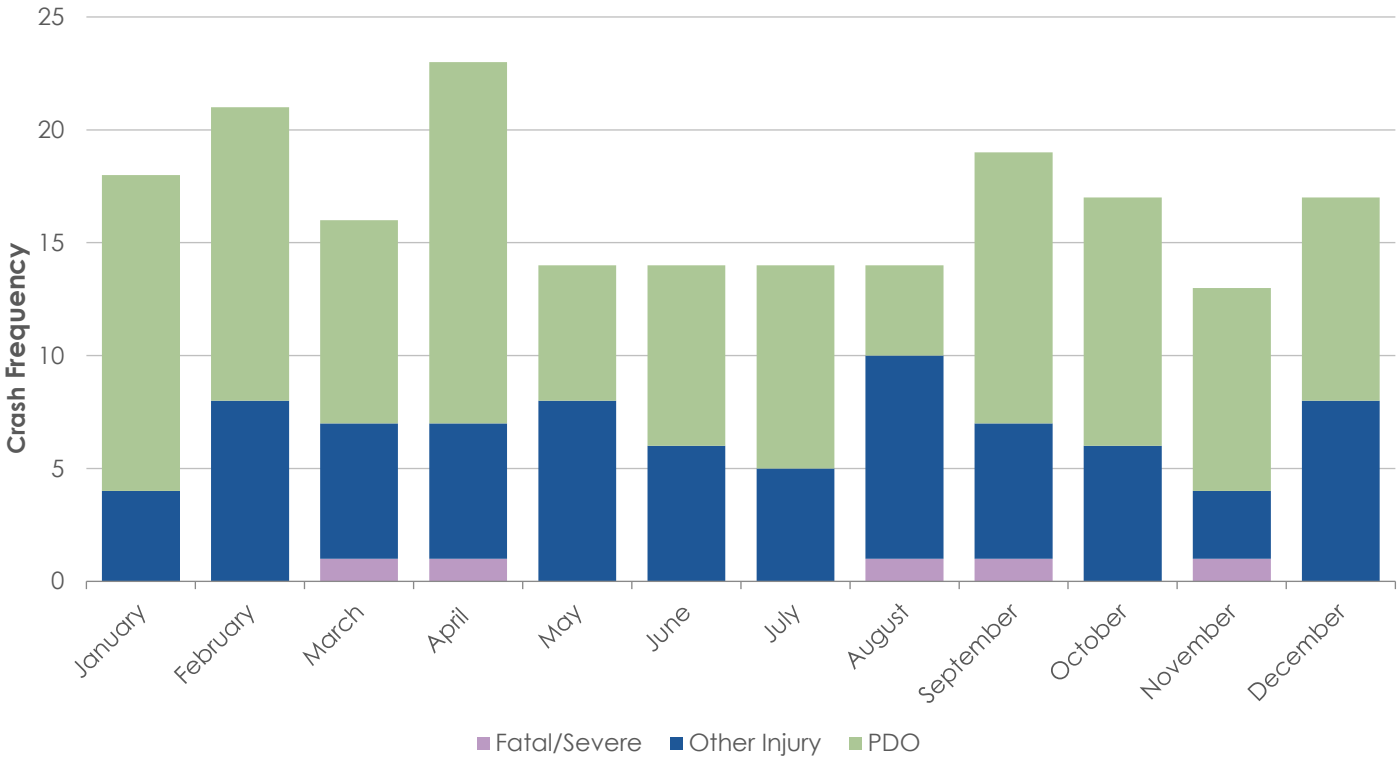
**Figure 95: Year Over Year Trends in Crash Data by Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

Figure 96 shows the total crashes by month and severity for the crash database. The average number of crashes monthly is 17. The monthly totals are relatively consistent, with the lowest total in November and the highest totals in February and April. Fatal crashes are present in March, April, August, September and November.

**Figure 96: Crashes by Month and Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only*

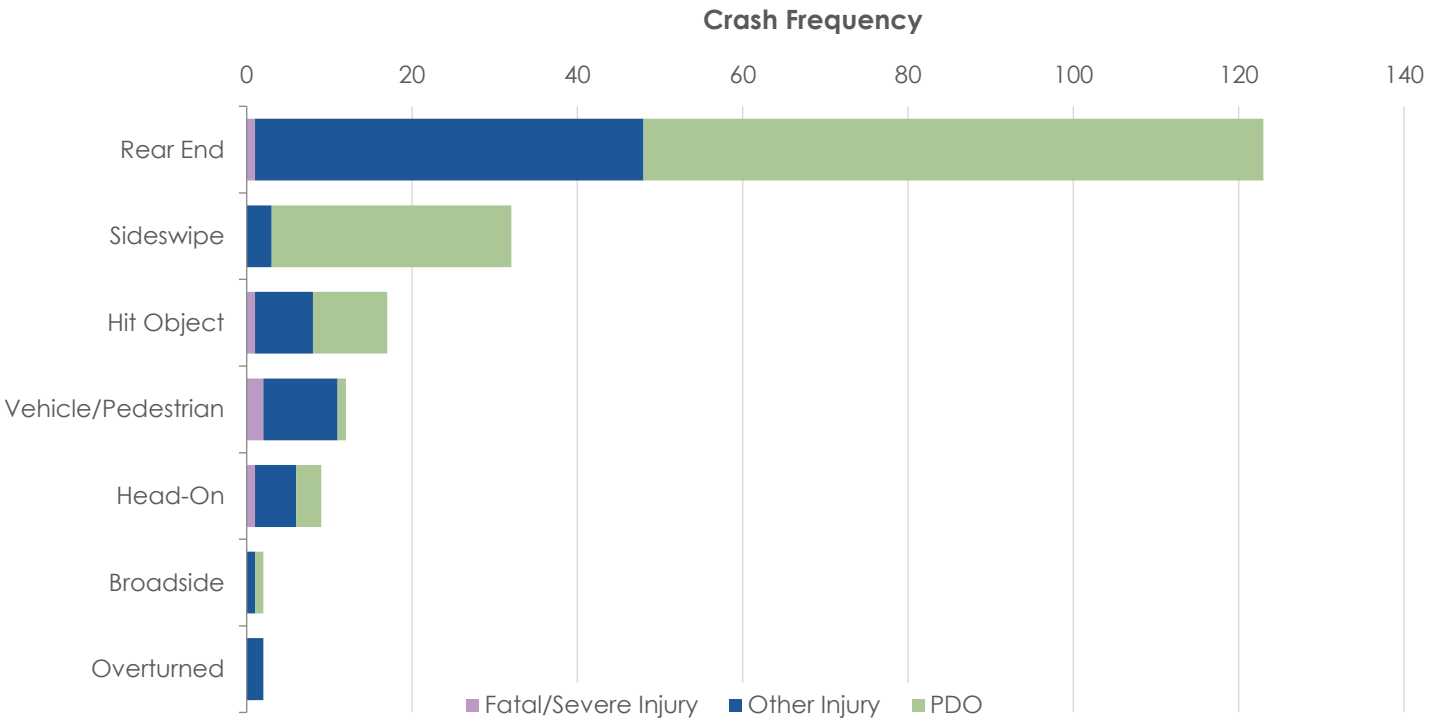
The weather conditions for most crashes in Kerman is **clear**, at 91 percent. The other stated weather conditions are **raining** at 3 percent, **cloudy** at 3 percent, and **fog** at 1 percent.

## COLLISION TYPE

Reported collision type gives an indication of the movements most frequently resulting in crashes and in severe outcomes. Figure 97 reports the most frequent reported collision types by severity.

- The most frequent collision type is **rear end** at 62 percent of crashes. It is followed by **sideswipe** at 16 percent and **hit-object** at 9 percent.
- Among the five reported fatal/severe injury crashes, two were **vehicle/pedestrian** crashes and one each was **rear end**, **hit object**, and **head-on.**

**Figure 97: Crashes by Collison Type and Severity**



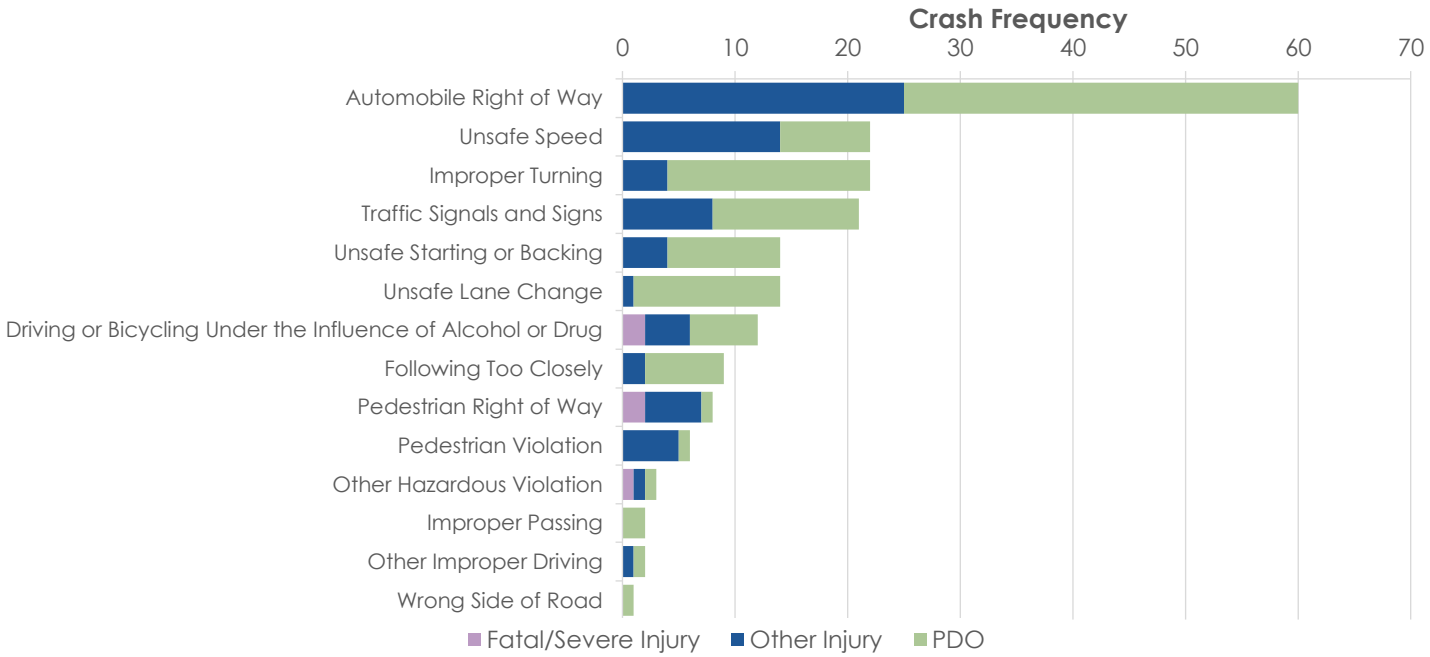

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## PRIMARY COLLISION FACTOR

Reporting officers identify a primary collision factor (PCF) for each crash. It is up to the officer's judgement and information available at the scene for them to select the factor that is most relevant. Officers select one from among a list of PCFs based on California Vehicle Code (CVC) and road user behavior. Figure 98 presents the most frequently cited PCFs in crashes in Kerman.

- The most common reported PCF is **automobile right of way**[39] (30 percent). Three other PCFs - **unsafe speed**[40], **improper turning**[41], and **traffic signals and signs**[42] - each account for 11 percent of crashes.
- The three reported PCFs for fatal/severe injury crashes are **pedestrian right of way** (two crashes), **driving or bicycling under the influence of drugs or alcohol**[43] (two crashes), and **other hazardous violation**[44] (one crash).

**Figure 98: Crashes by Reported PCF and Severity**



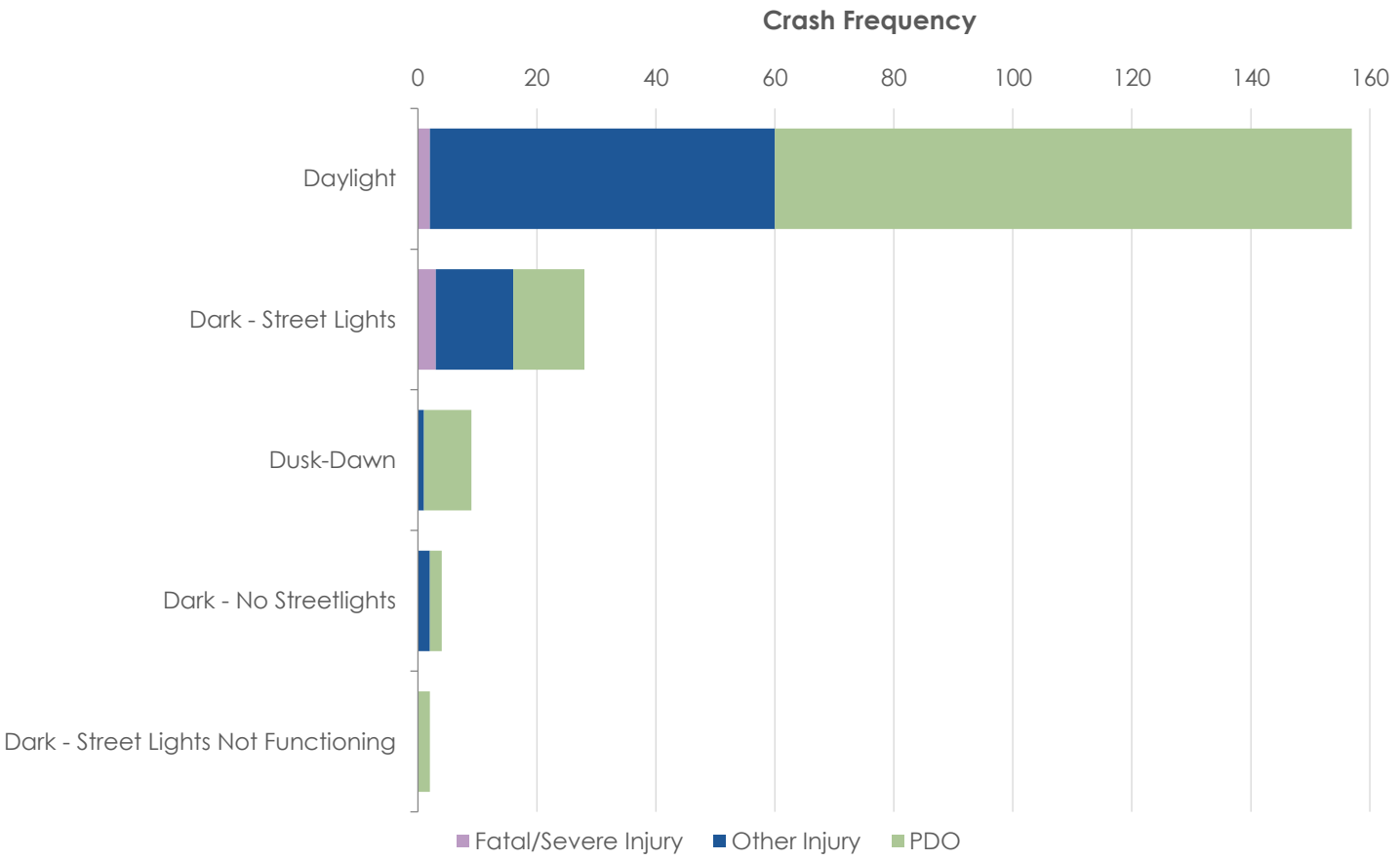

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

[39] Reported PCF based on CVC violation indicating a driver turning failed to yield right-of-way to oncoming traffic.
[40] Reported PCF based on CVC violation indicating unsafe speeding on a highway.
[41] Reported PCF based on CVC violation indicating a failure while turning from a direct course without reasonable safety or not signaling appropriately.
[42] Reported PCF based on CVC violation indicating running a red light or failure to stop at a stop sign.
[43] Reported PCF based on CVC violation indicating driver was under the influence of alcohol.
[44] Reported PCF based on CVC violation indicating a driver was performing a hazardous act while driving.

## LIGHTING

Figure 99 shows crashes by reported lighting condition and severity. The most common lighting condition is daylight, at 79 percent of total crashes. The next most common is dark with streetlights, at 15 percent. Fatal/severe injuries make up the highest portion of crashes that occurred while dark with street lights.

**Figure 99: Crashes by Lighting and Severity**

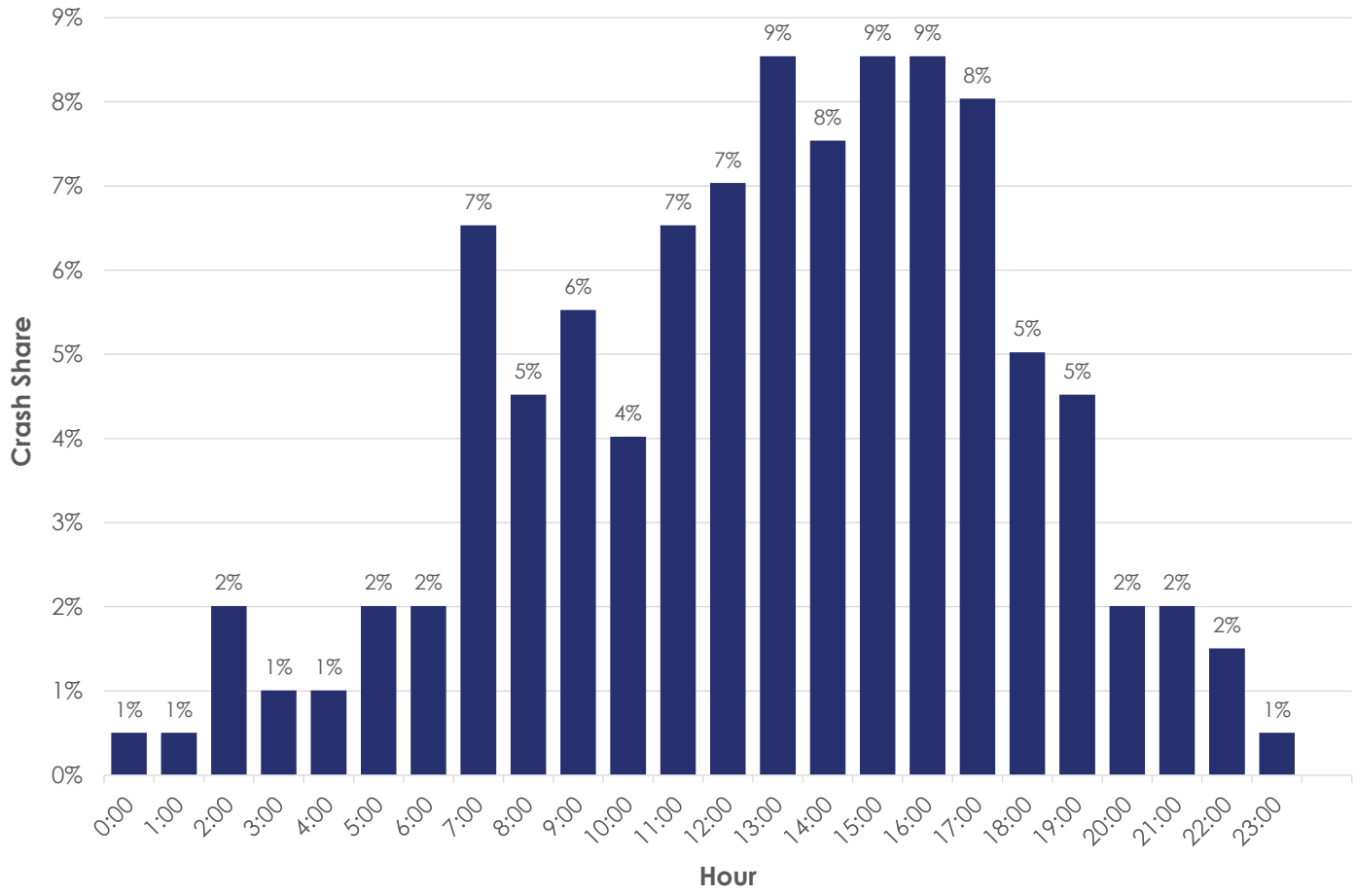



*Source: SWITRS, TIMS, Kittelson, 2021*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*
*Note: 10 crashes were reported as not stated.*

## TIME OF DAY

Figure 100 shows crashes by time of day. The hours with the highest numbers of crashes are between 1 PM and 2 PM and 3PM to 5 PM. The lowest frequency of crashes occurred overnight, between 8 PM and 6 AM.

**Figure 100: Crash Share by Time of Day**




*Source: SWITRS, TIMS, Kittelson, 2021*

# Pedestrians

This section focuses exclusively on reported crashes involving pedestrians. Table 45 shows the distribution of pedestrian crashes by severity. Of the 12 reported pedestrian crashes, two resulted in a fatality or severe injury, six in visible injuries, and three in complaints of pain. There was one property damage only crash.

**Table 45: Pedestrian Involved Crash by Severity**

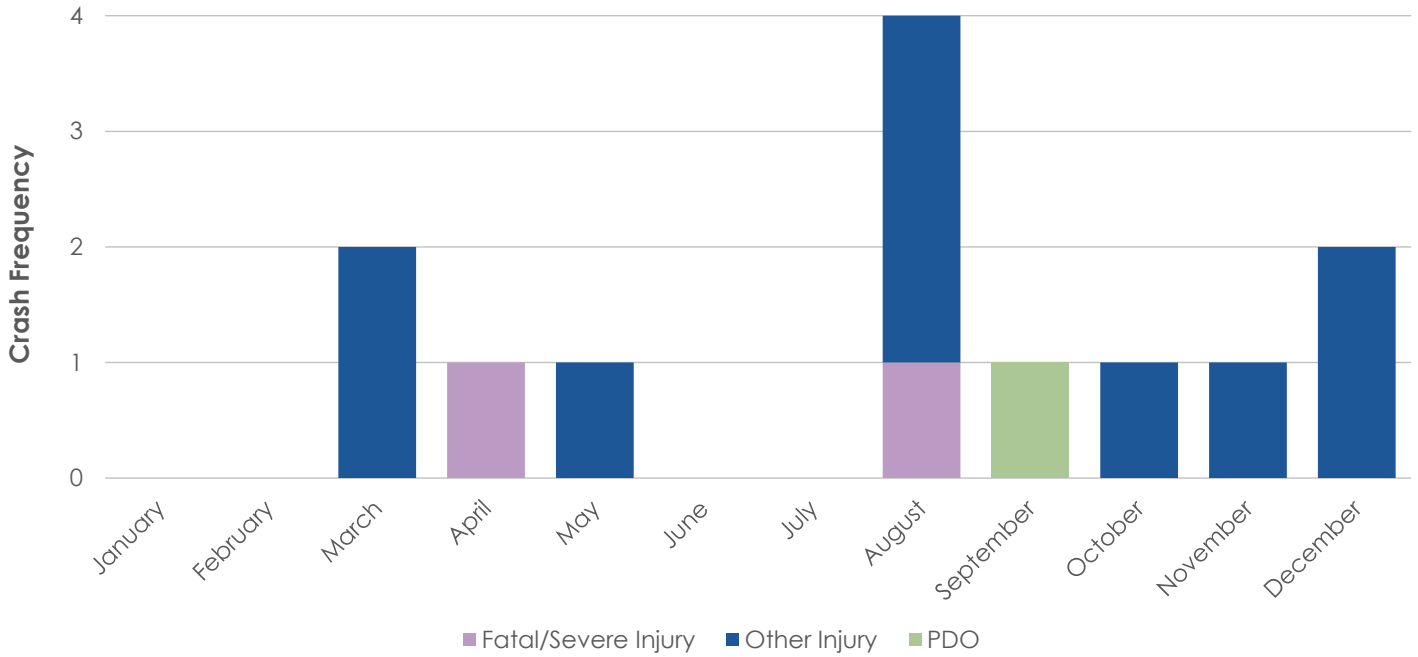
| | Fatal (%) | Severe Injury (%) | Visible Injury (%) | Complaint of Pain (%) | Property Damage Only (%) | Total (%) |
|---|---|---|---|---|---|---|
| Pedestrian Involved | 1 (8%) | 1 (8%) | 6 (51%) | 3 (25%) | 1 (8%) | 12 (100%) |

*Source: SWITRS, TIMS, Kittelson, 2021.*

## SEVERITY AND MONTH

Figure 101 shows pedestrian crashes by month and severity. Pedestrian crashes were reported in seven months out of the year for the five-year period. The most crashes involving pedestrians occurred in August and March, while no reported crashes occurred in January, February, June or July. The two fatal/severe injury crashes occurred in April and in August.

**Figure 101: Pedestrian Crashes by Month and Severity**

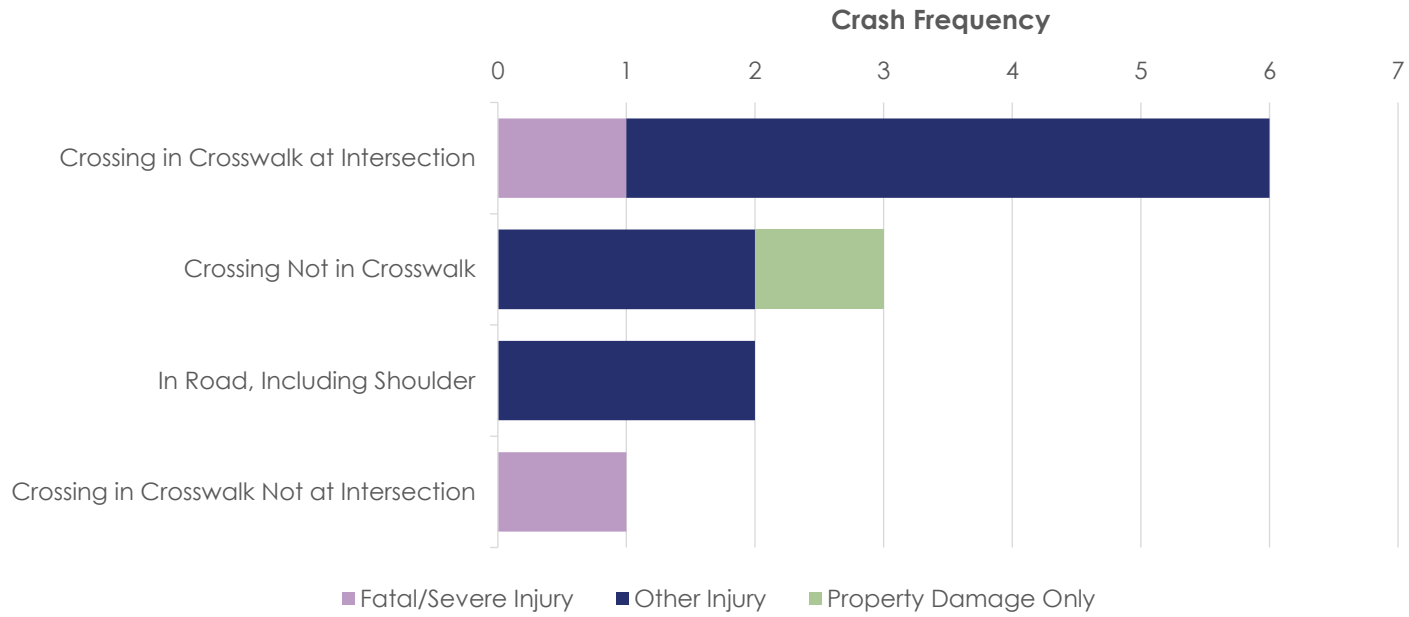



*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## PEDESTRIAN ACTION AND LOCATION

Figure 102 shows pedestrian crashes by reported action and location. The most common reported action is crossing in a crosswalk at an intersection (half of reported pedestrian crashes). The two actions which resulted in a fatality are crossing in a crosswalk at an intersection and crossing in a crosswalk not at an intersection.

**Figure 102: Pedestrian Crashes by Reported Action/Location and Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes.*

## LIGHTING

One pedestrian crash was reported to occur in the dark with streetlights, while the rest (11 crashes) occurred in daylight. The two reported fatal/severe injury crashes were in daylight.

## Bicyclists

There were four bicycle crashes documented in Kerman in the reporting period.

- Three of the reported crashes resulted in some level of injury, including one visual injury and two complaint of pain injuries.
- Two of the crashes were reported as rear end crashes, both resulting in injury.
- The reported PCF for three of the crashes was pedestrian right of way, although none of the crashes was reported to include a pedestrian. This discrepancy indicates a possible lack of precision on the part of the reporting officer and/or data entry errors in transferring the crash report information into the statewide database.
- All four reported crashes occurred in daylight.

## Priority Locations

Kittelson identified priority intersections and segments in Kerman using the annualized crash severity scores and excess predicted crashes described in the Data Summary and Analysis Approach sections (see the Introduction). In addition, the following locations were noted by members of the Focus Group as locations to consider improvements:

- Sunset Avenue off of Madera Avenue (intersection of Madera Avenue/Sunset Avenue priority #13 in Table 46): concerns around crashes, speeding, and intersection traffic control
- Whitesbridge Avenue & 1st Street: planned improvements by school district
- Whitesbridge Avenue from Siskiyou Avenue to Goldenrod Avenue (from Siskiyou Avenue to Vineland Avenue priority #1 in Table 46): concerns around speeding and need for medians and left turn lanes

For intersection locations, the crash severity scores ranged from zero (no reported crashes during the five years) to 38.05. Figure 103 shows the results of the crash severity scoring. Figure 104 shows excess predicted crash scores by percentiles for intersection locations. For the half-mile roadway segments, the crash severity scores ranged from zero to 42.58. Crash severity score results for roadway segments are shown in Figure 105. Excess predicted crash score results are shown in Figure 106. Intersections or segments shown as not falling within one of the percentile breaks indicates there were no reported crashes at that location.

Table 46 presents the top twenty locations with the highest crash severity scores.

**Table 46. Top 20 Locations based on Crash Severity Score**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Com-plaint of Pain | PDO |
| **1** | WHITESBRIDGE AVE FROM SISKIYOU AVE TO VINELAND AVE | Segment | 42.58 | 10 | 1 | 0 | 3 | 2 | 4 |
| **2** | FIRST ST & C ST | Unsignalized | 38.05 | 1 | 0 | 1 | 0 | 0 | 0 |
| **3** | MERLOT AVE & STANISLAUS AVE | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 | 0 |
| **4** | MADERA AVE FROM NORTH OF NEILSON AVE TO WHITESBRIDGE RD | Segment | 35.07 | 6 | 1 | 1 | 1 | 1 | 2 |
| **5** | GOLDENROD AVE FROM KEARNEY BLVD TO WHITESBRIDGE RD | Segment | 32.93 | 1 | 1 | 0 | 0 | 0 | 0 |
| **6** | KEARNEY BLVD & MADERA AVE | Signal | 14.10 | 16 | 0 | 0 | 3 | 5 | 8 |
| **7** | MADERA AVE & WHITESBRIDGE AVE | Signal | 11.52 | 22 | 0 | 0 | 0 | 7 | 15 |
| **8** | GOLDENROD AVE & CALIFORNIA AVE | Unsignalized | 10.87 | 10 | 0 | 0 | 3 | 3 | 4 |
| **9** | MADERA AVE & A ST & CALIFORNIA AVE | Unsignalized | 10.33 | 17 | 0 | 0 | 2 | 3 | 12 |
| **10** | GOLDENROD AVE & WHITESBRIDGE AVE | Signal | 7.81 | 9 | 0 | 0 | 1 | 4 | 4 |
| **11** | VINELAND AVE & WHITESBRIDGE AVE | Signal | 7.62 | 9 | 0 | 0 | 3 | 0 | 6 |
| **12** | MADERA AVE & STANISLAUS AVE | Signal | 6.77 | 14 | 0 | 0 | 1 | 2 | 11 |
| **13** | MADERA AVE & SUNSET AVE | Unsignalized | 6.30 | 7 | 0 | 0 | 2 | 1 | 4 |
| **14** | SISKIYOU AVE & WHITESBRIDGE AVE | Signal | 4.85 | 9 | 0 | 0 | 0 | 3 | 6 |
| **15** | MADERA AVE & E ST | Signal | 3.96 | 5 | 0 | 0 | 1 | 1 | 3 |
| **16** | CALIFORNIA AVE & VINELAND AVE | Unsignalized | 3.36 | 2 | 0 | 0 | 1 | 1 | 0 |
| **17** | KEARNEY BLVD & FIRST ST | Unsignalized | 3.36 | 2 | 0 | 0 | 1 | 1 | 0 |
| **18** | GOLDENROD AVE & KEARNEY BLVD | Unsignalized | 2.83 | 4 | 0 | 0 | 0 | 2 | 2 |
| **19** | JENSEN AVE FROM MADERA AVE TO DEL NORTE AVE | Segment | 2.43 | 2 | 0 | 0 | 0 | 2 | 0 |
| **20** | DEL NORTE AVE & KEARNEY BLVD | Unsignalized | 2.34 | 2 | 0 | 0 | 1 | 0 | 1 |

*Note: PDO = Property Damage Only*


**Crash Severity Score**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile

City Limits

County Boundary

0 0.3 Miles

Figure 103

**Intersection Crash Severity Scores**
**Jurisdiction Results: Kerman**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES


K:\H_Projects\2626012 - Fresno COG Local LRSPs\GIS\Task 4 mxds\MLRSP_Inv_ExFreqScore.mxd Date: 11/16/2021

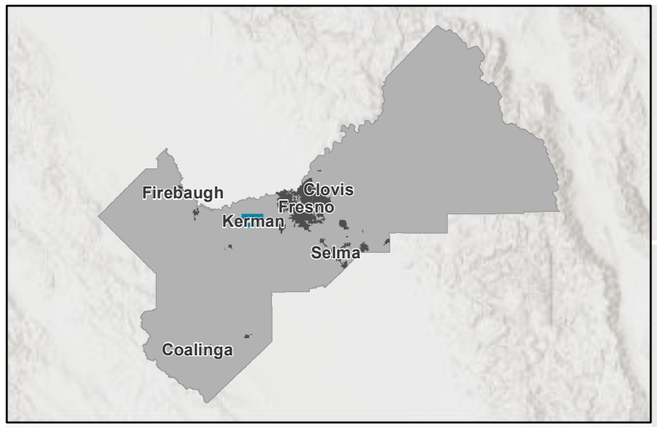
**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

Figure 104

**Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Kerman**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




Kerman

N MADERA AVE

N GOLDENROD AVE

W STANISLAUS AVE

S FIRST ST

S SISKIYOU AVE

S DEL NORTE AVE

W KEARNEY BLVD

S VINELAND AVE

S PARK AVE

W E ST

S EIGHTH ST

W C ST

W A ST

W CALIFORNIA AVE

W CHURCH AVE

S MADERA AVE

S GOLDENROD AVE

W JENSEN AVE

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**Crash Severity Scores**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.3 Miles

Figure 105

**Roadway Crash Severity Scores**
**Jurisdiction Results: Kerman**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

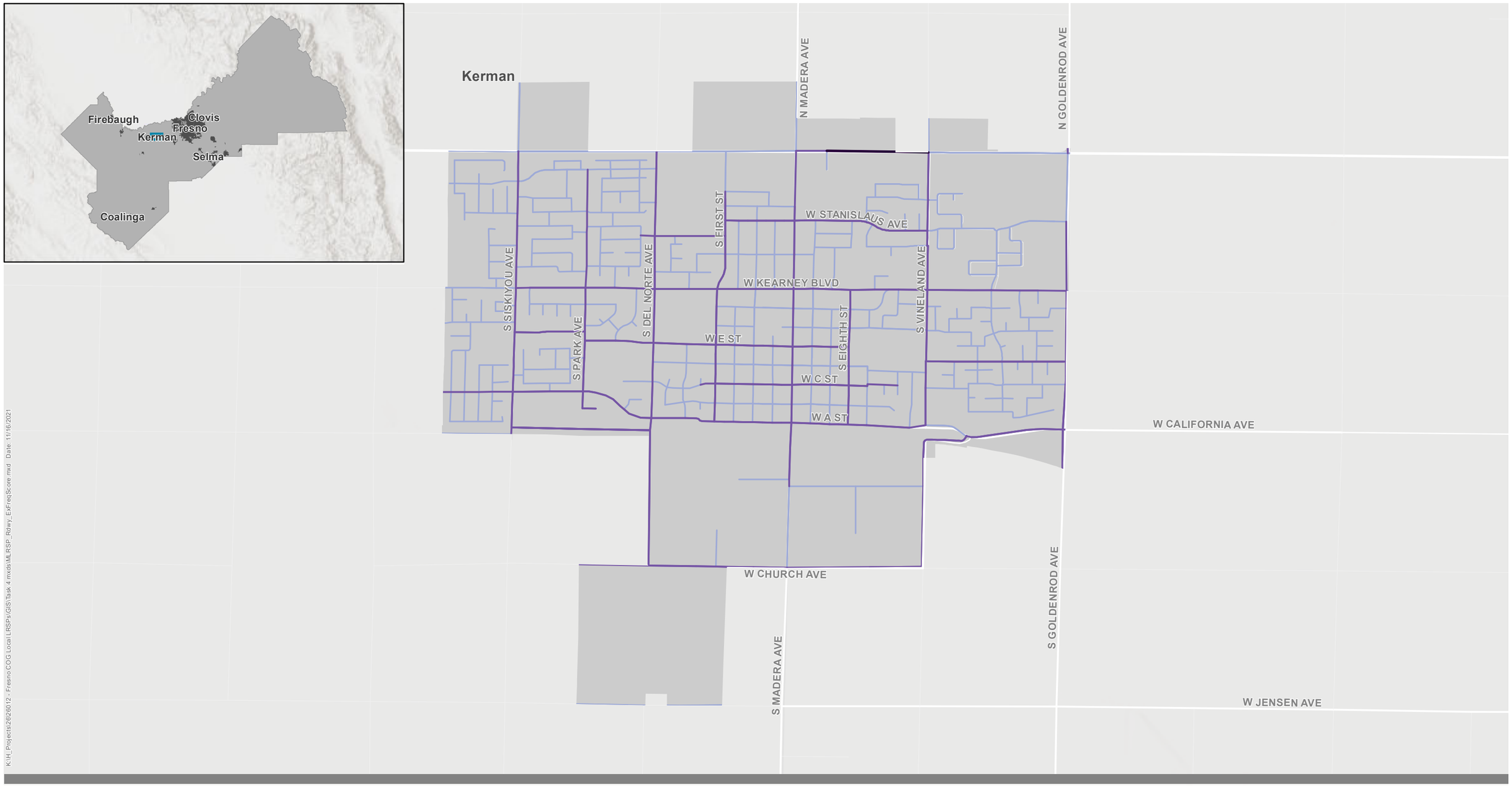



Figure 106

**Roadway Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Kerman**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

# EMPHASIS AREAS

Based on key trends in the crash data, emphasis areas for the City of Kerman include pedestrian crashes, rear end crashes and intersection crashes. Each of these areas is further discussed below.

## Pedestrian Crashes

Pedestrian crashes were identified as a focus area given the overrepresentation of pedestrians in fatal and severe crashes. One of the three fatal crashes involved a pedestrian and one of the two severe injury crashes involved a pedestrian. The fatal pedestrian crash involved a pedestrian "crossing in crosswalk not at intersection" and the severe injury crash involved a pedestrian "crossing in crosswalk at intersection." This suggests opportunities for improvements to pedestrian infrastructure.

Pedestrians are identified as one of the six high priority challenge areas in the California SHSP. These challenge areas "were identified through historical data evaluations and feedback from traffic safety stakeholders across the state" (Caltrans SHSP). The high priorities represent "the greatest opportunity to reduce fatalities and serious injuries across the state" (Caltrans SHSP).

## Rear End Crashes

Rear end crashes were identified as a focus area given their prevalence in reported crashes. Rear end crashes are the most common collision type, accounting for 62 percent of all crashes. One of the two severe injury crashes was a rear end crash, as were 47 of the 75 other injury crashes.

## Intersections

The top primary collision factor was automobile right of way (60 crashes), with improper turning (23 crashes) and traffic signals and signs (22 crashes) also relevant. Collectively these indicate that drivers are not properly following indications provided approaching and at intersections in the City.

The California SHSP includes intersections as one of the six high priorities in California. These crashes are a high priority due to their severity level often as a result of rear-end, broadside, and hit object collision types. "Intersections significantly increase driver workload because they are a natural point of conflict. If present, traffic control devices help to mitigate that workload by providing clear rules of right-of-way" (Caltrans SHSP). As discussed below under Engineering Strategies, several intersection countermeasures are available targeted at improving driver awareness and expectation as well as improving the roadway to minimize risk of crashes.

# STRATEGIES

The following subsections present engineering, education, emergency services, and enforcement strategies to help improve roadway safety across the City.

## Engineering Strategies

The top four fatal and severe injury collision types in Kerman were **vehicle/pedestrian, head on, rear end,** and **hit object** crashes; the top three fatal and severe injury primary collision factors were **pedestrian right of way**, **driving or bicycling under the influence**, and **other violation**. High priority countermeasures to address these collision types and primary collision factors are shown in Table 47.

**Table 47. High Priority Countermeasures**

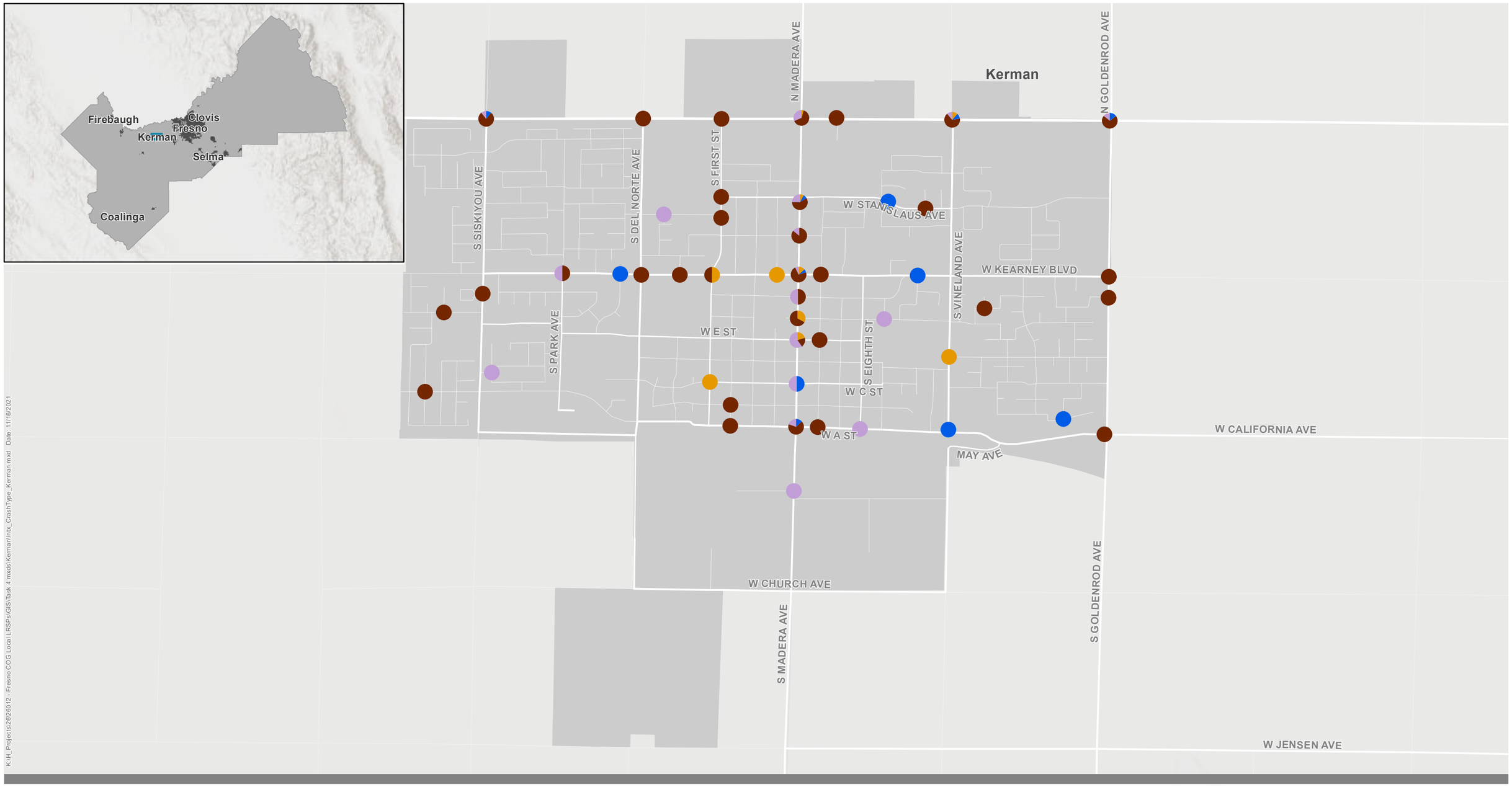
| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| **Roadway Countermeasures** | Remove or Relocate Fixed Objects Outside of Clear Recovery Zone | R2 | Hit object |
| | Install Guardrails | R4 | Hit object |
| | Install Raised Median | R8 | Head on |
| | Road Diet | R14 | Hit object |
| | Widen Shoulder | R15 | Hit object |
| | Improve Pavement Friction (High Friction Surface Treatment) | R21 | Hit object |
| | Install/Upgrade Signs with New Fluorescent Sheeting | R22 | Hit object |
| | Install Dynamic/Variable Speed Warning Signs | R26 | Hit object |
| | Install Edgelines and Centerlines | R28 | Hit object, Head on |
| | Install Centerline Rumble Strips/Stripes | R30 | Head on |
| | Install Edgeline Rumble Strips/Stripes | R31 | Hit object |
| **Intersection Countermeasures** | Improve Signal Hardware: Lenses, Backplates with Retroreflective Border, Mounting Size, Number | S2 | Broadside |
| | Provide Advanced Dilemma-Zone Detection | S4 | All |
| | Install Flashing Beacons as Advance Warning | S10/NS9 | Broadside, unsafe speed |
| | Convert Intersection to Roundabout | NS4/NS5 | Broadside, unsafe speed |
| | Install/Upgrade Stop Signs or Intersection Warning/ Regulatory Signs | NS6 | Broadside |
| | Upgrade Intersection Pavement Markings | NS7 | Broadside |
| | Install Splitter Islands for Minor Street Approaches | NS13 | Broadside |
| | No right turn on red | n/a | Vehicle-pedestrian |
| **Pedestrian/Bicycle Countermeasures** | Install Sidewalk/Pathway | R34PB | Vehicle-pedestrian |
| | Install/Upgrade Pedestrian Crossing with Enhanced Features | R35PB | Vehicle-pedestrian |
| | Install Raised Medians (or Refuge Islands) | NS19PB | Vehicle-pedestrian |
| | Install/Upgrade Pedestrian Crossing at Uncontrolled Locations (with Enhanced Safety Features) | NS21PB | Vehicle-pedestrian |

*Note: The ID number references the Caltrans Manual Local Road Safety*

*Appendix B* contains the regional Countermeasures Toolbox which includes more detailed information regarding the countermeasures listed above.

The following figures and tables provide data on collision types and factors for the intersections and roadways with the highest crash scores. The locations with the highest crash scores may be top priorities for implementing countermeasures and pursuing grants. Kerman can use the information about collision type and factors to identify potential countermeasures to apply, using the information in Table 47.

Figure 107 and Figure 108 present the top priority intersections and breakdown of the top collision types and primary collision factors, respectively. Figure 109 and Figure 110 present the top priority roadways and breakdown of the top collision types and primary collision factors, respectively.




**Collision Type**

- Vehicle-Pedestrian
- Head On*
- Rear End*
- Sideswipe*

City Limits

County Boundary

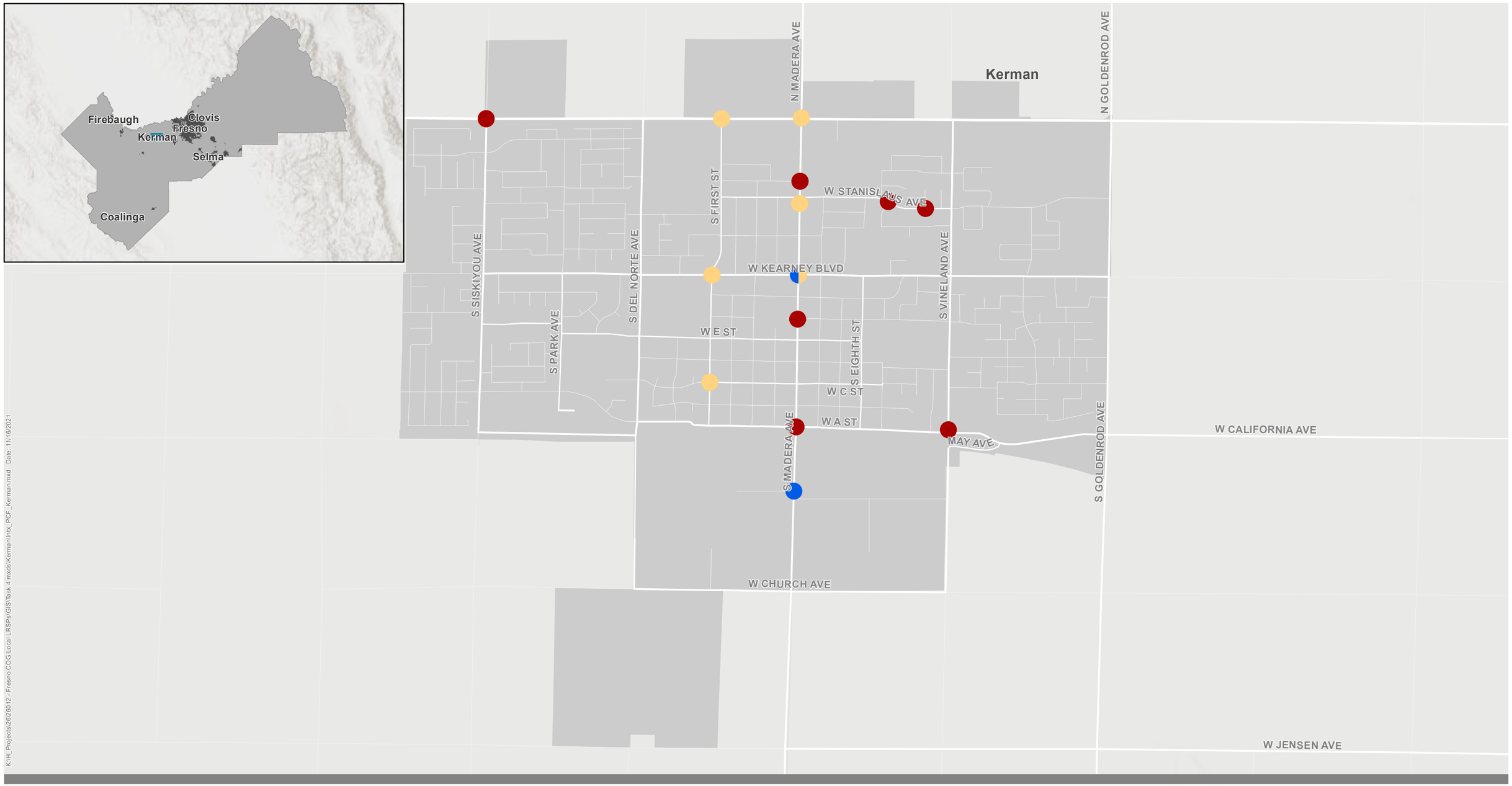
0 0.3 Miles

KITTELSON & ASSOCIATES

*Tied for fourth

Figure 107

**Top Fatal/Severe Injury Intersection Collision Types**
**Jurisdiction Results: Kerman**
**Fresno Council of Governments**




**Primary Collision Factors**

- Pedestrian Right of Way
- Driving Under the Influence
- Other Hazardous Violation

- City Limits
- County Boundary

0 0.3 Miles

Figure 108

## Top Fatal/Severe Injury Intersection Primary Collision Factors
## Jurisdiction Results: Kerman
## Fresno Council of Governments

KITTELSON & ASSOCIATES


**Collision Type**

- Vehicle/Pedestrian
- Head On*
- Rear End*
- Sideswipe*

- Priority Roadways
- City Limits
- County Boundary

0 0.3 Miles

*Tied for fourth

Figure 109

## Top Fatal/Severe Injury Roadway Collision Types
## Jurisdiction Results: Kerman
## Fresno Council of Governments


**Primary Collision Factors**

- Pedestrian Right of Way
- Driving Under the Influence
- Other Hazardous Violation

- Priority Roadways
- City Limits
- County Boundary

0 0.3 Miles

Figure 110

## Top Fatal/Severe Injury Roadway Primary Collision Factors
## Jurisdiction Results: Kerman
## Fresno Council of Governments

KITTELSON & ASSOCIATES

Table 48 and Table 49 provide information for the top fifty intersection locations (based on crash severity score), including control type (signalized or unsignalized), crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 48. Priority Intersections with Collision Type based on Top 4 Fatal/Severe Injury Collision Types**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle /Ped | Head On | Rear End | Side-swipe | Other |
| 1 | FIRST ST & C ST | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 | 0 |
| 2 | MERLOT AVE & STANISLAUS AVE | Unsignalized | 38.05 | 1 | 0 | 0 | 0 | 0 | 1 |
| 3 | KEARNEY BLVD & MADERA AVE | Signal | 14.10 | 16 | 2 | 1 | 11 | 1 | 1 |
| 4 | MADERA AVE & WHITESBRIDGE AVE | Signal | 11.52 | 22 | 1 | 0 | 14 | 7 | 0 |
| 5 | GOLDENROD AVE & CALIFORNIA AVE | Unsignalized | 10.87 | 10 | 0 | 0 | 9 | 0 | 1 |
| 6 | MADERA AVE & A ST & CALIFORNIA AVE | Unsignalized | 10.33 | 17 | 0 | 1 | 10 | 3 | 3 |
| 7 | GOLDENROD AVE & WHITESBRIDGE AVE | Signal | 7.81 | 9 | 0 | 0 | 5 | 1 | 3 |
| 8 | VINELAND AVE & WHITESBRIDGE AVE | Signal | 7.62 | 9 | 1 | 0 | 6 | 1 | 1 |
| 9 | MADERA AVE & STANISLAUS AVE | Signal | 6.77 | 14 | 1 | 0 | 7 | 3 | 3 |
| 10 | MADERA AVE & SUNSET AVE | Unsignalized | 6.30 | 7 | 0 | 0 | 6 | 1 | 0 |
| 11 | SISKIYOU AVE & WHITESBRIDGE AVE | Signal | 4.85 | 9 | 0 | 0 | 7 | 1 | 1 |
| 12 | MADERA AVE & E ST | Signal | 3.96 | 5 | 1 | 0 | 1 | 3 | 0 |
| 13 | CALIFORNIA AVE & VINELAND AVE | Unsignalized | 3.36 | 2 | 0 | 0 | 0 | 0 | 2 |
| 14 | KEARNEY BLVD & FIRST ST | Unsignalized | 3.36 | 2 | 1 | 0 | 1 | 0 | 0 |
| 15 | GOLDENROD AVE & KEARNEY BLVD | Unsignalized | 2.83 | 4 | 0 | 0 | 4 | 0 | 0 |
| 16 | DEL NORTE AVE & KEARNEY BLVD | Unsignalized | 2.34 | 2 | 0 | 0 | 2 | 0 | 0 |
| 17 | PARK AVE & KEARNEY BLVD | Unsignalized | 2.34 | 2 | 0 | 0 | 1 | 1 | 0 |
| 18 | B ST & MCKENNA AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 0 | 1 |
| 19 | MADERA AVE & D ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 0 | 1 |
| 20 | VINELAND AVE & E ST | Unsignalized | 2.14 | 1 | 1 | 0 | 0 | 0 | 0 |
| 21 | PALM AVE & BURGANDY AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 1 | 0 | 0 |
| 22 | PACHECO DR & KEARNEY BLVD | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 0 | 1 |
| 23 | KEARNEY BLVD & FOURTH ST | Unsignalized | 2.14 | 1 | 1 | 0 | 0 | 0 | 0 |
| 24 | STANISLAUS AVE & BORDEAUX AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 1 | 0 | 0 |
| 25 | MADERA AVE & F ST | Unsignalized | 1.62 | 3 | 1 | 0 | 2 | 0 | 0 |
| 26 | FIRST ST & WHITESBRIDGE AVE | Unsignalized | 1.62 | 3 | 0 | 0 | 3 | 0 | 0 |
| 27 | MADERA AVE & G ST | Unsignalized | 1.42 | 2 | 0 | 0 | 1 | 1 | 0 |
| 28 | WHITESBRIDGE AVE & DEL NORTE AVE | Signal | 1.42 | 2 | 0 | 0 | 1 | 0 | 1 |

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle /Ped | Head On | Rear End | Side-swipe | Other |
| **29** | KLINE ST & WHITESBRIDGE AVE | Unsignalized | 1.22 | 1 | 0 | 0 | 1 | 0 | 0 |
| **30** | SECOND ST & B ST | Unsignalized | 1.22 | 1 | 0 | 0 | 1 | 0 | 0 |
| **31** | E ST & MICHELLE AVE | Unsignalized | 1.22 | 1 | 0 | 0 | 1 | 0 | 0 |
| **32** | KEARNEY BLVD & BOYD AVE | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 0 | 1 |
| **33** | MADERA AVE & C ST | Unsignalized | 0.60 | 3 | 0 | 1 | 0 | 1 | 1 |
| **34** | MADERA AVE & COMMERCE WAY | Unsignalized | 0.40 | 2 | 0 | 1 | 0 | 1 | 0 |
| **35** | PEBBLE BROOK LN & SISKIYOU AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **36** | A ST & EIGHTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 | 0 |
| **37** | A ST & SIXTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **38** | CALIFORNIA AVE & SECOND ST | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **39** | CALIFORNIA AVE & SUSAN AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **40** | B ST & LUM AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 | 0 |
| **41** | E ST & SIXTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **42** | DEL NORTE AVE & E ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **43** | F ST & NINTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 | 0 |
| **44** | GOLDENROD AVE & G ST | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **45** | KEARNEY BLVD & MANOR DR | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **46** | KEARNEY BLVD & SIXTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **47** | FIRST ST & MIDDLETON AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **48** | CARMEL DR & MIDDLETON AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 | 0 |
| **49** | FIRST ST & STANISLAUS AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |
| **50** | MADERA AVE & SAN JOAQUIN AVE | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top four collision types*

**Table 49. Priority Intersections with Primary Collision Factor based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Pedestrian Right of Way | DUI | Other Hazardous Violation | Other |
| **1** | FIRST ST & C ST | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 |
| **2** | MERLOT AVE & STANISLAUS AVE | Unsignalized | 38.05 | 1 | 0 | 1 | 0 | 0 |
| **3** | KEARNEY BLVD & MADERA AVE | Signal | 14.10 | 16 | 1 | 0 | 1 | 14 |
| **4** | MADERA AVE & WHITESBRIDGE AVE | Signal | 11.52 | 22 | 1 | 0 | 0 | 21 |
| **5** | GOLDENROD AVE & CALIFORNIA AVE | Unsignalized | 10.87 | 10 | 0 | 0 | 0 | 10 |
| **6** | MADERA AVE & A ST & CALIFORNIA AVE | Unsignalized | 10.33 | 17 | 0 | 2 | 0 | 15 |
| **7** | GOLDENROD AVE & WHITESBRIDGE AVE | Signal | 7.81 | 9 | 0 | 0 | 0 | 9 |

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Pedestrian Right of Way | DUI | Other Hazardous Violation | Other |
| **8** | VINELAND AVE & WHITESBRIDGE AVE | Signal | 7.62 | 9 | 0 | 0 | 0 | 9 |
| **9** | MADERA AVE & STANISLAUS AVE | Signal | 6.77 | 14 | 2 | 0 | 0 | 12 |
| **10** | MADERA AVE & SUNSET AVE | Unsignalized | 6.30 | 7 | 0 | 0 | 0 | 7 |
| **11** | SISKIYOU AVE & WHITESBRIDGE AVE | Signal | 4.85 | 9 | 0 | 3 | 0 | 6 |
| **12** | MADERA AVE & E ST | Signal | 3.96 | 5 | 0 | 0 | 0 | 5 |
| **13** | CALIFORNIA AVE & VINELAND AVE | Unsignalized | 3.36 | 2 | 0 | 2 | 0 | 0 |
| **14** | KEARNEY BLVD & FIRST ST | Unsignalized | 3.36 | 2 | 1 | 0 | 0 | 1 |
| **15** | GOLDENROD AVE & KEARNEY BLVD | Unsignalized | 2.83 | 4 | 0 | 0 | 0 | 4 |
| **16** | DEL NORTE AVE & KEARNEY BLVD | Unsignalized | 2.34 | 2 | 0 | 0 | 0 | 2 |
| **17** | PARK AVE & KEARNEY BLVD | Unsignalized | 2.34 | 2 | 0 | 0 | 0 | 2 |
| **18** | B ST & MCKENNA AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| **19** | MADERA AVE & D ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| **20** | VINELAND AVE & E ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| **21** | PALM AVE & BURGANDY AVE | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| **22** | PACHECO DR & KEARNEY BLVD | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| **23** | KEARNEY BLVD & FOURTH ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| **24** | STANISLAUS AVE & BORDEAUX AVE | Unsignalized | 2.14 | 1 | 0 | 1 | 0 | 0 |
| **25** | MADERA AVE & F ST | Unsignalized | 1.62 | 3 | 0 | 1 | 0 | 2 |
| **26** | FIRST ST & WHITESBRIDGE AVE | Unsignalized | 1.62 | 3 | 1 | 0 | 0 | 2 |
| **27** | MADERA AVE & G ST | Unsignalized | 1.42 | 2 | 0 | 0 | 0 | 2 |
| **28** | WHITESBRIDGE AVE & DEL NORTE AVE | Signal | 1.42 | 2 | 0 | 0 | 0 | 2 |
| **29** | KLINE ST & WHITESBRIDGE AVE | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 |
| **30** | SECOND ST & B ST | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 |
| **31** | E ST & MICHELLE AVE | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 |
| **32** | KEARNEY BLVD & BOYD AVE | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 |
| **33** | MADERA AVE & C ST | Unsignalized | 0.60 | 3 | 0 | 0 | 0 | 3 |
| **34** | MADERA AVE & COMMERCE WAY | Unsignalized | 0.40 | 2 | 0 | 0 | 1 | 1 |
| **35** | PEBBLE BROOK LN & SISKIYOU AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **36** | A ST & EIGHTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **37** | A ST & SIXTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **38** | CALIFORNIA AVE & SECOND ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **39** | CALIFORNIA AVE & SUSAN AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **40** | B ST & LUM AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **41** | E ST & SIXTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Pedestrian Right of Way | DUI | Other Hazardous Violation | Other |
| **42** | DEL NORTE AVE & E ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **43** | F ST & NINTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **44** | GOLDENROD AVE & G ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **45** | KEARNEY BLVD & MANOR DR | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **46** | KEARNEY BLVD & SIXTH ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **47** | FIRST ST & MIDDLETON AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **48** | CARMEL DR & MIDDLETON AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **49** | FIRST ST & STANISLAUS AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |
| **50** | MADERA AVE & SAN JOAQUIN AVE | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 |

*Notes: Other crashes include all crashes that are not coded as one of the top three primary collision factors*
*DUI = Driving Under the Influence*

Table 50 and Table 51 provide information for the top nine roadway segments (based on crash severity score), including roadway classification, crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 50. Priority Roadways Segments with Collision Type based on Top 4 Fatal/Severe Injury Collision Types**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Collision Type | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle /Ped | Head On | Rear End | Side-swipe | Other |
| **1** | SR 180 (S Kline St to S Vineland Ave)* | Freeway | 42.58 | 10 | 0 | 3 | 4 | 3 | 0 |
| **2** | SR 180 (S Madera Ave to city limits)* | Freeway | 41.37 | 9 | 0 | 3 | 3 | 3 | 0 |
| **3** | S Madera Ave (W Commerce Way to W Church Ave) | Arterial/ Collector | 35.07 | 2 | 0 | 0 | 2 | 0 | 0 |
| **4** | S Goldenrod Ave (W Whitesbridge Ave to W Kearney Blvd) | Arterial/ Collector | 32.93 | 1 | 1 | 0 | 0 | 0 | 0 |
| **5** | SR 180 (city limits to east of S Del Norte Ave)* | Freeway | 3.96 | 5 | 0 | 1 | 4 | 0 | 0 |
| **6** | SR 180 (N Siskiyou Ave to S Del Norte Ave)* | Freeway | 2.54 | 3 | 0 | 1 | 2 | 0 | 0 |
| **7** | N Madera Ave (city limits to W Whitesbridge Ave) | Arterial/ Collector | 2.54 | 3 | 0 | 0 | 1 | 1 | 1 |
| **8** | W Jensen Ave (east of S Del Norte Ave to east of S Madera Ave) | Arterial/ Collector | 2.43 | 2 | 0 | 0 | 1 | 0 | 1 |
| **9** | W Whitesbridge Ave (west of S 1st St to S Madera St) | Freeway | 2.22 | 6 | 0 | 0 | 5 | 1 | 0 |

** Roadway segment is an at-grade Caltrans facility.*
*Note: Other crashes include all crashes that are not coded as one of the top four collision types*

**Table 51. Priority Roadways Segments with Primary Collision Factors based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ped Right of Way | DUI | Other Hazardous Violation | Other |
| **1** | SR 180 (S Kline St to S Vineland Ave)* | Freeway | 42.58 | 10 | 0 | 0 | 1 | 9 |
| **2** | SR 180 (S Madera Ave to city limits)* | Freeway | 41.37 | 9 | 0 | 0 | 1 | 8 |
| **3** | S Madera Ave (W Commerce Way to W Church Ave) | Arterial/ Collector | 35.07 | 2 | 0 | 1 | 0 | 1 |
| **4** | S Goldenrod Ave (W Whitesbridge Ave to W Kearney Blvd) | Arterial/ Collector | 32.93 | 1 | 1 | 0 | 0 | 0 |
| **5** | SR 180 (city limits to east of S Del Norte Ave)* | Freeway | 3.96 | 5 | 0 | 1 | 0 | 4 |
| **6** | SR 180 (N Siskiyou Ave to S Del Norte Ave)* | Freeway | 2.54 | 3 | 0 | 1 | 0 | 2 |
| **7** | N Madera Ave (city limits to W Whitesbridge Ave) | Arterial/ Collector | 2.54 | 3 | 0 | 1 | 0 | 2 |
| **8** | W Jensen Ave (east of S Del Norte Ave to east of S Madera Ave) | Arterial/ Collector | 2.43 | 2 | 0 | 0 | 0 | 2 |
| **9** | W Whitesbridge Ave (west of S 1st St to S Madera St) | Freeway | 2.22 | 6 | 0 | 0 | 0 | 6 |

** Roadway segment is an at-grade Caltrans facility.*
*Notes: Other crashes include all crashes that are not coded as one of the top three primary collision factors*
*DUI = Driving Under the Influence*

# Education Strategies

Education strategies for Kerman are targeted at unsafe speed and driving or bicycling under the influence of drugs or alcohol, given the prevalence of these primary collision factors. In addition, pedestrian crashes were identified as a focus area given the overrepresentation of pedestrians in fatal and severe crashes.

The Safe Roads Save Lives campaign is a marketing effort led by the Fresno COG, with the goals of:

- Educate all road users on safe transportation behaviors
- Increase safety for people walking and biking
- Highlight behaviors that cause the most crashes in Fresno County—speeding and distracted driving

The campaign Includes branding, social media strategies, print materials, radio and video resources, school resources, and a campaign website. Unincorporated Fresno County may find these materials helpful, especially those related to speeding, using the roadway responsibly together, watching out for pedestrians, and not using the roadway under the influence.

The following activities are recommended for Kerman as they move forward on implementing the Safe Roads Save Lives campaign:

- Identify staff appropriate to attend a presentation by Fresno COG staff about the Safe Roads Save Lives campaign. Appropriate staff members include staff associated with transportation engineering and planning, communications, traffic enforcement, school transportation, and other jurisdictional staff who work with the roadway system.
- Work with school districts to distribute print materials and offer school-related transportation resources. Ensure that school communications are in both English and Spanish.
- Work with public information or communications staff to spread Safe Roads Save Lives materials throughout Kerman through the following channels:
    - Repost and link to Fresno COG posts that refer to the Safe Roads Save Lives campaign.
    - Have print materials (flyers, bumper stickers, pins, and postcards) available at transportation-related events and community festivals.
    - Print posters for posting at governmental buildings such as City Hall, libraries, DMVs and other facilities that the public regularly uses.
    - Work with the Fresno COG to identify a radio station to air a Safe Roads Save Lives radio public service announcement (PSA).
    - Have a direct link to Safe Roads Save Lives campaign website from the City website.

## Emergency Services

Emergency service organizations depend on safe roadways and efficient communication processes to reach and effectively respond to emergencies. Each type of emergency services organization that serves Kerman – law enforcement, fire, emergency medical services (EMS), California Highway Patrol – work independently and collaboratively to develop procedures that allow them to respond to incidents in their own jurisdictions as well as support others as needed. The following recommendations may help improve emergency services response as the various organizations update procedures and policies and continue to partner on roadway safety efforts:

- All roadway safety projects should be vetted by emergency service organizations to ensure that their design does not hamper access.
- As new emergency service and response procedures are developed, roadway safety improvement opportunities should be identified and implications of changes to response times should be considered.
- Kerman staff should participate in periodic coordination calls between emergency response agencies to gather and share recent observations about crashes and hot spots, to understand emergent safety issues that may not have led to policy reports or yet be available through statewide crash reporting systems.

## Enforcement

Enforcement strategies can include programs or campaigns specifically focused on changing road user behavior through more visible and active enforcement of existing traffic laws, as well as focusing enforcement in areas that have historically been shown to have higher-than-average crash rates. Typically, the effectiveness of enforcement strategies is temporal, meaning they are effective at changing behavior for a discrete period of time – during and shortly after the increased enforcement activities.

The following enforcement strategies should be considered for Kerman:

- Schedule heightened speed (or other behavior) enforcement checks during strategic times of the year, such as when students return to school or the beginning of fog season.
- Focus speed enforcement efforts in locations with high crash rates.
- Use automatic enforcement, such as red-light cameras or speed feedback signs, especially in school zones. Consider adding audio warning to speed feedback signs.
- Consider opportunities for youth engagement, such as "good behavior" ticket writing from students to adult roadway users.

The effectiveness of each strategy should be measured and evaluated, considering the number of staff hours and amount of resources needed. The results should be reviewed and used to refine future enforcement activities.

Enforcement strategies should be undertaken with due caution to avoid inequitable enforcement activities and evaluated to determine the strategy's impact. More details about equitable enforcement can be found on page 8 (Introduction).

# EVALUATION AND IMPLEMENTATION

A key part of achieving the City's vision is consistently evaluating roadway safety performance and tracking progress towards the City's goals. The City will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

As feasible, it is recommended that the City of Kerman update this LRSP every three to five years using updated crash data and the performance measures. Comparing the performance measures related to investments made with the crash data should provide a clear indication of the impact of the City's and safety partner's efforts. Future LRSPs may provide new emphasis areas and top priority locations that reflect progress made and new priorities based on trends in the data.

Activities for implementing the plan include:

- Identifying countermeasures and strategies for priority locations based on the crash data.
- Utilizing the Fresno COG Regional Safety Plan to implement regional strategies and share best practices.
- Exploring funding opportunities to implement priority strategies.
- Identifying activities to support the regional Safe Roads Save Lives campaign.
- Identifying enforcement strategies to implement and evaluate.
- Regularly coordinating with safety partner agencies to assess progress, identify opportunities to implement countermeasures and strategies, and identify opportunities for citizen involvement.
- Regularly collecting and organizing data to support evaluation of the LRSP.

# 8.0 CITY OF MENDOTA

The City of Mendota has an approximate population of 12,278.[45] The average daily vehicle miles traveled is 32,142, and the City maintains approximately 23 total roadway centerline miles. The main roadways in the City include Derrick Avenue and Oller Street, which both run from north to south, and Belmont Avenue and Bass Avenue, which both run from east to west. Based on the review of crash data conducted as part of the LRSP, pedestrians are overrepresented in fatal and severe injury crashes. The fatal and severe injury collision types in Mendota were **vehicle-pedestrian, rear end,** and **sideswipe** crashes. The fatal and severe injury primary collision factors were **automobile right of way**, **pedestrian right of way**, **unsafe speed**, and **pedestrian violation**. The LRSP provides potential engineering, education, emergency services, and enforcement strategies tailored to Mendota's crash history and local priorities, as well as performance measures to evaluate progress.

## VISION AND GOALS

The City's vision for roadway safety is:

**To continuously improve our roadways to help all road users reach their destination safely.**

The City's roadway safety goals in support of the vision are:

1. Have zero fatal and severe injury crashes on the City roadways by 2026.
2. Coordinate with Caltrans on implementing roadway network changes on the state routes that are within the City boundary.
3. Systemically implement safety countermeasures proven to reduce fatal and severe crashes.
4. Participate in regional activities to promote roadway safety as a priority investment.
5. Target improvements that will help slow and manage vehicle speeds.
6. Develop and implement a truck management plan to address safety concerns related to truck parking and circulation.

[45] 2018 population. Source: California Department of Finance

# SAFETY PARTNERS

A variety of agency staff and community partners were involved throughout the development of this LRSP and played an integral role in identifying priorities, providing local context, and reviewing the existing conditions analysis. Many of the strategies identified in this plan will require coordination with these partners and their support of the City's effort to create a culture of roadway safety. Mendota's goals reflect the importance of participating in regional activities to promote roadway safety. While additional partners may be identified in the future, those involved in development of the LRSP include:

- California Highway Patrol
- Caltrans
- Fresno Council of Governments
- Fresno County Fire
- Fresno County Rural Transit Agency
- Mendota Boys & Girls Club
- Mendota Police Department
- Mendota Public Safety Subcommittee
- Mendota Public Works
- Mendota Unified School District
- Mendota Youth Recreation
- Public Safety Committee
- Westside Youth, Inc.

# PERFORMANCE MEASURES

Performance measures are used to track progress and a key element of making data-informed decisions. Performance measures that support the City's vision, goals, and emphasis areas include:

- Annual number of crashes (city-wide and at each of the top 20 priority locations)
- Annual number of fatal and severe injury crashes (city-wide and at each of the top 20 priority locations)
- Annual number of pedestrian and bicycle crashes (city-wide and at each of the top twenty priority locations)
- Annual number of rear end crashes (city-wide)
- Annual number of sideswipe crashes (city-wide)
- Annual number of crashes with a primary collision factor of unsafe speed (city-wide)
- Investments made in roadway safety countermeasures (e.g. dollars spent, grants pursued, partnerships developed)
- Investments made in education and enforcement strategies (e.g. dollars spent, grants pursued, partnerships developed)
- Coordination with other local agencies and/or safety partners (e.g. meetings held, projects pursued)
- Progress made on truck management plan (e.g. meetings held, portion of plan complete)
- Coordination on crash data processes and reporting (e.g. meetings held, changes made)

As part of plan implementation, the City will identify a process for annually tracking these performance measures to support future updates to this roadway safety plan.

# DATA SUMMARY

The primary data sets used to inform the technical analyses for the City's local road safety plan were crash data and roadway network information. As noted below, future updates could incorporate traffic volume data if widely available for locations across the City. In addition, feedback from a publicly available survey was documented for consideration in identifying issues and improvement strategies.

## Public Survey Feedback

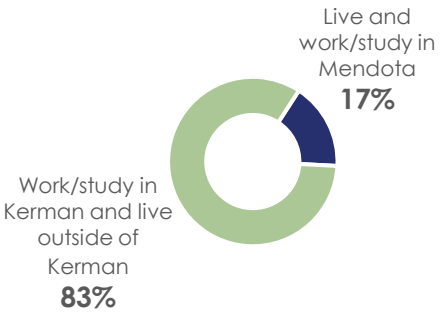
Toole Design Group worked with Fresno COG to develop an online survey and interactive webmap to provide the opportunity for public engagement on the LRSP. The goal was to collect both general and geographically specific feedback on safety problems, desired safety improvements in jurisdictions that are part of the MLRSP, as well as voluntary demographic information for Title IV reporting. Both activities were open from August 16, 2021 to September 20, 2021 and sought public feedback on spatial patterns of traffic safety concerns and desired improvements.

As the primary open public engagement opportunity during MLRSP development, the survey and interactive webmap served a crucial role in illuminating the community's traffic safety concerns and desired traffic safety improvements. Below is a summary of key findings from the online survey and interactive webmap specific to Mendota. More information on the methodology and overall findings of the survey are provided in *Appendix A*.

**6**
PEOPLE RESPONDED

**0**
LOCATIONS IDENTIFIED

**WHERE PARTICIPANTS WORK AND LIVE**




**MOST NEEDED SAFETY IMPROVEMENTS**

- Maintenance of existing roads and streets
- Rural road improvements to prevent run-off-road crashes
- Traffic signals
- Speed enforcement

- The survey asked respondents to provide input on the top road safety improvements needed in their communities. While the survey prompted participants to pick three improvements, some selected more than three responses. A total 15 responses were received for Mendota from 6 participants, with the most common desired improvement types including:
    - Maintenance of existing roads and streets (3 responses)
    - Rural road improvements to prevent run-off-road crashes (3 responses)
    - Traffic signals (3 responses)
    - Speed enforcement (2 responses)
- Participants dropped points in the webmap in specific locations across Fresno County where they experienced road safety concerns. No locations were identified for Mendota.
- The survey asked participants where they live and work or study, with the option to select from a list of jurisdictions or outside of Fresno County. The participants who selected Mendota included:
    - 1 who lives and works/studies in Mendota
    - None who live in Mendota and work/study outside of Mendota
    - 5 who work/study in Mendota and live outside of Mendota

## Crash Data

Kittelson worked with Fresno COG to assemble crash data for the City of Mendota using the Statewide Integrated Traffic Records System (SWITRS) database, supplemented with location information from the Transportation Injury Mapping System (TIMS) database maintained by SafeTREC at the University of California, Berkeley. Throughout this report, crashes are associated with a jurisdiction based on the reporting officer's assessment of location.

The crash database represents the time period from January 1, 2015 through December 31, 2019 and includes reported crashes that occurred on public streets. Within the assembled regional crash database, a total of 348 reported crashes are located in Mendota. Crash severity is coded according to the highest degree of injury exhibited, and the data used for this analysis includes the following coded severity levels (listed in descending order):

- Fatal: death from injuries sustained in the crash.
- Severe Injury: Injuries include, for example, broken bones, severe lacerations, or other injuries that go beyond the reporting officer's assessment of "other visible injuries."
- Other visible injury: An injury, other than those described above, that is evident to observers at the scene of the crash. For example, bruises or minor lacerations.
- Complaint of pain: Internal or other non-visible injuries. For example, a person limps or seems incoherent.
- Property damage only (PDO): No injuries sustained.

## Roadway Network Data

Kittelson developed a linear referencing system of all public roadways using the Fresno County roadway centerline file. This dataset was updated to develop a measurement system based on the total road length (as determined by roadway name) to locate crashes to a specific mile point along the network. The master roadway network for the County was used to spatially analyze and prioritize specific locations within each local jurisdiction.

## Traffic Volume Data

Traffic volume data was not consistently available at a sufficient level to be able to incorporate into the safety analysis. Future updates to the City's local road safety plan could incorporate traffic volume data, if available, to understand how crash frequency, severity, and type vary at different levels of traffic.

# EXISTING ROADWAY SAFETY PERFORMANCE

The findings in this section are based on the crash database, which includes reported crashes from January 1, 2015 through December 31, 2019. It is organized as follows:

- All Road Users
  - Severity by Road User
  - Year, Month, and Weather
  - Collision Type
  - Location, Collision Type, and Severity
  - Primary Collision Factor
  - Lighting
  - Time of Day
- Pedestrian-involved Crashes
  - Year and Month
  - Pedestrian Action and Location
  - Lighting
- Bicyclist-involved Crashes
  - Collision Type
  - Primary Collision Factor
  - Lighting

# All Road Users

This section includes analysis and findings for all reported crashes. Subsequent sections focus exclusively on crashes involving pedestrians and bicyclists.

## SEVERITY BY ROAD USER

Table 52 presents reported crashes, organized by severity level and road user. Notable trends include:

- 96 percent of total reported crashes are vehicle only or vehicle-fixed object, thirteen reported crashes involved a pedestrian and one reported crash involved a bicycle.
- Fatal and severe injury crashes represent 1 percent each of all reported crashes.

**Table 52: Crash Severity by Road User Involved**

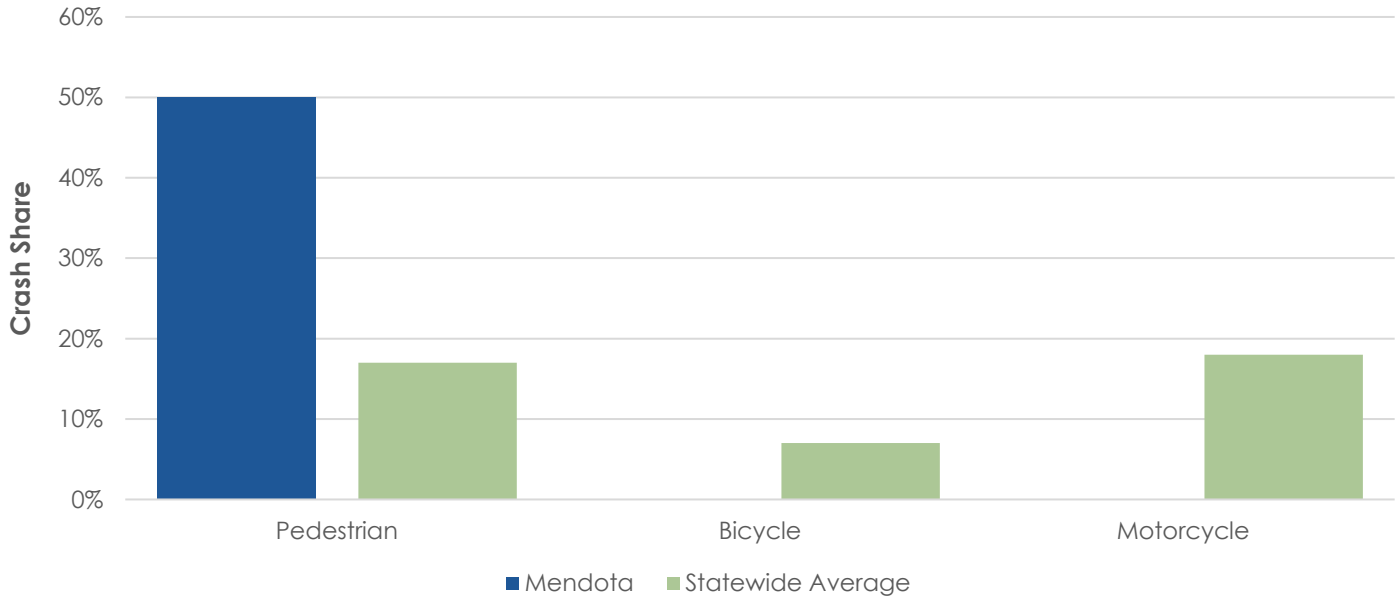
| Road Users Involved | Fatal (% of column) | Severe Injury (% of column) | Visible Injury (% of column) | Complaint of Pain (% of column) | Property Damage Only (% of column) | Total (% of column) |
|---|---|---|---|---|---|---|
| Pedestrian Involved | 2 (67%) | 1 (33%) | 7 (29%) | 3 (6%) | 0 (0%) | 13 (4%) |
| Bicycle Involved | 0 (0%) | 0 (0%) | 0 (0%) | 0 (0%) | 1 (.3%) | 1 (.3%) |
| Vehicle Only or Vehicle-Fixed Object | 1 (33%) | 2 (66%) | 17 (71%) | 49 (94%) | 265 (99.7%) | 333 (98%) |
| Reported Crashes | 3 (100%) | 3 (100%) | 24 (100%) | 52 (100%) | 266 (100%) | 348 (95.7%) |
| Severity Share of Reported Crashes | 1% | 1% | 7% | 15% | 76% | 100% |

*Source: SWITRS, TIMS, Kittelson, 2021.*

California's Strategic Highway Safety Plan (SHSP) includes 16 challenge areas to focus statewide resources and efforts. Three such challenge areas were crashes involving pedestrians, bicyclists, and motorcyclists. The SHSP analyzed the share of fatal and severe injury crashes involving each of these road users. Figure 111 compares crash trends in Mendota to the statewide trends reported in the SHSP.

- City of Mendota has no reported fatal/severe bicycle or motorcycle crashes.
- There is a higher proportion of pedestrian crashes in Mendota than the statewide average. These comparisons should be interpreted with caution given that there are six reported fatal/severe injury crashes in the five-year period compared to a much larger dataset statewide.

**Figure 111: Fatal and Severe Injury Crash Shares by Road User Compared to Statewide Trends**

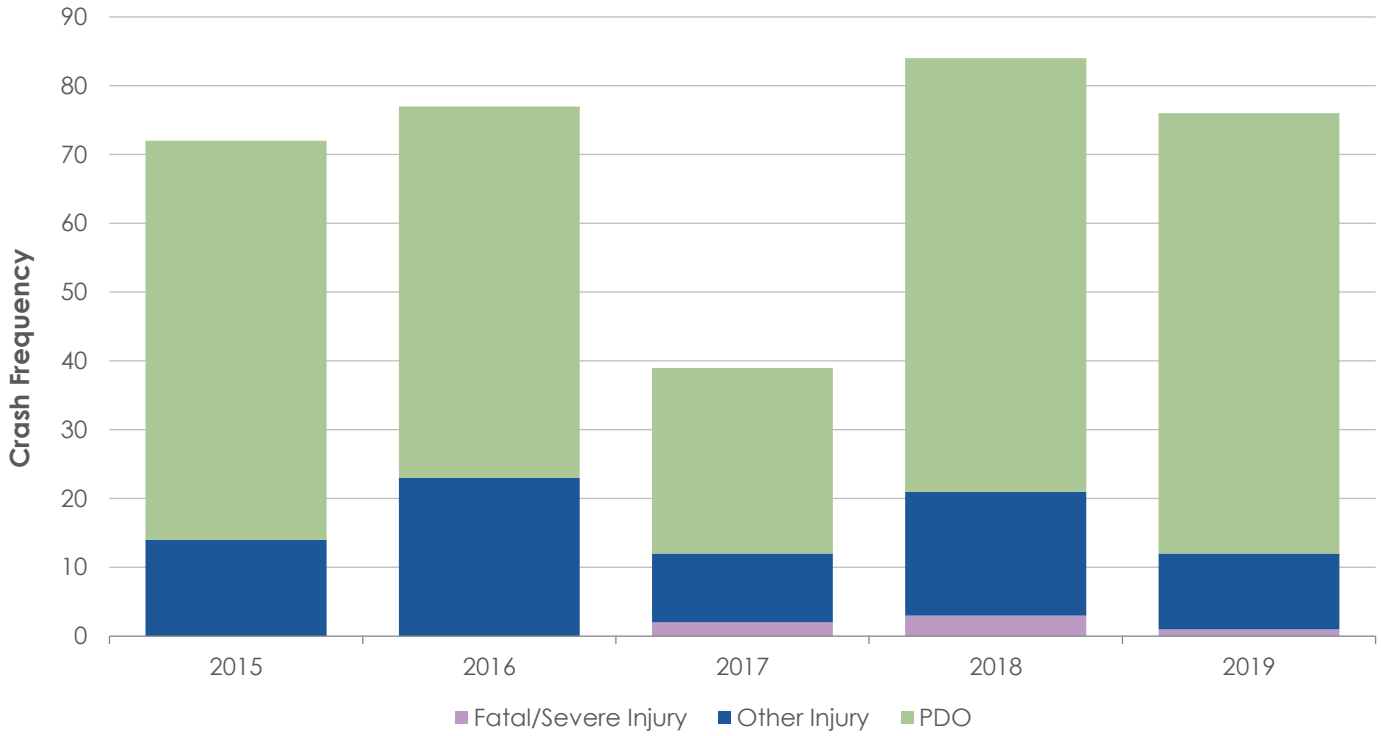



*Source: SHSP, SWITRS, TIMS, Kittelson, 2021.*

## YEAR, MONTH, AND WEATHER

Figure 112 shows year-over-year trends in the data by severity. The total number of crashes for most years falls between 70 and 85, with 2017 being an exception at just under 40 total crashes. The average annual number of reported crashes is 70. The year 2018 was the highest year with 84 reported crashes, and 2017 was notably lower with 27 reported crashes. A lack of reporting may be attributable to the sharp one-year decrease in the 2017 data.

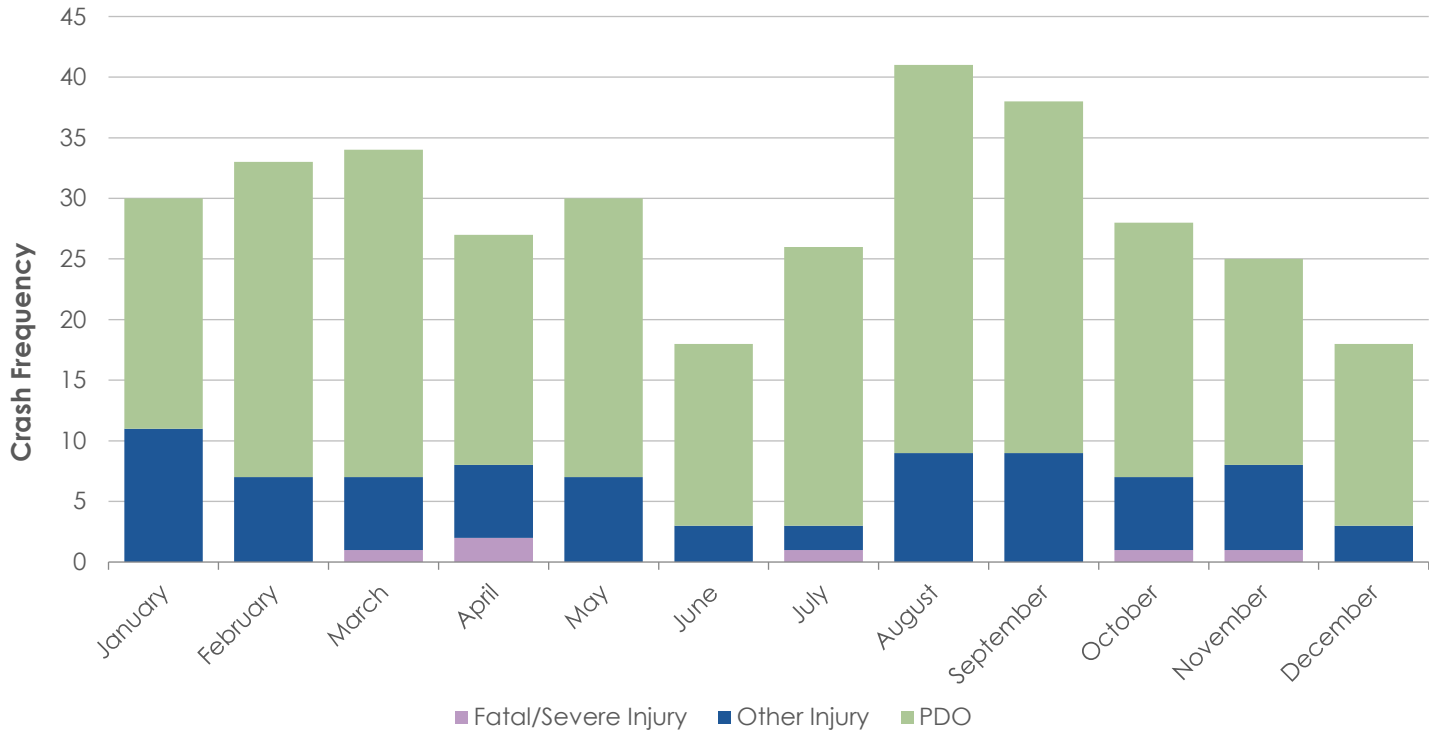
**Figure 112: Year-over-Year Trends in Crash Data by Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

Figure 113 shows the total crashes by month and severity for the crash database. The average number of crashes per month is 29. In June and December, the number of reported crashes drops is below 20. The months with the highest number of crashes are August and September with a total of 41 and 38 crashes, respectively.

**Figure 113: Crashes by Month and Severity**

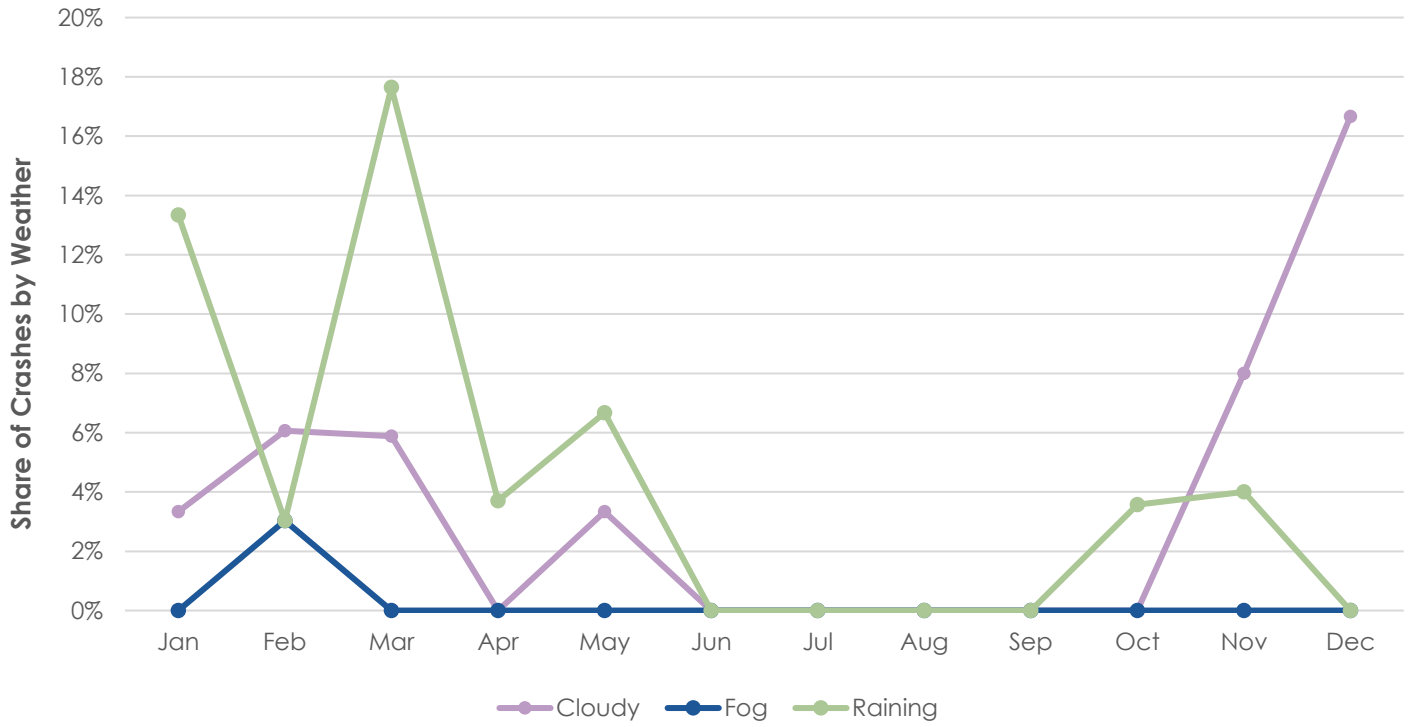



*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

Figure 114 illustrates crashes by weather condition. The most common weather condition, clear weather, is not shown in the chart below to highlight weather's factors on crash trends.

- 80 percent of total crashes occurred during clear weather.
- Of the weather conditions shown, the smallest share of crashes occurred during fog.
- There are no reported crashes in cloudy, rainy, or foggy weather in June through September.

**Figure 114: Crashes by Month and Weather Condition**



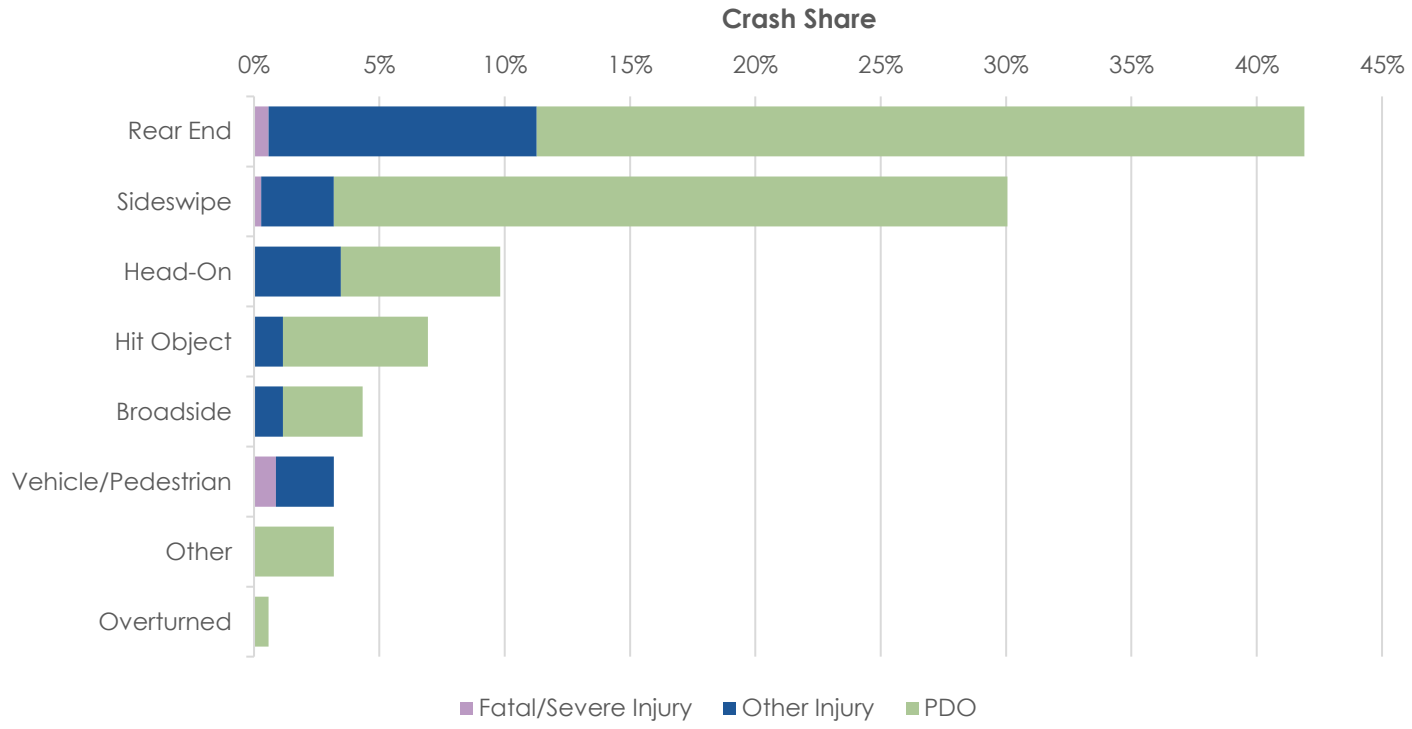

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: Only select conditions shown to improve legibility for less frequent weather conditions.*

## COLLISION TYPE

Reported collision type gives an indication of the movements most frequently resulting in crashes and in severe outcomes. Figure 115 presents crashes by type and severity.

- The most frequent collision type is **rear end**, with 42 percent of crashes. It is followed by **sideswipe** at 30 percent, and **head-on** at 10 percent.
- The three collision types among the six fatal/severe crashes are **vehicle/pedestrian** (three crashes), **rear end** (two crashes), and **sideswipe** (one crash).

**Figure 115: Crashes by Collision Type and Severity**



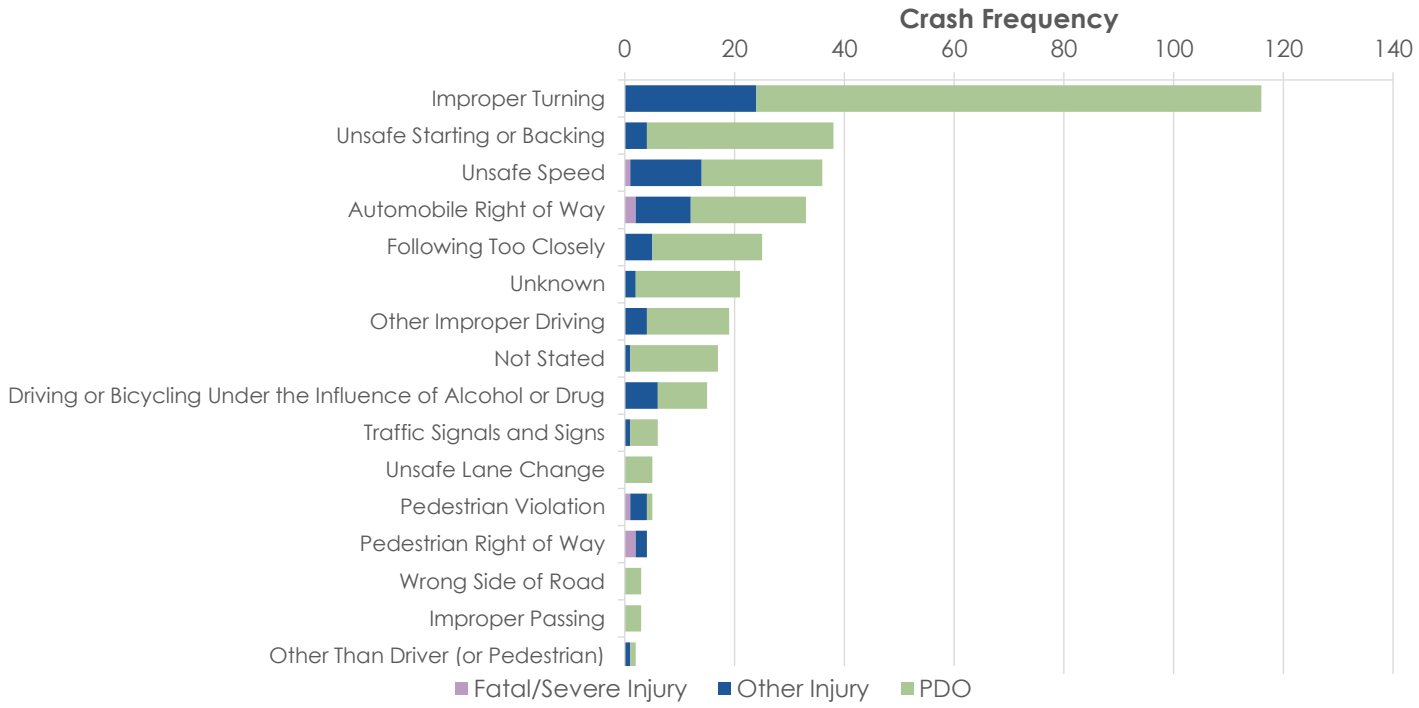

*Source: SWITRS, TIMS, Kittelson, 2021*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## PRIMARY COLLISION FACTOR

Reporting officers identify a primary collision factor (PCF) for each crash. It is up to the officer's judgement and information available at the scene for them to select the factor that is most relevant. Officers select one from among a list of PCFs based on California Vehicle Code (CVC) and road user behavior. Figure 116 presents the most frequently cited PCFs in crashes in Mendota.

- The most commonly reported PCF is **improper turning**[46] (33 percent of crashes), followed by **unsafe starting or backing**[47] (11 percent) and **unsafe speed**[48] (10 percent)
- The two most commonly reported PCFs for fatal/severe injury crashes are **automobile right of way**[49] and **pedestrian right of way** (two crashes each). **Unsafe speed**[48] and **pedestrian violation**[50] were each reported once.

**Figure 116: Crashes by Reported PCF**



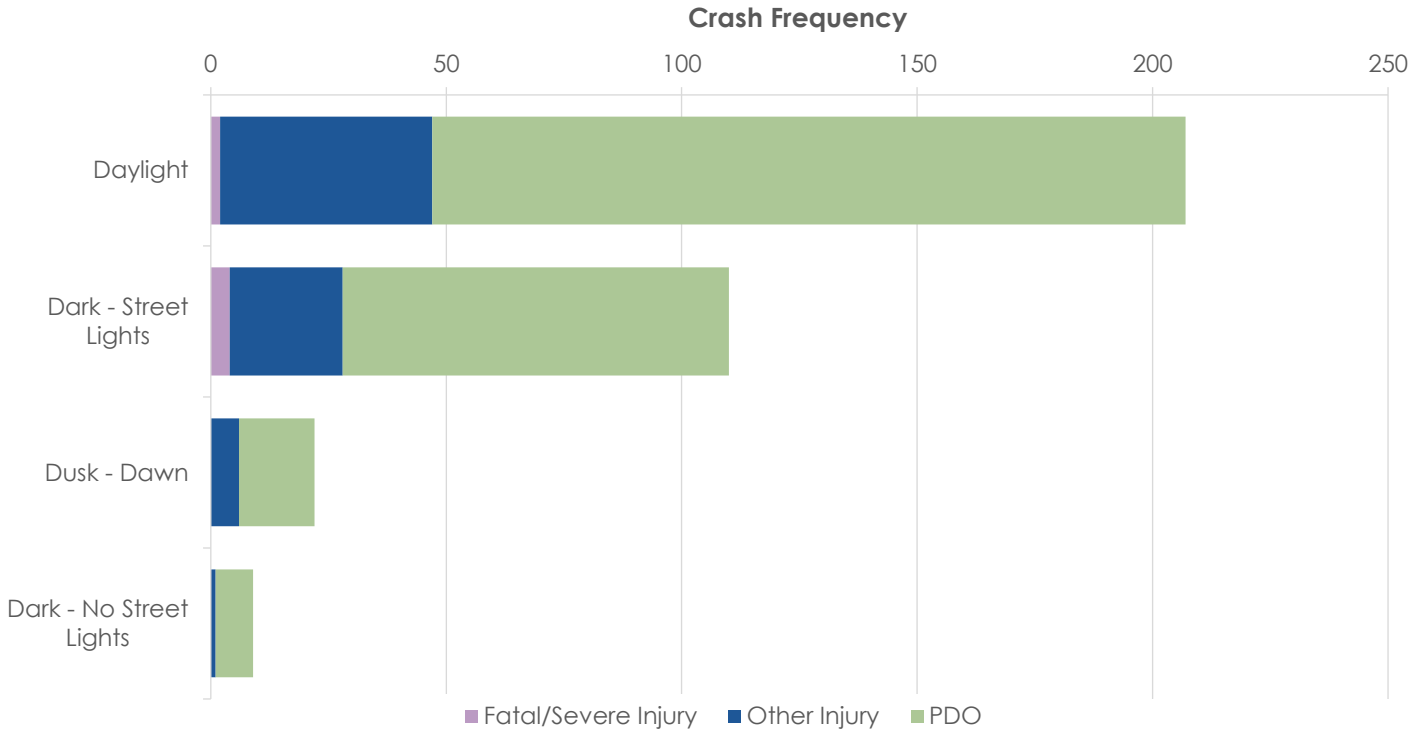

*Source: SWITRS, TIMS, Kittelson, 2021*
*Notes: PCFs constituting <1% excluded from chart to enhance legibility. Those PCFs include other equipment, hazardous parking, impeding traffic, lights, and brakes.*
*"Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

[46] Reported PCF based on CVC violation indicating a failure while turning from a direct course without reasonable safety or not signaling appropriately.
[47] Reported PCF based on CVC violation indicating unsafe starting or backing of the vehicle.
[48] Reported PCF based on CVC violation indicating unsafe speeding on a highway.
[49] Reported PCF based on CVC violation indicating a driver turning failed to yield right-of-way to oncoming traffic.
[50] Reported PCF based on CVC violation indicating a pedestrian failure to yield the right of way to other vehicles.

## LIGHTING

Figure 117 shows crashes by reported lighting condition and severity. The most common lighting condition is daylight, at 60 percent of crashes. The next most common is dark with streetlights, at 32 percent of total crashes. Fatal/severe injuries make up a higher proportion of crashes that occurred in the dark with street lights compared to crashes that occurred in daylight.

**Figure 117: Crashes by Lighting and Severity**

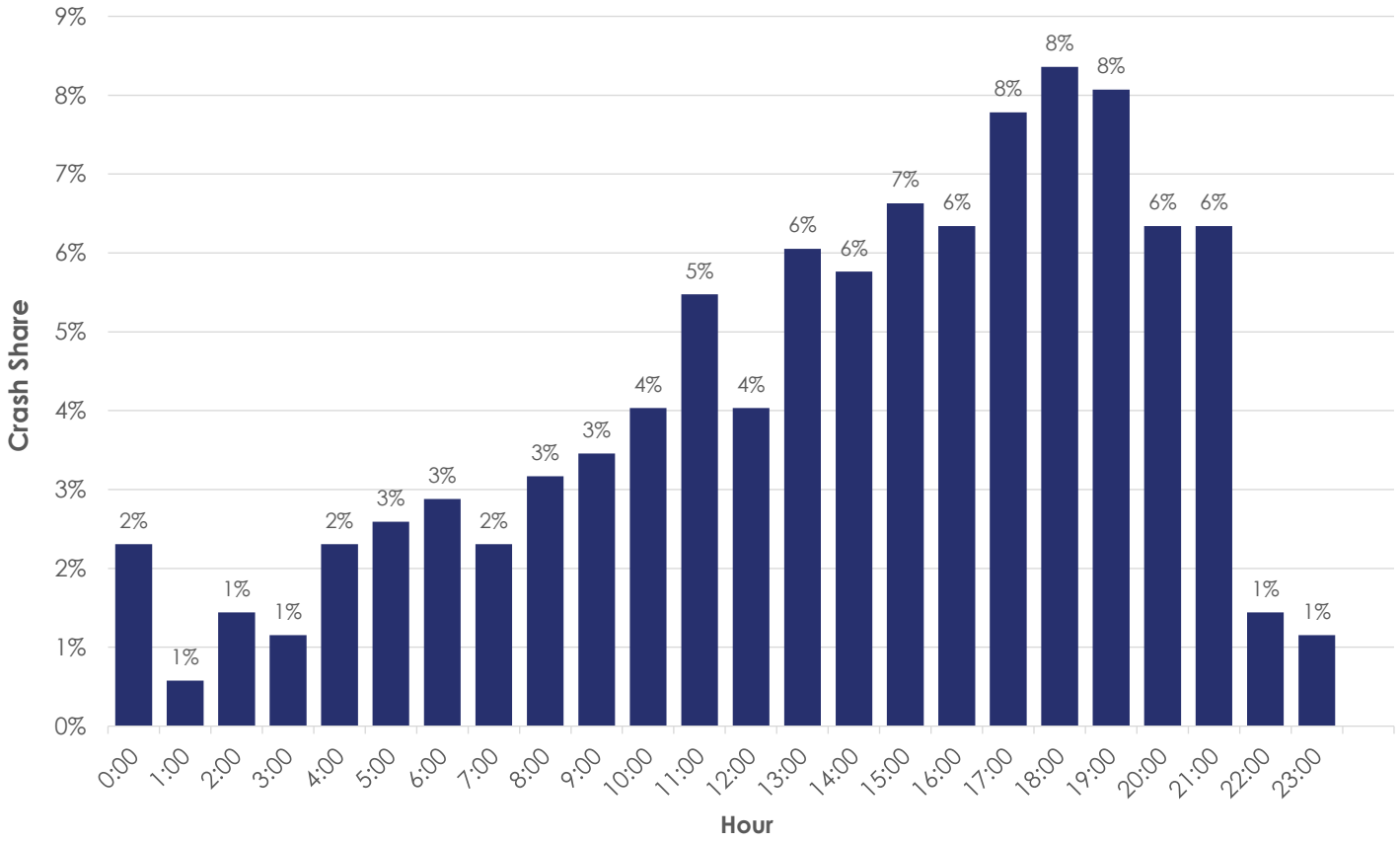



*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*
*Note: 10 crashes were reported as not stated.*

## TIME OF DAY

Figure 118 shows crashes by time of day. The highest shares of crashes have historically occurred between 5 PM and 8 PM.

**Figure 118: Crash Share by Time of Day**




*Source: SWITRS, TIMS, Kittelson, 2021.*

# Pedestrians

This section focuses exclusively on reported crashes involving pedestrians. Table 53 shows the distribution of pedestrian crashes by severity. Of the 13 reported pedestrian crashes, three resulted in a fatality or severe injury, seven in visible injuries, and three in complaint of pain.

**Table 53: Severity by Pedestrians Involved**

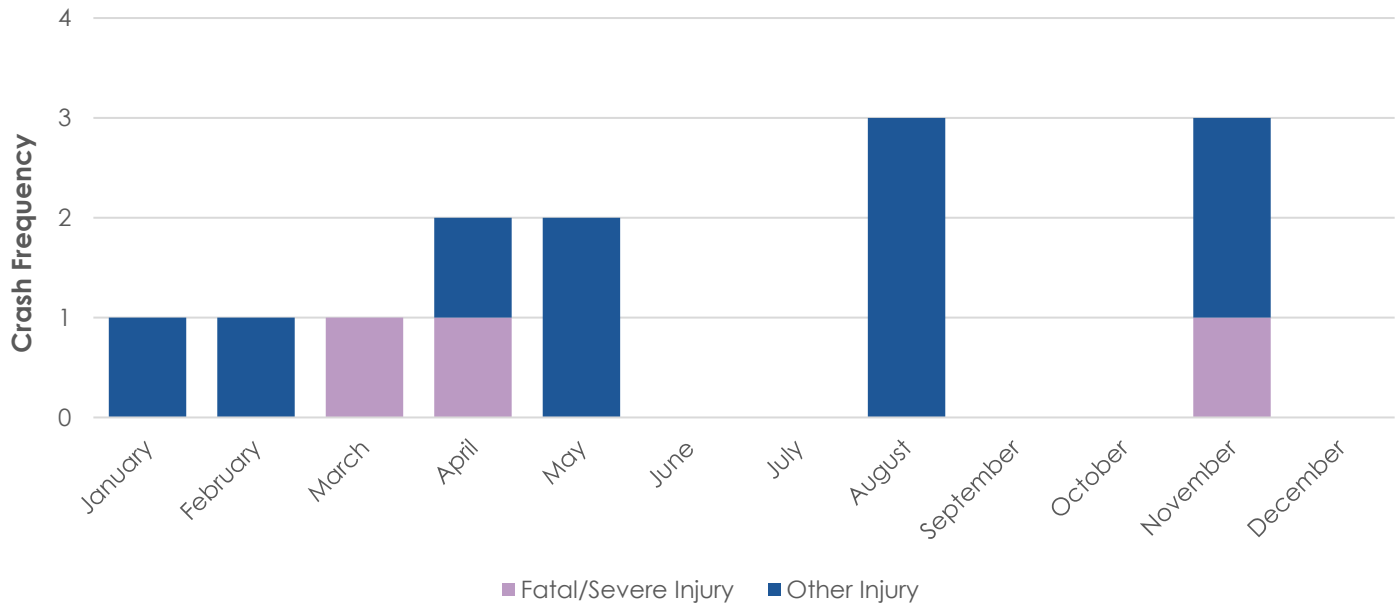
| | Fatal (% of Total) | Severe Injury (% of Total) | Visible Injury (% of Total) | Complaint of Pain (% of Total) | Property Damage Only (% of Total) | Total |
|---|---|---|---|---|---|---|
| Pedestrian Involved | 2 (15%) | 1 (7%) | 7 (53%) | 3 (23%) | 0 (0%) | 13 (100%) |

*Source: SWITRS, TIMS, Kittelson, 2021.*

## SEVERITY AND MONTH

Figure 119 presents reported pedestrian crashes by month and severity. Pedestrian crashes are reported in seven months out of the year for the 5-year period. The most crashes involving pedestrians occurred in August and November, while no crashes were reported in June, July, September, October, or December. Fatal/severe injury crashes occurred in March, April, and November.

**Figure 119: Pedestrian Crashes by Month and Severity**

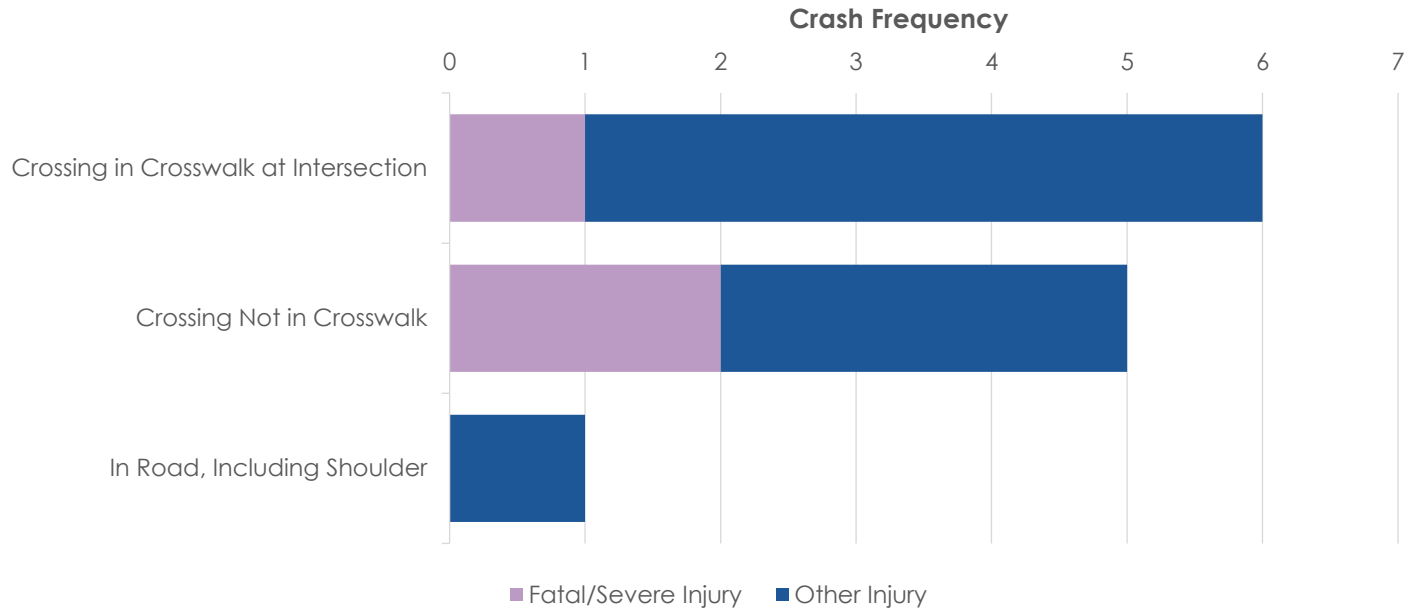



*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes.*
*Note: There were no reported pedestrian involved PDO crashes in this time span.*

## PEDESTRIAN ACTION AND LOCATION

For pedestrian crashes, data are coded according to the reporting officer's judgment about the pedestrian's action and location preceding the crash. Figure 120 shows this information versus severity. The most common reported action is crossing in a crosswalk at an intersection, where 6 out of the13 total crashes occurred. The two actions that resulted in a fatality are crossing in a crosswalk at an intersection and crossing not in a crosswalk. Most crashes shown resulted in other injuries.

**Figure 120: Pedestrian Crashes by Reported Action/Location and Severity**

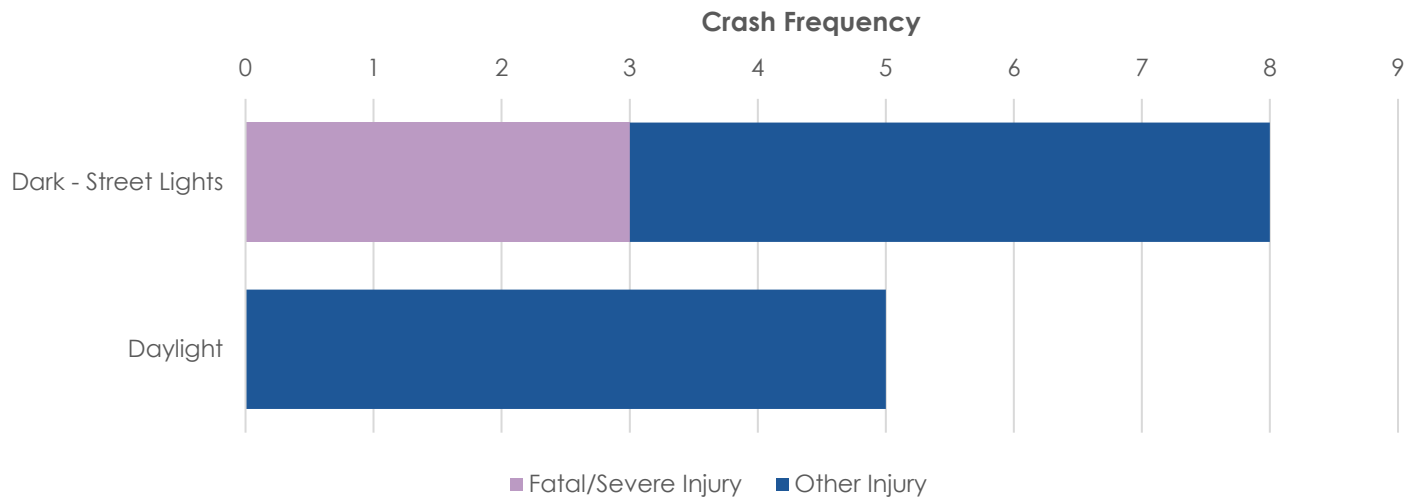



*Source: SWITRS, TIMS, Kittelson, 2021.*
*Notes: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes.*
*There are no pedestrian involved property damage only crashes in Mendota in this time span.*

## LIGHTING

Figure 121 shows pedestrian crashes by lighting condition. The three fatal/sever injury crashes occurred in dark conditions with street lights.

**Figure 121: Pedestrian Crashes by Lighting and Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes.*
*There were no reported pedestrian involved property damage only crashes in Mendota in this time span.*

# Bicyclists

One crash involving a bicyclist was documented in Mendota in the reporting period. This crash occurred at 8 PM in August of 2019 and resulted in property damage only. It occurred at the Oller Street/7th Street intersection on dry road conditions in dark conditions with streetlights. The driver was reported to be under the influence of alcohol.

# Priority Locations

Kittelson identified priority intersections and segments in Mendota using the annualized crash severity scores and excess predicted crashes described in the Data Summary and Analysis Approach sections (see the Introduction).

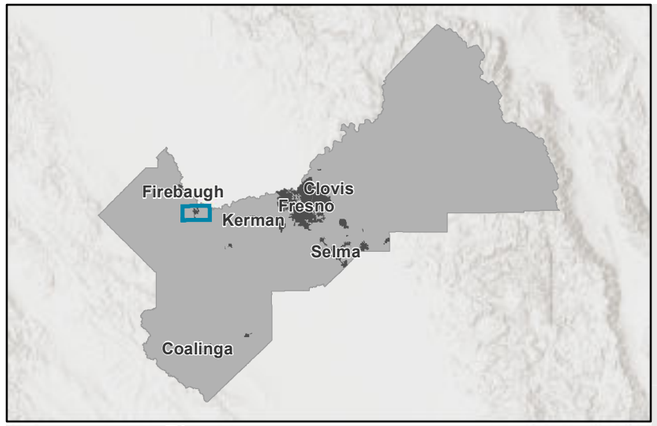
For intersection locations, the crash severity scores ranged from zero (no reported crashes during the five years) to 45.56. Figure 122 shows the results of the crash severity scoring. Figure 123 shows excess predicted crash scores by percentiles for intersection locations. For the half-mile roadway segments, the crash severity scores ranged from zero to 99.00. Crash severity score results for roadway segments are shown in Figure 124. Excess predicted crash score results are shown in Figure 125. Intersections or segments shown as not falling within one of the percentile breaks indicates there were no reported crashes at that location.

Table 54 presents the top twenty locations with the highest crash severity scores.

**Table 54. Top 20 Locations based on Crash Severity Score**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Com-plaint of Pain | PDO |
| **1** | DERRICK AVE FROM LOZANO ST TO NORTH OF LOZANO ST | Segment | 99.00 | 4 | 1 | 2 | 0 | 0 | 1 |
| **2** | FIFTH ST & OLLER ST | Unsignalized | 45.56 | 9 | 1 | 0 | 2 | 2 | 4 |
| **3** | DERRICK AVE & NAPLES ST | Unsignalized | 43.31 | 7 | 0 | 1 | 0 | 4 | 2 |
| **4** | DERRICK AVE & SEVENTH ST | Unsignalized | 42.52 | 4 | 0 | 1 | 2 | 0 | 1 |
| **5** | OLLER ST & DERRICK AVE & MCCABE ST | Unsignalized | 42.28 | 12 | 1 | 0 | 0 | 2 | 9 |
| **6** | SECOND ST & J ST | Unsignalized | 38.45 | 3 | 0 | 1 | 0 | 0 | 2 |
| **7** | DERRICK AVE & TULE ST | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 | 0 |
| **8** | BASS AVE FROM HELM CANAL AVE TO SOUTH OF HELM CANAL AVE | Segment | 37.21 | 3 | 0 | 1 | 2 | 0 | 0 |
| **9** | SEVENTH ST & OLLER ST | Unsignalized | 12.84 | 24 | 0 | 0 | 1 | 6 | 17 |
| **10** | NINTH ST & OLLER ST | Signal | 12.44 | 22 | 0 | 0 | 1 | 6 | 15 |
| **11** | OLLER ST FROM 10TH ST to BELMONT AVE | Segment | 7.93 | 5 | 0 | 0 | 2 | 3 | 0 |
| **12** | DOS PALOS RD & BELMONT AVE & OLLER ST | Unsignalized | 6.87 | 14 | 0 | 0 | 0 | 4 | 10 |
| **13** | DOS PALOS RD & BASS AVE | Signal | 6.05 | 15 | 0 | 0 | 0 | 3 | 12 |
| **14** | THIRD ST & OLLER ST | Unsignalized | 5.77 | 9 | 0 | 0 | 1 | 2 | 6 |
| **15** | SIXTH ST & OLLER ST | Unsignalized | 5.36 | 12 | 0 | 0 | 1 | 1 | 10 |
| **16** | EIGHTH ST & OLLER ST | Unsignalized | 4.76 | 9 | 0 | 0 | 1 | 1 | 7 |
| **17** | LOZANO ST & PEREZ ST | Unsignalized | 4.23 | 11 | 0 | 0 | 0 | 2 | 9 |
| **18** | DOS PALOS RD & LOZANO ST | Unsignalized | 3.96 | 5 | 0 | 0 | 1 | 1 | 3 |
| **19** | SECOND ST & BASS AVE | Unsignalized | 2.94 | 5 | 0 | 0 | 1 | 0 | 4 |
| **20** | MARIE ST FROM 2ND ST TO 5TH ST | Segment | 2.94 | 5 | 0 | 0 | 1 | 0 | 4 |

*Note: PDO = Property Damage Only*




N DOS PALOS RD

BASS AVE

Mendota

MARIE ST

NAPLES ST

OLLER ST

NINTH ST

W BELMONT AVE

S SAN DIEGO AVE

S DERRICK AVE

W PANOCHE RD

S SAN BENITO AVE

W CALIFORNIA AVE

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**Crash Severity Score**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.45 Miles

Figure 122

**Intersection Crash Severity Scores**
**Jurisdiction Results: Mendota**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES


N DOS PALOS RD
BASS AVE
Mendota
MARIE ST
NAPLES ST
OLLER ST
NINTH ST
W BELMONT AVE
N
S SAN DIEGO AVE
S DERRICK AVE
W PANOCHE RD
S SAN BENITO AVE
W CALIFORNIA AVE

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**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile

City Limits

County Boundary

0 0.45 Miles

Figure 123

**Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Mendota**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

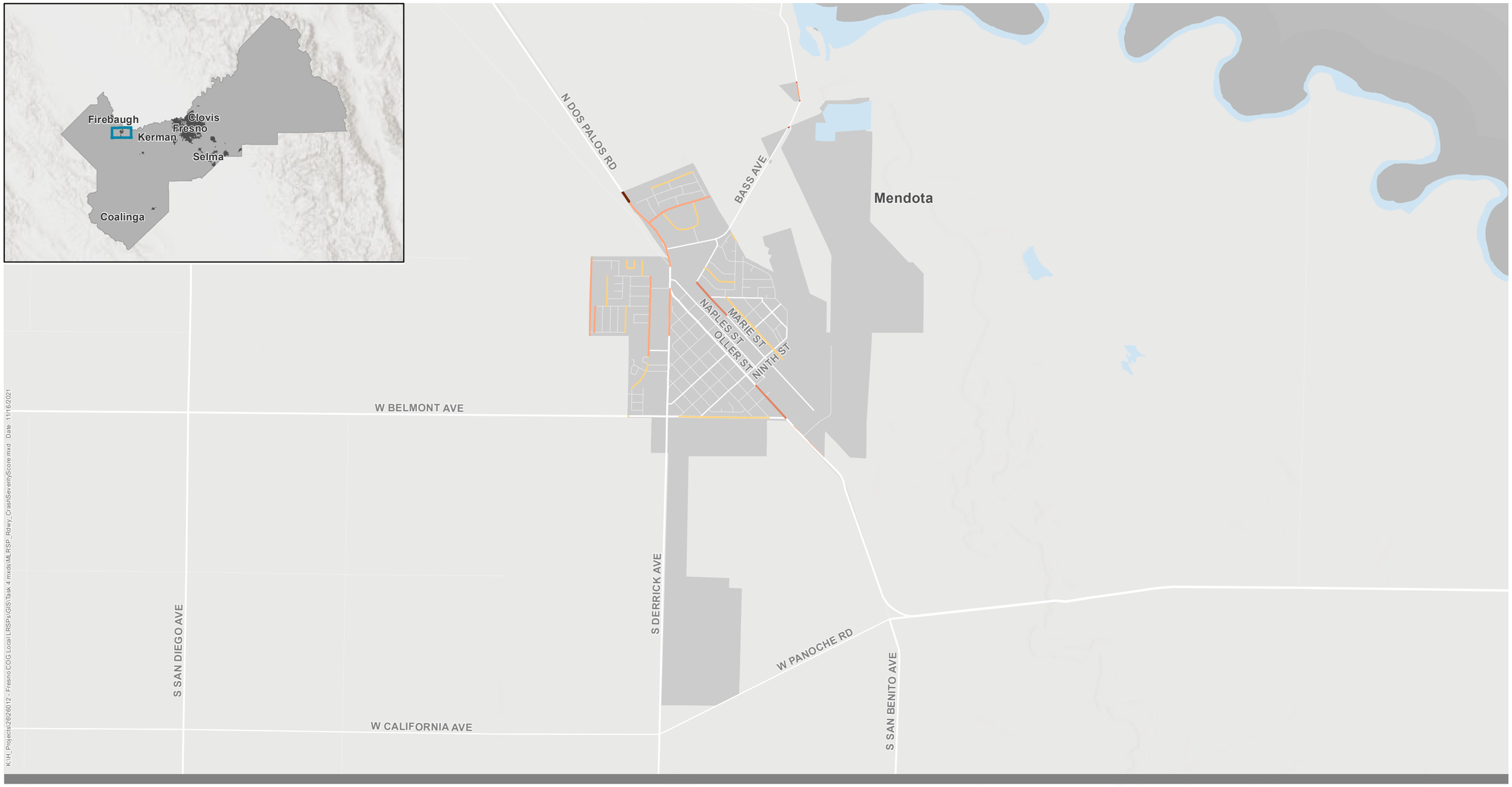


Figure 124

**Roadway Crash Severity Scores**
**Jurisdiction Results: Mendota**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

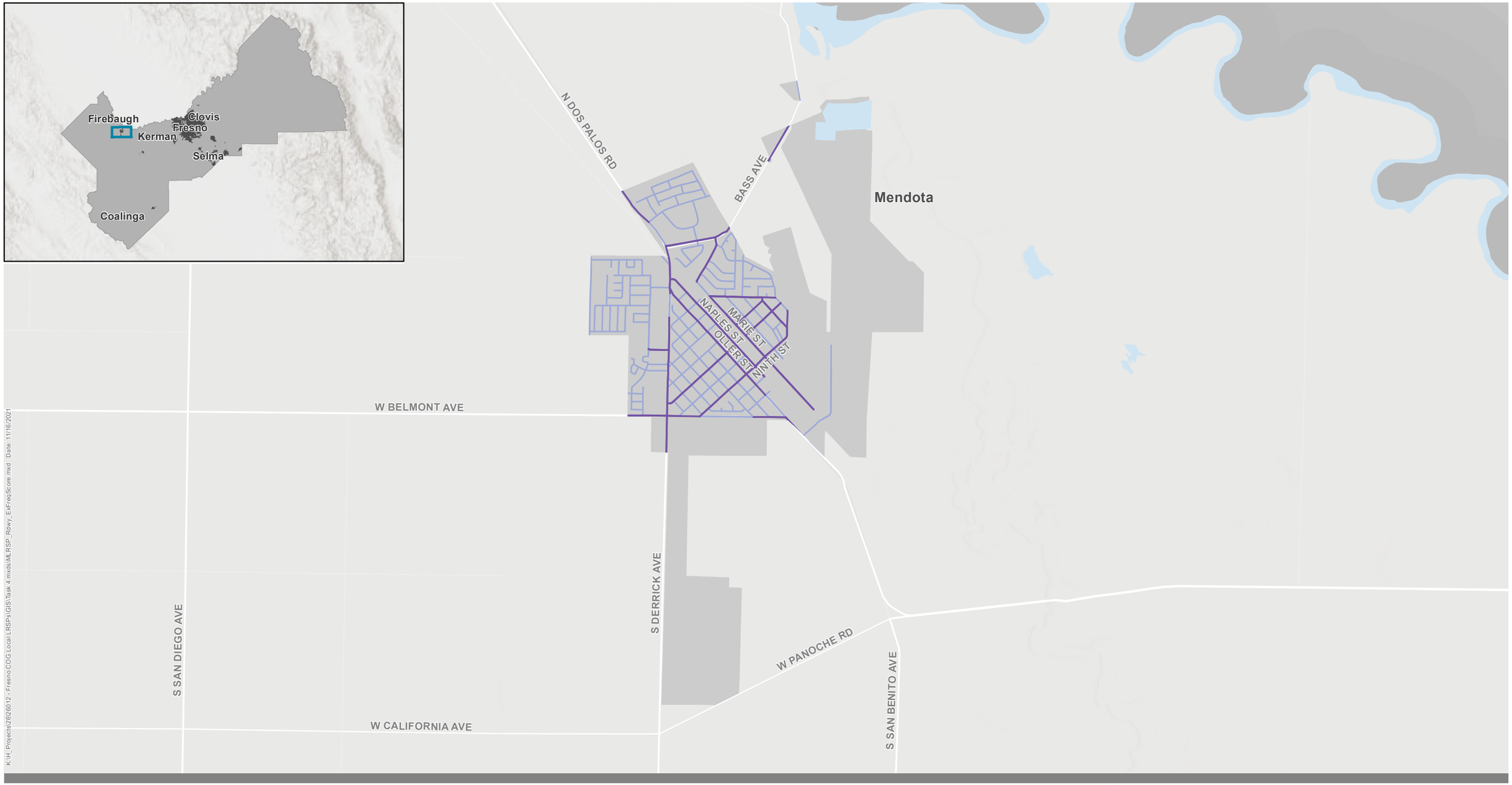


Figure 125

**Roadway Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Mendota**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

# EMPHASIS AREAS

Based on key trends in the crash data, emphasis areas for the City of Mendota include pedestrian crashes, rear end crashes and sideswipe crashes. Due to the prevalence of collision factors citing unsafe speed and failure to yield to users with the right of way, an emphasis area on driver behavior with strategies aimed at a combination of engineering, education and enforcement. In addition, the data review suggests that the crash data available for the City may be incomplete, which limits the ability to systematically identify locations for improvement. Each of these areas is further discussed below.

## Pedestrian Crashes

Pedestrian crashes were identified as a focus area given the overrepresentation of pedestrians in fatal crashes. Two of the three fatal crashes involved a pedestrian, and one of the three severe injury crashes involved a pedestrian. The most commonly cited pedestrian actions and locations are "crossing in crosswalk at intersection" (one fatal crash and five other injury crashes) and "crossing not in a crosswalk" (on fatal crash, one severe injury crash, and three other injury crashes). This suggests opportunities for improvements to pedestrian infrastructure.

Pedestrians are identified as one of the six high priority challenge areas in the California SHSP. The high priorities represent "the greatest opportunity to reduce fatalities and serious injuries across the state" (Caltrans SHSP).

## Rear End Crashes

Rear end crashes were identified as a focus area due to the frequency and severity of these collision types. Rear end crashes are the most common collision type and include one of the three fatal crashes and one of the three severe injury crashes. As discussed below under Engineering Strategies, countermeasures are available targeted at rear end crashes.

## Sideswipe Crashes

Sideswipe crashes were selected as an emphasis area due to the frequency and severity of these collision types. Sideswipe crashes are the second most common collision type and one of the three severe injury crashes is a sideswipe crashes. As discussed below under Engineering Strategies, countermeasures are available targeted at sideswipe crashes.

## Unsafe Speed and Driver Behaviors

The primary collision factor of unsafe speed is cited in one of the three fatal crashes and ten of the 76 other injury crashes. Pedestrian or automobile right of way were cited in two fatal crashes and two of the three severe injury crashes; this indicates a driver or pedestrian failed to yield right-of-way to other users. This suggests there are opportunities to address driver behavior through countermeasures that encourage lower speeds and education and enforcement.

The California SHSP also identified speed management/aggressive driving as one of the six high priorities in California, reflecting the potential to reduce fatalities and serious injuries by addressing these challenge areas.

## Improved Data Collection

Improved crash data collection is identified as an emphasis area as a lack of reporting could contribute to the one-year decrease in crashes seen in the 2017 data. High quality data is an essential component of achieving Mendota's goals, namely being able to systematically implement safety countermeasures.

# STRATEGIES

The following subsections present engineering, education, emergency services, and enforcement strategies to help improve roadway safety across the City.

## Engineering Strategies

The top three fatal and severe injury collision types in Mendota were **vehicle-pedestrian, rear end,** and **sideswipe** crashes; the top four fatal and severe injury primary collision factors were **automobile right of way**, **pedestrian right of way**, **unsafe speed**, and **pedestrian violation**. High priority countermeasures to address these collision types and primary collision factors shown in Table 55.

**Table 55. High Priority Countermeasures**

| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| **Roadway Countermeasures** | Street Lighting | R1 | Crashes at night |
| | Remove or Relocate Fixed Objects Outside of Clear Recovery Zone | R2 | Unsafe speed |
| | Install Guardrails | R4 | Unsafe speed |
| | Road Diet | R14 | Unsafe speed |
| | Widen Shoulder | R15 | Unsafe speed, sideswipe |
| | Improve Pavement Friction (High Friction Surface Treatment) | R21 | Unsafe speed, rear end |

| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| | Install/Upgrade Signs with New Fluorescent Sheeting | R22 | Unsafe speed |
| | Install Dynamic/Variable Speed Warning Sings | R26 | Unsafe speed, sideswipe |
| | Install Edgelines and Centerlines | R28 | Unsafe speed |
| | Install Centerline Rumble Strips/Stripes | R30 | Sideswipe |
| | Install Edgeline Rumble Strips/Stripes | R31 | Unsafe speed |
| **Intersection Countermeasures** | Add Intersection Lighting at Intersections | S1/NS1 | Crashes at night |
| | Improve Signal Hardware: Lenses, Backplates with Retroreflective Border, Mounting Size, Number | S2 | Rear end |
| | Provide Advanced Dilemma-Zone Detection | S4 | Rear end |
| | Install Flashing Beacons as Advance Warning | S10/NS9 | Unsafe speed, rear end |
| | No Right-Turn on Red | | Vehicle-pedestrian |
| | Install/Upgrade Stop Signs or Intersection Warning/ Regulatory Signs | NS6 | All |
| | Upgrade Intersection Pavement Markings | NS7 | All |
| | Install Splitter Islands for Minor Street Approaches | NS13 | Rear end |
| **Pedestrian/Bicycle Countermeasures** | Install Sidewalk/Pathway | R34PB | Pedestrian violation |
| | Install/Upgrade Pedestrian Crossing with Enhanced Features | R35PB | Vehicle-pedestrian |
| | Modify Signal Phasing to Implement a Leading Pedestrian Interval | S21PB | Vehicle-pedestrian |
| | Install Raised Medians (or Refuge Islands) | NS19PB | Vehicle-pedestrian |
| | Install/Upgrade Pedestrian Crossing at Uncontrolled Locations (with Enhanced Safety Features) | NS21PB | Vehicle-pedestrian |

*Note: The ID number references the Caltrans Manual Local Road Safety*

*Appendix B* contains the regional Countermeasures Toolbox which includes more detailed information regarding the countermeasures listed above.

The following figures and tables provide data on collision types and factors for the intersections and roadways with the highest crash scores. The locations with the highest crash scores may be top priorities for implementing countermeasures and pursuing grants. Mendota can use the information about collision type and factors to identify potential countermeasures to apply, using the information in Table 55.

Figure 126 and Figure 127 present the top priority intersections and breakdown of the top collision types and primary collision factors, respectively. Figure 128 and Figure 129 present the top priority roadways and breakdown of the top collision types and primary collision factors, respectively.


N DOS PALOS RD
BASS AVE
Mendota
MARIE ST
NAPLES ST
OLLER ST
NINTH ST
W BELMONT AVE
S SAN DIEGO AVE
S DERRICK AVE
W PANOCHE RD
S SAN BENITO AVE
W CALIFORNIA AVE

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## Collision Type

- Vehicle/Pedestrian
- Rear End
- Sideswipe

City Limits
County Boundary

0 0.45 Miles

KITTELSON & ASSOCIATES

Figure 126

**Top Fatal/Severe Injury Intersection Collision Type**
**Jurisdiction Results: Mendota**
**Fresno Council of Governments**


N DOS PALOS RD
BASS AVE
Mendota
MARIE ST
NAPLES ST
OLLER ST
NINTH ST
W BELMONT AVE
S SAN DIEGO AVE
S DERRICK AVE
W PANOCHE RD
S SAN BENITO AVE
W CALIFORNIA AVE

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**Primary Collision Factors**

- Automobile Right of Way
- Pedestrian Right of Way
- Unsafe Speed*
- Pedestrian Violation*

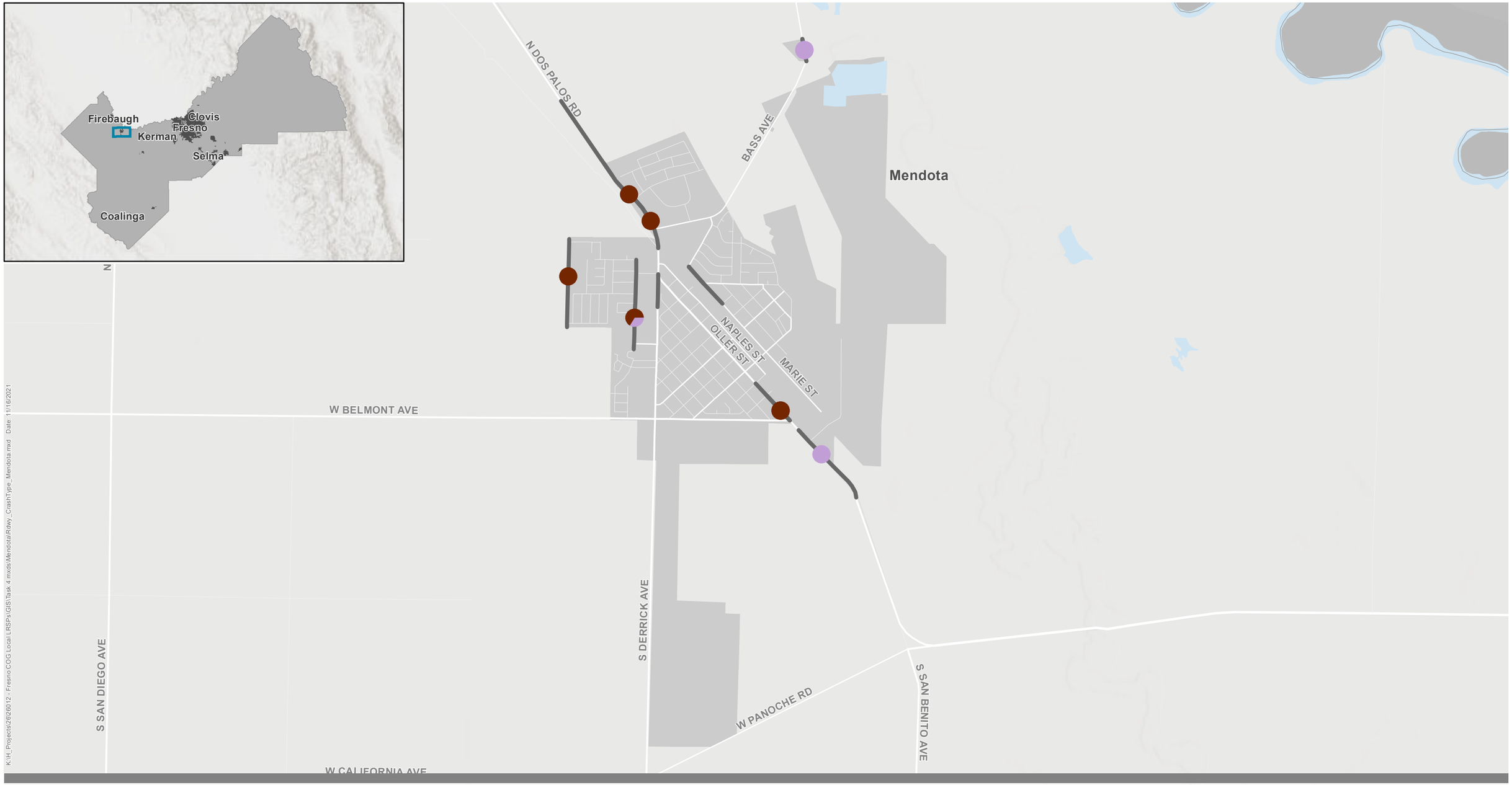
*Tied for third

- City Limits
- County Boundary

0 0.45 Miles

Figure 127

## Top Fatal/Severe Injury Intersection Primary Collision Factors
## Jurisdiction Results: Mendota
## Fresno Council of Governments




## Collision Type

- Rear End
- Sideswipe
- Priority Roadways
- City Limits
- County Boundary

0 0.45 Miles

KITTELSON & ASSOCIATES

Figure 128

**Top Fatal/Severe Injury Roadway Collision Types**
**Jurisdiction Results: Mendota**
**Fresno Council of Governments**

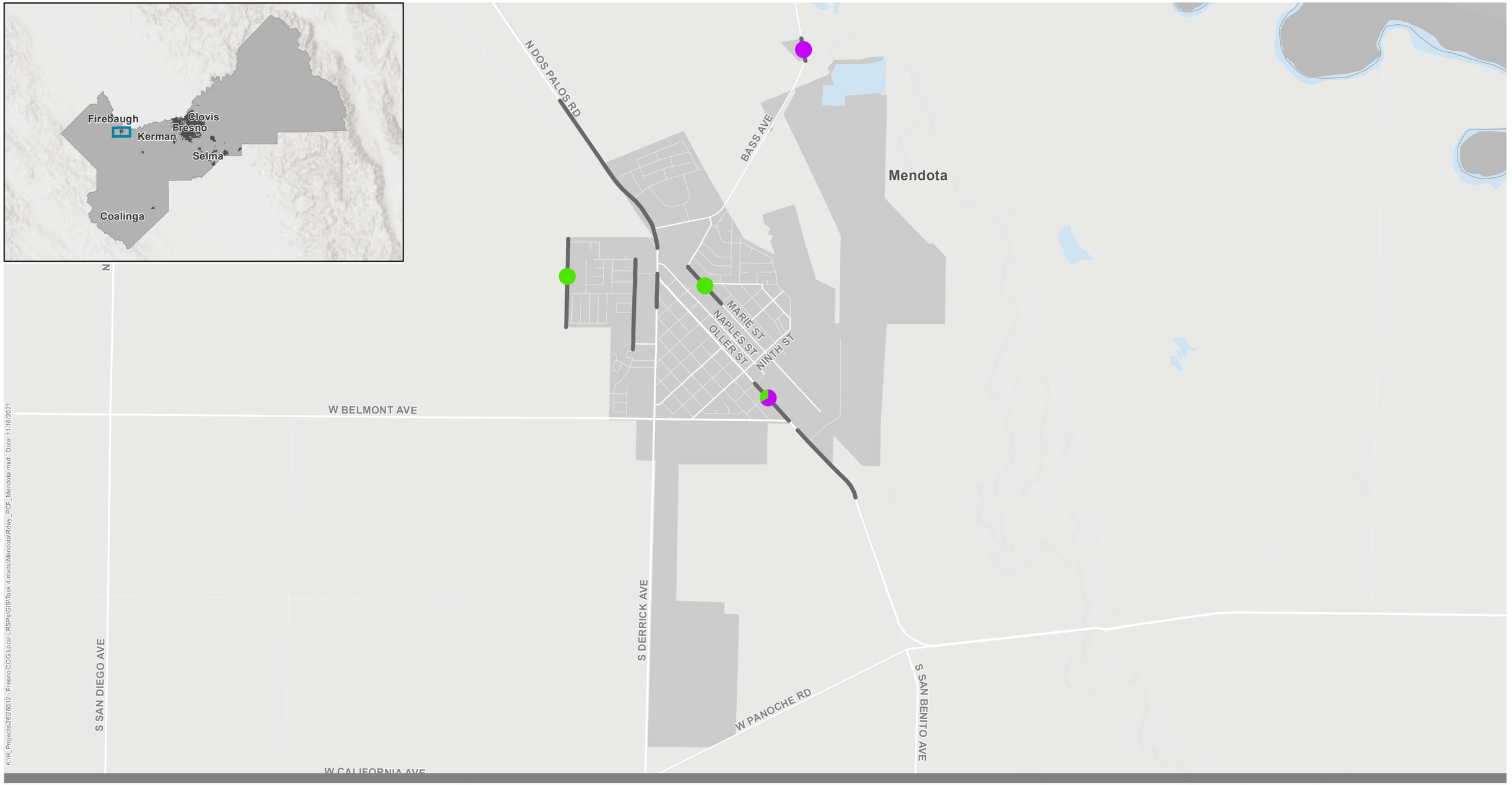



Figure 129

**Top Fatal/Severe Injury Roadway Primary Collision Factors**
**Jurisdiction Results: Mendota**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

Table 56 and Table 57 provide information for the top fifty intersection locations (based on crash severity score), including control type (signalized or unsignalized), crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 56. Priority Intersections with Collision Type based on Top 3 Fatal/Severe Injury Collision Types**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle/ Pedestrian | Rear End | Sideswipe | Other |
| 1 | FIFTH ST & OLLER ST | Unsignalized | 45.56 | 9 | 2 | 3 | 2 | 2 |
| 2 | DERRICK AVE & NAPLES ST | Unsignalized | 43.31 | 7 | 1 | 4 | 1 | 1 |
| 3 | DERRICK AVE & SEVENTH ST | Unsignalized | 42.52 | 4 | 0 | 1 | 2 | 1 |
| 4 | OLLER ST & DERRICK AVE & MCCABE ST | Unsignalized | 42.28 | 12 | 0 | 5 | 4 | 3 |
| 5 | SECOND ST & J ST | Unsignalized | 38.45 | 3 | 0 | 2 | 1 | 0 |
| 6 | DERRICK AVE & TULE ST | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 |
| 7 | SEVENTH ST & OLLER ST | Unsignalized | 12.84 | 24 | 0 | 9 | 8 | 7 |
| 8 | NINTH ST & OLLER ST | Signal | 12.44 | 22 | 2 | 9 | 5 | 6 |
| 9 | DOS PALOS RD & BELMONT AVE & OLLER ST | Unsignalized | 6.87 | 14 | 0 | 6 | 2 | 6 |
| 10 | DOS PALOS RD & BASS AVE | Signal | 6.05 | 15 | 0 | 10 | 1 | 4 |
| 11 | THIRD ST & OLLER ST | Unsignalized | 5.77 | 9 | 1 | 5 | 2 | 1 |
| 12 | SIXTH ST & OLLER ST | Unsignalized | 5.36 | 12 | 0 | 8 | 3 | 1 |
| 13 | EIGHTH ST & OLLER ST | Unsignalized | 4.76 | 9 | 1 | 3 | 3 | 2 |
| 14 | LOZANO ST & PEREZ ST | Unsignalized | 4.23 | 11 | 0 | 4 | 3 | 4 |
| 15 | DOS PALOS RD & LOZANO ST | Unsignalized | 3.96 | 5 | 0 | 1 | 1 | 3 |
| 16 | SECOND ST & BASS AVE | Unsignalized | 2.94 | 5 | 0 | 3 | 1 | 1 |
| 17 | ELEVENTH ST & OLLER ST | Unsignalized | 2.74 | 4 | 0 | 1 | 3 | 0 |
| 18 | SORENSEN ST & STRAW ST | Unsignalized | 2.74 | 4 | 1 | 1 | 1 | 1 |
| 19 | DERRICK AVE & SMOOT ST | Unsignalized | 2.74 | 4 | 0 | 1 | 1 | 2 |
| 20 | FLEMING ST & SORENSEN ST | Unsignalized | 2.54 | 3 | 0 | 2 | 0 | 1 |
| 21 | JENNINGS ST & QUINCE ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| 22 | ELEVENTH ST & PUCHEU ST | Unsignalized | 2.14 | 1 | 0 | 1 | 0 | 0 |
| 23 | SIXTH ST & RIO FRIO ST | Unsignalized | 2.14 | 1 | 1 | 0 | 0 | 0 |
| 24 | INEZ ST & DIVISADERO ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| 25 | SECOND ST & I ST | Unsignalized | 2.14 | 1 | 0 | 1 | 0 | 0 |
| 26 | DERRICK AVE & BELMONT AVE | Signal | 2.02 | 5 | 0 | 1 | 2 | 2 |
| 27 | BARBOZA ST & BASS AVE | Unsignalized | 1.82 | 4 | 0 | 2 | 1 | 1 |
| 28 | FOURTH ST & OLLER ST | Unsignalized | 1.82 | 4 | 1 | 1 | 2 | 0 |
| 29 | OLLER ST & SECOND ST | Unsignalized | 1.82 | 4 | 0 | 2 | 1 | 1 |
| 30 | BELMONT AVE & PEACH ST | Unsignalized | 1.62 | 3 | 0 | 2 | 0 | 1 |
| 31 | SEVENTH ST & UNIDA ST | Unsignalized | 1.62 | 3 | 0 | 2 | 0 | 1 |
| 32 | TENTH ST & OLLER ST | Unsignalized | 1.62 | 3 | 0 | 2 | 0 | 1 |

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle/ Pedestrian | Rear End | Sideswipe | Other |
| **33** | FIFTH ST & DERRICK AVE | Unsignalized | 1.62 | 3 | 0 | 1 | 1 | 1 |
| **34** | TENTH ST & PUCHEU ST | Unsignalized | 1.42 | 2 | 0 | 2 | 0 | 0 |
| **35** | SORENSEN ST & SMOOT ST | Unsignalized | 1.42 | 2 | 0 | 2 | 0 | 0 |
| **36** | BELMONT AVE & QUINCE ST | Unsignalized | 1.22 | 1 | 0 | 1 | 0 | 0 |
| **37** | SANTA CRUZ ST & BLACK ST | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 |
| **38** | SORENSEN ST & MC CABE ST | Unsignalized | 1.22 | 1 | 0 | 1 | 0 | 0 |
| **39** | SECOND ST & K ST | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 |
| **40** | SEVENTH ST & RIO FRIO ST | Unsignalized | 0.80 | 4 | 0 | 2 | 2 | 0 |
| **41** | NINTH ST & QUINCE ST | Unsignalized | 0.60 | 3 | 0 | 0 | 3 | 0 |
| **42** | SEVENTH ST & QUINCE ST | Unsignalized | 0.60 | 3 | 0 | 2 | 0 | 1 |
| **43** | SIXTH ST & QUINCE ST | Unsignalized | 0.60 | 3 | 0 | 0 | 3 | 0 |
| **44** | SEVENTH ST & LOLITA ST | Unsignalized | 0.60 | 3 | 0 | 0 | 2 | 1 |
| **45** | SORENSEN ST & BLACK ST | Unsignalized | 0.60 | 3 | 0 | 0 | 2 | 1 |
| **46** | MARIE ST & DIVISADERO ST | Unsignalized | 0.60 | 3 | 0 | 1 | 2 | 0 |
| **47** | HOLMES ST & GURROLA ST | Unsignalized | 0.60 | 3 | 0 | 2 | 1 | 0 |
| **48** | BOU CIR & I ST | Unsignalized | 0.60 | 3 | 0 | 1 | 0 | 2 |
| **49** | LOZANO ST & RIOS ST | Unsignalized | 0.60 | 3 | 0 | 1 | 1 | 1 |
| **50** | AMADOR AVE & OXNARD ST | Unsignalized | 0.40 | 2 | 0 | 0 | 0 | 2 |

*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 57. Priority Intersections with Primary Collision Factor based on Top 4 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Auto Right of Way | Ped Right of Way | Unsafe Speed | Ped Violation | Other |
| **1** | FIFTH ST & OLLER ST | Unsignalized | 45.56 | 9 | 0 | 2 | 0 | 0 | 7 |
| **2** | DERRICK AVE & NAPLES ST | Unsignalized | 43.31 | 7 | 0 | 0 | 0 | 1 | 6 |
| **3** | DERRICK AVE & SEVENTH ST | Unsignalized | 42.52 | 4 | 2 | 0 | 1 | 0 | 1 |
| **4** | OLLER ST & DERRICK AVE & MCCABE ST | Unsignalized | 42.28 | 12 | 2 | 0 | 3 | 0 | 7 |
| **5** | SECOND ST & J ST | Unsignalized | 38.45 | 3 | 1 | 0 | 0 | 0 | 2 |
| **6** | DERRICK AVE & TULE ST | Unsignalized | 38.05 | 1 | 0 | 1 | 0 | 0 | 0 |
| **7** | SEVENTH ST & OLLER ST | Unsignalized | 12.84 | 24 | 5 | 0 | 1 | 1 | 17 |
| **8** | NINTH ST & OLLER ST | Signal | 12.44 | 22 | 2 | 0 | 5 | 1 | 14 |
| **9** | DOS PALOS RD & BELMONT AVE & OLLER ST | Unsignalized | 6.87 | 14 | 5 | 0 | 1 | 0 | 8 |
| **10** | DOS PALOS RD & BASS AVE | Signal | 6.05 | 15 | 0 | 0 | 4 | 0 | 11 |
| **11** | THIRD ST & OLLER ST | Unsignalized | 5.77 | 9 | 0 | 1 | 1 | 0 | 7 |
| **12** | SIXTH ST & OLLER ST | Unsignalized | 5.36 | 12 | 0 | 0 | 1 | 0 | 11 |
| **13** | EIGHTH ST & OLLER ST | Unsignalized | 4.76 | 9 | 0 | 0 | 1 | 0 | 8 |
| **14** | LOZANO ST & PEREZ ST | Unsignalized | 4.23 | 11 | 0 | 0 | 2 | 0 | 9 |

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Auto Right of Way | Ped Right of Way | Unsafe Speed | Ped Violation | Other |
| **15** | DOS PALOS RD & LOZANO ST | Unsignalized | 3.96 | 5 | 0 | 0 | 0 | 0 | 5 |
| **16** | SECOND ST & BASS AVE | Unsignalized | 2.94 | 5 | 1 | 0 | 1 | 0 | 3 |
| **17** | ELEVENTH ST & OLLER ST | Unsignalized | 2.74 | 4 | 0 | 0 | 0 | 0 | 4 |
| **18** | SORENSEN ST & STRAW ST | Unsignalized | 2.74 | 4 | 1 | 0 | 0 | 0 | 3 |
| **19** | DERRICK AVE & SMOOT ST | Unsignalized | 2.74 | 4 | 0 | 0 | 1 | 0 | 3 |
| **20** | FLEMING ST & SORENSEN ST | Unsignalized | 2.54 | 3 | 0 | 0 | 0 | 0 | 3 |
| **21** | JENNINGS ST & QUINCE ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 0 | 1 |
| **22** | ELEVENTH ST & PUCHEU ST | Unsignalized | 2.14 | 1 | 1 | 0 | 0 | 0 | 0 |
| **23** | SIXTH ST & RIO FRIO ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 | 0 |
| **24** | INEZ ST & DIVISADERO ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 0 | 1 |
| **25** | SECOND ST & I ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 0 | 1 |
| **26** | DERRICK AVE & BELMONT AVE | Signal | 2.02 | 5 | 2 | 0 | 0 | 0 | 3 |
| **27** | BARBOZA ST & BASS AVE | Unsignalized | 1.82 | 4 | 1 | 0 | 0 | 0 | 3 |
| **28** | FOURTH ST & OLLER ST | Unsignalized | 1.82 | 4 | 0 | 0 | 0 | 1 | 3 |
| **29** | OLLER ST & SECOND ST | Unsignalized | 1.82 | 4 | 1 | 0 | 0 | 0 | 3 |
| **30** | BELMONT AVE & PEACH ST | Unsignalized | 1.62 | 3 | 0 | 0 | 1 | 0 | 2 |
| **31** | SEVENTH ST & UNIDA ST | Unsignalized | 1.62 | 3 | 0 | 0 | 1 | 0 | 2 |
| **32** | TENTH ST & OLLER ST | Unsignalized | 1.62 | 3 | 0 | 0 | 0 | 0 | 3 |
| **33** | FIFTH ST & DERRICK AVE | Unsignalized | 1.62 | 3 | 0 | 0 | 0 | 0 | 3 |
| **34** | TENTH ST & PUCHEU ST | Unsignalized | 1.42 | 2 | 0 | 0 | 0 | 0 | 2 |
| **35** | SORENSEN ST & SMOOT ST | Unsignalized | 1.42 | 2 | 0 | 0 | 1 | 0 | 1 |
| **36** | BELMONT AVE & QUINCE ST | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 0 | 1 |
| **37** | SANTA CRUZ ST & BLACK ST | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 0 | 1 |
| **38** | SORENSEN ST & MC CABE ST | Unsignalized | 1.22 | 1 | 0 | 0 | 1 | 0 | 0 |
| **39** | SECOND ST & K ST | Unsignalized | 1.22 | 1 | 0 | 0 | 1 | 0 | 0 |
| **40** | SEVENTH ST & RIO FRIO ST | Unsignalized | 0.80 | 4 | 1 | 0 | 0 | 0 | 3 |
| **41** | NINTH ST & QUINCE ST | Unsignalized | 0.60 | 3 | 1 | 0 | 0 | 0 | 2 |
| **42** | SEVENTH ST & QUINCE ST | Unsignalized | 0.60 | 3 | 0 | 0 | 0 | 0 | 3 |
| **43** | SIXTH ST & QUINCE ST | Unsignalized | 0.60 | 3 | 0 | 0 | 0 | 0 | 3 |
| **44** | SEVENTH ST & LOLITA ST | Unsignalized | 0.60 | 3 | 0 | 0 | 0 | 0 | 3 |
| **45** | SORENSEN ST & BLACK ST | Unsignalized | 0.60 | 3 | 1 | 0 | 0 | 0 | 2 |
| **46** | MARIE ST & DIVISADERO ST | Unsignalized | 0.60 | 3 | 0 | 0 | 0 | 0 | 3 |
| **47** | HOLMES ST & GURROLA ST | Unsignalized | 0.60 | 3 | 0 | 0 | 0 | 0 | 3 |
| **48** | BOU CIR & I ST | Unsignalized | 0.60 | 3 | 0 | 0 | 0 | 0 | 3 |
| **49** | LOZANO ST & RIOS ST | Unsignalized | 0.60 | 3 | 0 | 0 | 2 | 0 | 1 |
| **50** | AMADOR AVE & OXNARD ST | Unsignalized | 0.40 | 2 | 0 | 0 | 1 | 0 | 1 |

*Note: Other crashes include all crashes that are not coded as one of the top four primary collision factors*

Table 58 and Table 59 provide information for the top ten roadway segments (based on crash severity score), including roadway classification, crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 58. Priority Roadways Segments with Collision Type based on Top 3 Fatal/Severe Injury Collision Types**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle/ Ped | Rear End | Side-swipe | Other |
| 1 | SR 33 (city limits to Garcia St)* | Arterial/Collector | 65.86 | 2 | 0 | 0 | 0 | 2 |
| 2 | Oller St (10th St to W Belmont St) | Arterial/Collector | 7.93 | 5 | 0 | 3 | 0 | 2 |
| 3 | Marie St (2nd St to 5th St) | Arterial/Collector | 2.94 | 5 | 0 | 0 | 0 | 5 |
| 4 | Sorenson St (Holmes St to Circle St) | Local | 2.54 | 3 | 0 | 2 | 1 | 0 |
| 5 | SR 180 (north of Guillan Park Dr to city limits) | Arterial/Collector | 2.14 | 1 | 0 | 0 | 1 | 0 |
| 6 | SR 33 (city limits to Bass Ave) | Arterial/Collector | 1.42 | 4 | 0 | 1 | 0 | 3 |
| 7 | SR 33 (Lozano St to Naples St) | Arterial/Collector | 1.42 | 2 | 0 | 1 | 0 | 1 |
| 8 | Amador Ave (Gonzalez St to Oxnard St) | Local | 1.22 | 1 | 0 | 1 | 0 | 0 |
| 9 | Bass Ave (by Mendota Pool Park) | Arterial/Collector | 0.40 | 4 | 0 | 0 | 2 | 2 |
| 10 | SR 33-S Derrick Ave (Oller St to north of Smoot St)* | Arterial/Collector | 0.40 | 2 | 0 | 0 | 0 | 2 |

** Roadway segment is an at-grade Caltrans facility.*
*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 59. Priority Roadways Segments with Primary Collision Factors based on Top 4 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Auto Right of Way | Ped Right of Way | Unsafe Speed | Ped Viola-tion | Other |
| 1 | SR 33 (city limits to Garcia St)* | Arterial/Collector | 65.86 | 2 | 0 | 0 | 0 | 0 | 2 |
| 2 | Oller St (10th St to W Belmont St) | Arterial/Collector | 7.93 | 5 | 2 | 0 | 1 | 0 | 2 |
| 3 | Marie St (2nd St to 5th St) | Arterial/Collector | 2.94 | 5 | 0 | 0 | 1 | 0 | 4 |
| 4 | Sorenson St (Holmes St to Circle St) | Local | 2.54 | 3 | 0 | 0 | 0 | 0 | 3 |
| 5 | SR 180 (north of Guillan Park Dr to city limits)* | Arterial/Collector | 2.14 | 1 | 0 | 0 | 0 | 0 | 1 |
| 6 | SR 33 (city limits to Bass Ave)* | Arterial/Collector | 1.42 | 2 | 0 | 0 | 0 | 0 | 2 |
| 7 | SR 33 (Lozano St to Naples St)* | Arterial/Collector | 1.42 | 2 | 0 | 0 | 0 | 0 | 2 |

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Auto Right of Way | Ped Right of Way | Unsafe Speed | Ped Viola-tion | Other |
| **8** | Amador Ave (Gonzalez St to Oxnard St) | Local | 1.22 | 1 | 0 | 0 | 1 | 0 | 0 |
| **9** | Bass Ave (by Mendota Pool Park) | Arterial/Collector | 0.40 | 2 | 1 | 0 | 0 | 0 | 1 |
| **10** | SR 33-S Derrick Ave (Oller St to north of Smoot St)* | Arterial/Collector | 0.40 | 2 | 0 | 0 | 0 | 0 | 2 |

** Roadway segment is an at-grade Caltrans facility.*
*Note: Other crashes include all crashes that are not coded as one of the top four primary collision factors*

## Education Strategies

During Mendota's Focus Group Meeting, opportunities for education were noted that include unsafe speeds and awareness of pedestrians. In addition, the primary collision factor of unsafe speed is cited in one of the three fatal crashes and ten of the 76 other injury crashes, making driver behaviors and unsafe speed an emphasis area for Mendota.

The Safe Roads Save Lives campaign is a marketing effort led by the Fresno COG, with the goals of:

- Educate all road users on safe transportation behaviors
- Increase safety for people walking and biking
- Highlight behaviors that cause the most crashes in Fresno County—speeding and distracted driving

SAFE ROADS SAVE LIVES

The campaign Includes branding, social media strategies, print materials, radio and video resources, school resources, and a campaign website. Mendota may find these materials helpful, especially those related to using the roadway responsible together, watching out for pedestrians, speeding, and distracted driving.

The following activities are recommended for Mendota as they move forward on implementing the Safe Roads Save Lives campaign:

- Identify staff appropriate to attend a presentation by Fresno COG staff about the Safe Roads Save Lives campaign. Appropriate staff members include staff associated with transportation engineering and planning, communications, traffic enforcement, school transportation, and other jurisdictional staff who work with the roadway system.
- Work with school districts to distribute print materials and offer school-related transportation resources. Ensure that school communications are in both English and Spanish.

- Work with public information or communications staff to spread Safe Roads Save Lives materials throughout Mendota through the following channels:
  - Repost and link to Fresno COG posts that refer to the Safe Roads Save Lives campaign.
  - Have print materials (flyers, bumper stickers, pins, and postcards) available at events and community festivals.
  - Print posters for posting at governmental buildings such as City Hall, libraries, DMV, and other facilities that the public regularly uses.
  - Work with the Fresno COG to identify a radio station to air a Safe Roads Save Lives radio public service announcement (PSA).
  - Have a direct link to Safe Roads Save Lives campaign website on the City's website.

## Emergency Services

Emergency service organizations depend on safe roadways and efficient communication processes to reach and effectively respond to emergencies. Each type of emergency services organization that serves Mendota – law enforcement, fire, emergency medical services (EMS), California Highway Patrol – work independently and collaboratively to develop procedures that allow them to respond to incidents in their own jurisdictions as well as support others as needed. The following recommendations may help improve emergency services response as the various organizations update procedures and policies and continue to partner on roadway safety efforts:

- All roadway safety projects should be vetted by emergency service organizations to ensure that their design does not hamper access.
- As new emergency service and response procedures are developed, roadway safety improvement opportunities should be identified and implications of changes to response times should be considered.
- Mendota staff should participate in periodic coordination calls between emergency response agencies to gather and share recent observations about crashes and hot spots, to understand emergent safety issues that may not have led to policy reports or yet be available through statewide crash reporting systems.

# Enforcement

Enforcement strategies can include programs or campaigns specifically focused on changing road user behavior through more visible and active enforcement of existing traffic laws, as well as focusing enforcement in areas that have historically been shown to have higher-than-average crash rates. Typically, the effectiveness of enforcement strategies is temporal, meaning they are effective at changing behavior for a discrete period of time – during and shortly after the increased enforcement activities.

The following enforcement strategies should be considered for Mendota:

- Schedule heightened speed (or other behavior) enforcement checks during strategic times of the year, such as when students return to school or the beginning of fog season.
- Focus speed enforcement efforts in locations with high crash rates.
- Utilize existing trailers for speed feedback and messaging.
- Use automatic enforcement, such as red-light cameras or speed feedback signs, especially in school zones.
- Identify opportunities to engage community members as crossing guards to improve roadway safety for students.

The effectiveness of each strategy should be measured and evaluated, considering the number of staff hours and amount of resources needed. The results should be reviewed and used to refine future enforcement activities.

Enforcement strategies should be undertaken with due caution to avoid inequitable enforcement activities and evaluated to determine the strategy's impact. More details about equitable enforcement can be found on page 8 (Introduction).

# EVALUATION AND IMPLEMENTATION

A key part of achieving the City's vision is consistently evaluating roadway safety performance and tracking progress towards the City's goals. The City will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

As feasible, it is recommended that the City of Mendota update this LRSP every three to five years using updated crash data and the performance measures. Comparing the performance measures related to investments made with the crash data should provide a clear indication of the impact of the City's and safety partner's efforts. Future LRSPs may provide new emphasis areas and top priority locations that reflect progress made and new priorities based on trends in the data.

Activities for implementing the plan include:

- Identifying countermeasures and strategies for priority locations based on the crash data.
- Utilizing the Fresno COG Regional Safety Plan to implement regional strategies and share best practices.
- Exploring funding opportunities to implement priority strategies.
- Identifying activities to support the regional Safe Roads Save Lives campaign.
- Identifying enforcement strategies to implement and evaluate.
- Regularly coordinating with safety partner agencies to assess progress, identify opportunities to implement countermeasures and strategies, and identify opportunities for citizen involvement.
- Regularly collecting and organizing data to support evaluation of the LRSP.

# 9.0 CITY OF ORANGE COVE

The City of Orange Cove has an approximate population of 9,460.[51] The average daily vehicle miles traveled is 43,754, and the City maintains approximately 35 total roadway centerline miles. The main roadways in the City include Sumner Avenue/Park Boulevard, which runs east to west, and Jacobs Avenue and Hill Valley Road, which both run north to south. The top three collision types in Orange Cove were **broadside, rear end,** and **hit object** crashes; the top three primary collision factors were **driving under the influence, automobile right of way,** and **improper turning**. The LRSP provides potential engineering, education, emergency services, and enforcement strategies tailored to Orange Cove's crash history and local priorities, as well as performance measures to evaluate progress.

## VISION AND GOALS

The City's vision for roadway safety is:

**Maintain and enhance safety on the City's roadways through regular evaluation and identification of feasible improvements.**

The City's goals in support of the roadway safety vision are:

1. Have zero fatal and severe injury crashes on the City roadways.
2. Utilize community and traffic safety stakeholder input to identify opportunities to improve roadway safety.
3. Improve crash data available.
4. Systemically implement low-cost safety countermeasures proven to reduce fatal and severe crashes.
5. Participate in regional activities to promote roadway safety as a priority investment.

[51] 2018 population. Source: California Department of Finance

# SAFETY PARTNERS

A variety of agency staff and community partners were involved throughout the development of this LRSP and played an integral role in identifying priorities, providing local context, and reviewing the existing conditions analysis. Many of the strategies identified in this plan will require coordination with these partners and their support of the City's effort to create a culture of roadway safety. Orange Cove's goals reflect the importance of utilizing input from the community and traffic safety stakeholders.

While additional partners may be identified in the future, those involved in development of the LRSP include the Fresno Council of Governments and City of Orange Cove Building, Planning, Inspection & Engineering Department.

# PERFORMANCE MEASURES

Performance measures are used to track progress and a key element of making data-informed decisions. Performance measures that support the City's vision, goals, and emphasis areas include:

- Annual number of crashes (city-wide and at each of the top nine priority locations)
- Annual number of fatal and severe injury crashes (city-wide and at each of the top nine priority locations)
- Annual number of pedestrian and bicycle crashes (city-wide and at each of the top twenty priority locations)
- Investments made in roadway safety countermeasures (e.g. dollars spent, grants pursued, partnerships developed)
- Investments made in education and enforcement strategies (e.g. dollars spent, grants pursued, partnerships developed)
- Coordination with other local agencies and/or safety partners (e.g. meetings held, projects pursued)
- Opportunities provided for citizen engagement (e.g. meetings held, public campaigns launched)
- Coordination on crash data processes and reporting (e.g. meetings held, changes made)

As part of plan implementation, the City will identify a process for annually tracking these performance measures to support future updates to this roadway safety plan.

# DATA SUMMARY

The primary data sets used to inform the technical analyses for the City's local road safety plan were crash data and roadway network information. As noted below, future updates could incorporate traffic volume data if widely available for locations across the City. In addition, feedback from a publicly available survey was documented for consideration in identifying issues and improvement strategies.

## Public Survey Feedback

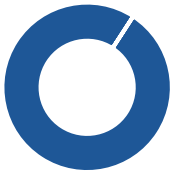
Toole Design Group worked with Fresno COG to develop an online survey and interactive webmap to provide the opportunity for public engagement on the LRSP. The goal was to collect both general and geographically specific feedback on safety problems, desired safety improvements in jurisdictions that are part of the MLRSP, as well as voluntary demographic information for Title IV reporting. Both activities were open from August 16, 2021 to September 20, 2021 and sought public feedback on spatial patterns of traffic safety concerns and desired improvements.

As the primary open public engagement opportunity during MLRSP development, the survey and interactive webmap served a crucial role in illuminating the community's traffic safety concerns and desired traffic safety improvements. Below is a summary of key findings from the online survey and interactive webmap specific to Orange Cove. More information on the methodology and overall findings of the survey are provided in *Appendix A*.

**1**
PERSON RESPONDED

**0**
LOCATIONS IDENTIFIED

**WHERE PARTICIPANTS WORK AND LIVE**



Live in Orange Cove and work/study outside Orange Cove
**100%**

**MOST NEEDED SAFETY IMPROVEMENTS**

- Maintenance of existing roads and streets
- Rural road improvements to prevent run-off-road crashes
- Sidewalks
- Speed enforcement

- The survey asked respondents to provide input on the top road safety improvements needed in their communities. While the survey prompted participants to pick three improvements, some selected more than three responses. A total 4 responses were received for Orange Cove, including from one participant:
    - Maintenance of existing roads and streets (1 response)
    - Rural road improvements to prevent run-off-road crashes (1 response)
    - Sidewalks (1 response)
    - Speed enforcement (1 response)
- Participants dropped points in the webmap in specific locations across Fresno County where they experienced road safety concerns. No locations were identified for Orange Cove.
- The survey asked participants where they live and work or study, with the option to select from a list of jurisdictions or outside of Fresno County. The participants who selected Orange Cove included one individual who lives in Orange Cove and works/studies outside of Orange Cove.

## Crash Data

Kittelson worked with Fresno COG to assemble crash data for the City of Orange Cove using the Statewide Integrated Traffic Records System (SWITRS) database, supplemented with location information from the Transportation Injury Mapping System (TIMS) database maintained by SafeTREC at the University of California, Berkeley. Throughout this report, crashes are associated with a jurisdiction based on the reporting officer's assessment of location.

The crash database represents the time period from January 1, 2015 through December 31, 2019 and includes reported crashes that occurred on public streets. Within the assembled regional crash database, a total of three reported crashes are located in Orange Cove. Crash severity is coded according to the highest degree of injury exhibited, and the data used for this analysis includes the following coded severity levels (listed in descending order):

- Fatal: death from injuries sustained in the crash.
- Severe Injury: Injuries include, for example, broken bones, severe lacerations, or other injuries that go beyond the reporting officer's assessment of "other visible injuries."
- Other visible injury: An injury, other than those described above, that is evident to observers at the scene of the crash. For example, bruises or minor lacerations.
- Complaint of pain: Internal or other non-visible injuries. For example, a person limps or seems incoherent.
- Property damage only (PDO): No injuries sustained.

As noted in the introduction, the crash data used in the descriptive analysis were sorted into jurisdictions based on the information available in the SWITRS and TIMS databases. This information is derived from a

reporting officer's judgment and may be inconsistent with true boundaries, especially near city/county borders.

In the process of locating data into a geographic information system (GIS) for spatial analysis, Kittelson reviewed the available information and relocated some crashes to a more precise coordinate location. In so doing, Kittelson relocated some crashes to different jurisdictions than originally listed in the database. **Thus, some disparities in total crash count by jurisdiction exist between the descriptive analysis and spatial analysis even though each is internally consistent.**

In the case of Orange Cove, there is a notable difference in the two analyses due to the low numbers of reported crashes. Three crashes were reviewed in the descriptive analysis, while nineteen crashes were considered in the spatial analysis.

## Roadway Network Data

Kittelson developed a linear referencing system of all public roadways using the Fresno County roadway centerline file. This dataset was updated to develop a measurement system based on the total road length (as determined by roadway name) to locate crashes to a specific mile point along the network. The master roadway network for the County was used to spatially analyze and prioritize specific locations within each local jurisdiction.

## Traffic Volume Data

Traffic volume data was not consistently available at a sufficient level to be able to incorporate into the safety analysis. Future updates to the City's local road safety plan could incorporate traffic volume data, if available, to understand how crash frequency, severity, and type vary at different levels of traffic.

# EXISTING ROADWAY SAFETY PERFORMANCE

There were three total reported crashes in Orange Cove in the period between January 1, 2015 and December 31, 2019. Therefore, patterns and trends are not applicable to this jurisdiction. Each crash is described below.

## All Road Users

The first reported crash occurred during the hour of 10 PM in January of 2017 and resulted in one fatality. The collision type is rear end with a primary collision factor of an unsafe lane change. A truck collided with a parked motor vehicle, and the driver of the truck was killed. The crash took place on Anchor Avenue just north of South Avenue. The reported lighting condition is dark with streetlights, the weather clear, and the road condition dry. There was alcohol involved.

The second reported crash occurred during the hour of 4 PM in March of 2018 and resulted in one fatality. The collision type is broadside with a primary collision factor of traffic signals and signs. The crash occurred at the Hills Valley Road/Adams Avenue intersection. The reported lighting condition is dusk-dawn, the weather clear, and the road condition dry.

The third reported crash occurred during the hour of 2 PM in November of 2019 and resulted in property damage only. The collision type is broadside with a primary collision factor of other improper driving. The crash occurred at Citrus Mini Mart at Park Boulevard and 10th Street. The lighting condition was daylight, the weather clear, and the road condition dry.

## Priority Locations

Kittelson identified priority intersections and segments using the annualized crash severity scores and excess predicted crashes described in the Data Summary and Analysis Approach sections (see the Introduction). As previously noted, this spatial analysis involved relocating some crashes to a more precise coordinate location, and thus includes additional crashes than the three crashes described above.

For intersection locations, the crash severity scores ranged from zero (no reported crashes during the five years) to 45.68. Figure 130 shows the results of the crash severity scoring. Figure 131 shows excess predicted crash scores by percentiles for intersection locations. For the half-mile roadway segments, the crash severity scores ranged from zero to 32.93. Crash severity score results for roadway segments are shown in Figure 132. Excess predicted crash score results are shown in Figure 133. Intersections or segments shown as not falling within one of the percentile breaks indicates there were no reported crashes at that location.

Members of the Focus Group for Orange Cove noted that the intersections of Adams Avenue/4th Street and Adams Avenue/Jacobs Avenue could be priority locations for improvement, as well as areas around schools, especially for pedestrian improvements.

Table 60 presents the top nine locations with the highest crash severity scores.

**Table 60. Top 9 Locations based on Crash Severity Score**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Com-plaint of Pain | PDO |
| **1** | MONSON AVE & MANNING AVE | Unsignalized | 45.68 | 5 | 0 | 1 | 3 | 1 | 0 |
| **2** | HILLS VALLEY RD FROM C ST TO NORTH OF AVENUE 464 | Segment | 32.93 | 1 | 1 | 0 | 0 | 0 | 0 |
| **3** | ANCHOR AVE FROM PARLIER AVE TO NORTH OF SOUTH AVE | Segment | 32.93 | 1 | 1 | 0 | 0 | 0 | 0 |
| **4** | MANNING AVE FROM WEST OF HILL AVE TO ANCHOR AVE | Segment | 3.43 | 7 | 0 | 0 | 0 | 2 | 5 |
| **5** | SUMMER AVE FROM MONSON AVE TO ANCHOR AVE | Segment | 1.22 | 1 | 0 | 0 | 0 | 1 | 0 |
| **6** | MONSON AVE FROM NORTH OF MANNING AVE TO SOUTH OF MANNING AVE | Segment | 1.22 | 1 | 0 | 0 | 0 | 1 | 0 |
| **7** | MONSON AVE & SOUTH AVE | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 | 0 |
| **8** | TENTH ST & PARK ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **9** | PARLIER AVE FROM WEST OF ANCHOR AVE TO EAST OF ANCHOR AVE | Segment | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |

*Note: PDO = Property Damage Only*


**Crash Severity Score**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.3 Miles

Figure 130

**Intersection Crash Severity Scores**
**Jurisdiction Results: Orange Cove**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES


**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile

City Limits

County Boundary

0 0.3 Miles

Figure 131

**Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Orange Cove**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES


**Crash Severity Scores**

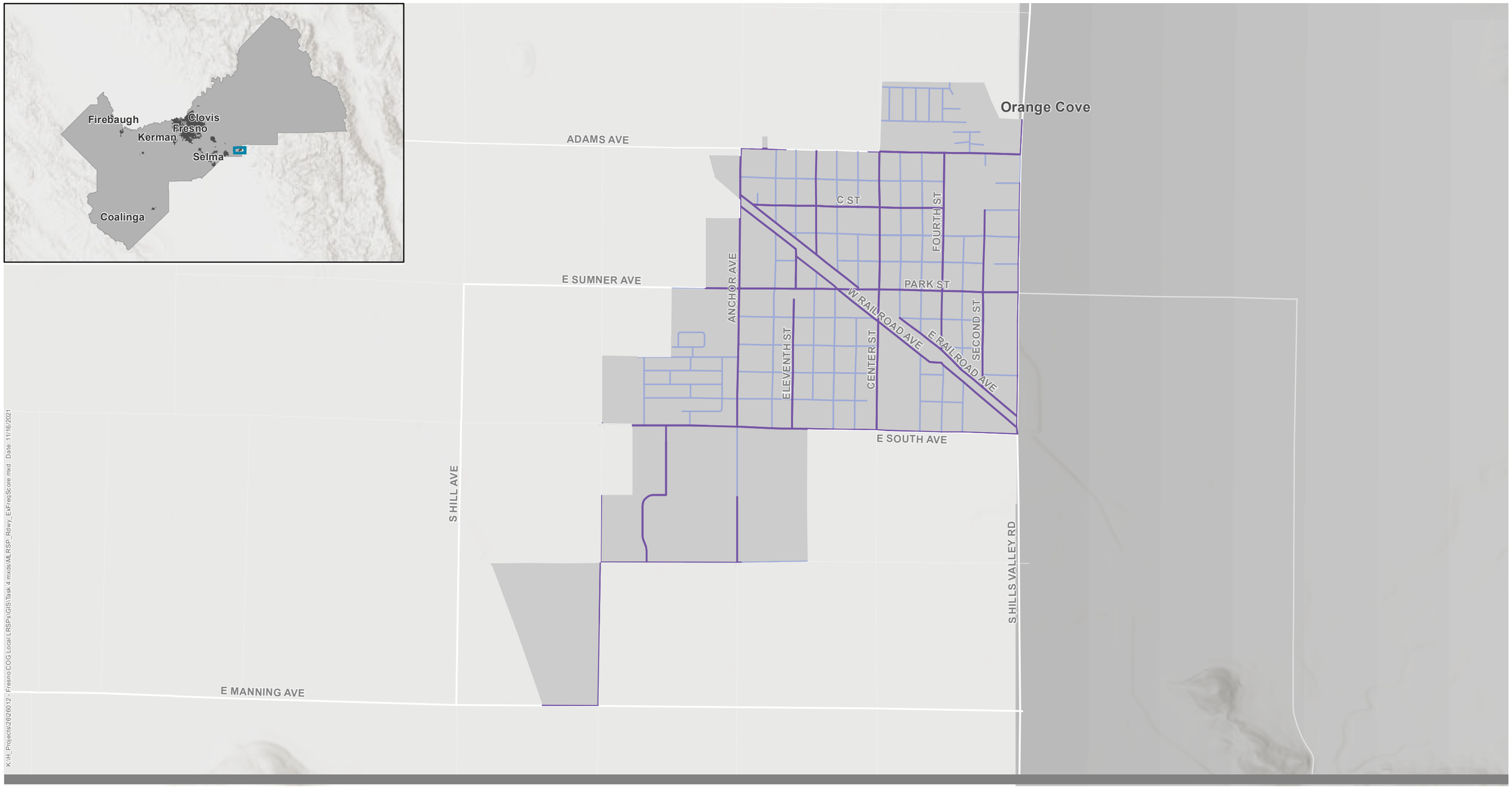
- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.3 Miles

Figure 132

## Roadway Crash Severity Scores Jurisdiction Results: Orange Cove Fresno Council of Governments

KITTELSON & ASSOCIATES




**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.3 Miles

Figure 133

**Roadway Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Orange Cove**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

# EMPHASIS AREAS

Based on key trends in the crash data, emphasis areas for the City of Orange Cove include broadside crashes, driving under the influence, and improved data collection. Each of these areas is further discussed below.

## Broadside Crashes

A broadside crash occurs when the front of one vehicle hits the side of another vehicle. Broadside crashes were selected as an emphasis area due to the frequency and severity of these collision types. Two of the three crashes in the descriptive analysis were broadside crashes, including one fatal crash. Broadside crashes are most common at intersections where the risk of conflict is increased.

The California SHSP includes intersections as one of the six high priorities in California. These crashes are a high priority due to their severity level often as a result of rear-end, broadside, and hit object collision types. "Intersections significantly increase driver workload because they are a natural point of conflict. If present, traffic control devices help to mitigate that workload by providing clear rules of right-of-way" (Caltrans SHSP). As discussed below under Engineering Strategies, several intersection countermeasures are available targeted at improving the roadway to minimize risk of crashes and can be applied systemically.

## Driving Under the Influence

Driving under the influence is included in the top collision types based on the spatial analysis. One of the three crashes detailed in the descriptive analysis noted alcohol was involved and the crash resulted in a fatality. This suggests there are opportunities to address driver behavior through education and enforcement.

The California SHSP also identified impaired driving as one of the six high priorities in California, reflecting the potential to reduce fatalities and serious injuries by addressing this challenge area.

## Improved Data Collection

Improved crash data collection is identified as an emphasis area as there was limited crash data available from the City. The descriptive analysis included about one-sixth the number of crashes as the spatial analysis findings. High quality data is an essential component of understanding safety trends, priority locations, and systematically implementing safety countermeasures.

# STRATEGIES

The following subsections present engineering, education, emergency services, and enforcement strategies to help improve roadway safety across the City.

## Engineering Strategies

The top three fatal and severe injury collision types in Orange Cove were **broadside, rear end,** and **hit object** crashes; the top three fatal and severe injury primary collision factors were **driving under the influence, automobile right of way,** and **improper turning**. High priority countermeasures to address these collision types and primary collision factors are shown in Table 61.

**Table 61. High Priority Countermeasures**

| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| **Roadway Countermeasures** | Street Lighting | R1 | Crashes at night |
| | Install/Upgrade Signs with New Fluorescent Sheeting | R22 | Broadside, Hit object |
| **Intersection Countermeasures** | Add Intersection Lighting at Intersections | S1/NS1 | Crashes at night |
| | Improve Signal Hardware: Lenses, Backplates with Retroreflective Border, Mounting Size, Number | S2 | Broadside, rear end |
| | Convert Intersection to Roundabout | NS4/NS5 | Broadside |
| | Install Flashing Beacons as Advance Warning | S10/NS9 | Unsafe speed, rear end, broadside |
| | Install/Upgrade Stop Signs or Intersection Warning/ Regulatory Signs | NS6 | Broadside |
| | Upgrade Intersection Pavement Markings | NS7 | Broadside |
| | Install Splitter Islands for Minor Street Approaches | NS13 | Broadside, rear end |

*Note: The ID number references the Caltrans Manual Local Road Safety*

*Appendix B* contains the regional Countermeasures Toolbox which includes more detailed information regarding the countermeasures listed above.

The following figures and tables provide data on collision types and factors for the intersections and roadways with the highest crash scores. The locations with the highest crash scores may be top priorities for implementing countermeasures and pursuing grants. The City of Orange Cove can use the information about collision type and factors to identify potential countermeasures to apply, using the information in Table 71.

Figure 134 and Figure 135 present the top priority intersections and breakdown of the top collision types and primary collision factors, respectively. Figure 136 and Figure 137 present the top priority roadways and breakdown of the top collision types and primary collision factors, respectively.


**Collision Type**

- Rear End
- Broadside
- Hit Object

- City Limits
- County Boundary

0 0.3 Miles

KITTELSON & ASSOCIATES

Figure 134

## Top Fatal/Severe Injury Intersection Collision Types
## Jurisdiction Results: Orange Cove
## Fresno Council of Governments


**Primary Collision Factors**

- Driving Under the Influence
- Automobile Right of Way
- Improper Turning

- City Limits
- County Boundary

0 0.3 Miles

KITTELSON & ASSOCIATES

Figure 135

## Top Fatal/Severe Injury Intersection Primary Collision Factors
## Jurisdiction Results: Orange Cove
## Fresno Council of Governments


## Collision Type

- Rear End
- Broadside
- Hit Object
- Priority Roadways
- City Limits
- County Boundary

0 0.3 Miles

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Figure 136

**Top Fatal/Severe Injury Roadway Collision Types**
**Jurisdiction Results: Orange Cove**
**Fresno Council of Governments**


Figure 137

**Top Fatal/Severe Injury Roadway Primary Collision Factors**
**Jurisdiction Results: Orange Cove**
**Fresno Council of Governments**

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Table 62 and Table 63 provide information for the top two intersection locations (based on crash severity score), including control type (signalized or unsignalized), crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 62. Priority Intersections with Collision Type based on Top 3 Fatal/Severe Injury Collision Types**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Rear End | Broadside | Hit Object | Other |
| 1 | MONSON AVE & MANNING AVE | Unsignalized | 45.68 | 5 | 1 | 3 | 1 | 0 |
| 2 | TENTH ST & PARK ST | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 63. Priority Intersections with Primary Collision Factor based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | DUI | Auto ROW | Improper Turning | Other |
| 1 | MONSON AVE & MANNING AVE | Unsignalized | 45.68 | 5 | 1 | 2 | 1 | 1 |
| 2 | TENTH ST & PARK ST | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 1 |

*Note: Other crashes include all crashes that are not coded as one of the top three primary collision factors*

*DUI = Driving Under the Influence*

Table 64 and Table 65 provide information for the top seven roadway segments (based on crash severity score), including roadway classification, crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 64. Priority Roadways Segments with Collision Type based on Top Fatal/Severe Injury Collision Type**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Rear End | Broad-side | Hit Object | Other |
| 1 | S Hills Valley Rd (city limits to B St) | Arterial/Collector | 32.93 | 1 | 0 | 1 | 0 | 0 |
| 2 | S Hills Valley Rd (Adams Ave to C St) | Arterial/Collector | 32.93 | 1 | 0 | 1 | 0 | 0 |
| 3 | S Anchor Ave (north of Whittier Ave to north of Parlier Ave) | Arterial/Collector | 32.93 | 1 | 1 | 0 | 0 | 0 |
| 4 | S Monson Ave (north of E Manning Ave to south of E Manning Ave) | Arterial/Collector | 1.22 | 1 | 0 | 0 | 0 | 1 |
| 5 | E Sumner Ave (S Monson Ave to west of Anchor Ave) | Arterial/Collector | 1.22 | 1 | 0 | 0 | 1 | 0 |
| 6 | E Manning Ave (S Hill Ave to S Monson Ave) | Arterial/Collector | 0.20 | 1 | 0 | 0 | 0 | 1 |
| 7 | E Parlier Ave (east of Orange Ave to west of S Jacobs Ave) | Arterial/Collector | 0.20 | 1 | 1 | 0 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 65. Priority Roadways Segments with Primary Collision Factors based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | DUI | Auto Right of Way | Improper Turning | Other |
| 1 | S Hills Valley Rd (city limits to B St) | Arterial/ Collector | 32.93 | 1 | 0 | 0 | 0 | 1 |
| 2 | S Hills Valley Rd (Adams Ave to C St) | Arterial/ Collector | 32.93 | 1 | 0 | 0 | 0 | 1 |
| 3 | S Anchor Ave (north of Whittier Ave to north of Parlier Ave) | Arterial/ Collector | 32.93 | 1 | 0 | 0 | 0 | 1 |
| 4 | S Monson Ave (north of E Manning Ave to south of E Manning Ave) | Arterial/ Collector | 1.22 | 1 | 0 | 0 | 1 | 0 |
| 5 | E Sumner Ave (S Monson Ave to west of Anchor Ave) | Arterial/ Collector | 1.22 | 1 | 0 | 0 | 1 | 0 |
| 6 | E Manning Ave (S Hill Ave to S Monson Ave) | Arterial/ Collector | 0.20 | 1 | 0 | 0 | 0 | 1 |
| 7 | E Parlier Ave (east of Orange Ave to west of S Jacobs Ave) | Arterial/ Collector | 0.20 | 1 | 0 | 0 | 0 | 1 |

*Note: Other crashes include all crashes that are not coded as one of the top three primary collision factors*
*DUI = Driving Under the Influence*

## Education Strategies

Driving under the influence is one of the emphasis areas for Orange Cove given the prevalence of this primary collision factor in the spatial analysis conducted for the City. In addition, information from the Focus Group Meeting for Orange Cove suggest opportunities to address driving under the influence of drugs or alcohol, over a safe speed limit, or while distracted.

The Safe Roads Save Lives campaign is a marketing effort led by the Fresno COG, with the goals of:

- Educate all road users on safe transportation behaviors
- Increase safety for people walking and biking
- Highlight behaviors that cause the most crashes in Fresno County—speeding and distracted driving

SAFE ROADS SAVE LIVES

The campaign Includes branding, social media strategies, print materials, radio and video resources, school resources, and a campaign website. Unincorporated Fresno County may find these materials helpful, especially those that address driving under the influence of drugs or alcohol, speeding, or while distracted.

The following activities are recommended for Orange Cove, as resources allow, to implement the Safe Roads Save Lives campaign:

- Identify staff appropriate to attend a presentation by Fresno COG staff about the Safe Roads Save Lives campaign. Appropriate staff members include people associated with transportation engineering and planning, communications, traffic enforcement, school transportation, and other jurisdictional staff who work with the roadway system.
- Work with schools to distribute print materials and offer school-related transportation resources. Ensure that school communications are in both English and Spanish.
- Work with public information or communications staff to spread Safe Roads Save Lives materials throughout Orange Cove through the following channels:
    - Repost and link to Fresno COG posts that refer to the Safe Roads Save Lives campaign
    - Have print materials (flyers, bumper stickers, pins, and postcards) available at events and community festivals.
    - Work with the Fresno COG to identify a radio station to air a Safe Roads Save Lives radio public service announcement (PSA).
    - Have a direct link to Safe Roads Save Lives campaign website on the City's website.

## Emergency Services

Emergency service organizations depend on safe roadways and efficient communication processes to reach and effectively respond to emergencies. Each type of emergency services organization that serves Orange Cove – law enforcement, fire, emergency medical services (EMS), California Highway Patrol – work independently and collaboratively to develop procedures that allow them to respond to incidents in their own jurisdictions as well as support others as needed. The following recommendations may help improve emergency services response as the various organizations update procedures and policies and continue to partner on roadway safety efforts:

- All roadway safety projects should be vetted by emergency service organizations to ensure that their design does not hamper access.
- As new emergency service and response procedures are developed, roadway safety improvement opportunities should be identified and implications of changes to response times should be considered.
- Orange Cove staff should participate in periodic coordination calls between emergency response agencies to gather and share recent observations about crashes and hot spots, to understand emergent safety issues that may not have led to policy reports or yet be available through statewide crash reporting systems.

# Enforcement

Enforcement strategies can include programs or campaigns specifically focused on changing road user behavior through more visible and active enforcement of existing traffic laws, as well as focusing enforcement in areas that have historically been shown to have higher-than-average crash rates. Typically, the effectiveness of enforcement strategies is temporal, meaning they are effective at changing behavior for a discrete period of time – during and shortly after the increased enforcement activities.

The following enforcement strategies should be considered for Orange Cove:

- Add additional crossing guards at high-concern locations. If needed, train community members to serve as crossing guards.
- Focus speed enforcement efforts at locations with high crash rates.
- Use automatic enforcement, such as red-light cameras, and speed feedback signs along major corridors.
- Work with schools to conduct "alternative enforcement," such as having students write "tickets" that they hand to community members to highlight positive and negative behaviors on the roadways.

The effectiveness of each strategy should be measured and evaluated, considering the number of staff hours and amount of resources needed. The results should be reviewed and used to refine future enforcement activities.

Enforcement strategies should be undertaken with due caution to avoid inequitable enforcement activities and evaluated to determine the strategy's impact. More details about equitable enforcement can be found on page 8 (Introduction).

# EVALUATION AND IMPLEMENTATION

A key part of achieving the City's vision is consistently evaluating roadway safety performance and tracking progress towards the City's goals. The City will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

As feasible, it is recommended that the City of Orange Cove update this LRSP every three to five years using updated crash data and the performance measures. Comparing the performance measures related to investments made with the crash data should provide a clear indication of the impact of the City's and safety partner's efforts. Future LRSPs may provide new emphasis areas and top priority locations that reflect progress made and new priorities based on trends in the data.

Activities for implementing the plan include:

- Identifying countermeasures and strategies for priority locations based on the crash data.
- Utilizing the Fresno COG Regional Safety Plan to implement regional strategies and share best practices.
- Exploring funding opportunities to implement priority strategies.
- Identifying activities to support the regional Safe Roads Save Lives campaign.
- Identifying enforcement strategies to implement and evaluate.
- Regularly coordinating with safety partner agencies to assess progress, identify opportunities to implement countermeasures and strategies, and identify opportunities for citizen involvement.
- Regularly collecting and organizing data to support evaluation of the LRSP.

# 10.0 CITY OF SAN JOAQUIN

The City of San Joaquin has an approximate population of 4,144.[52] The average daily vehicle miles traveled is 9,416, and the City maintains approximately 14 total roadway centerline miles. The main roadways in the city include S Colorado Ave, which runs from north to south, and Main Street, which runs from east to west. The top four collision types in San Joaquin were **hit object, broadside, rear end,** and **sideswipe** crashes; the top three primary collision factors were **automobile right of way, driving under the influence,** and **improper turning**. The LRSP provides potential engineering, education, emergency services, and enforcement strategies tailored to San Joaquin's crash history and local priorities, as well as performance measures to evaluate progress.

## VISION AND GOALS

The City's roadway safety vision is:

**Provide an opportunity for safe roadway travel for all.**

The City's roadway safety goals in support of the vision are:

1. Have zero fatal and severe injury crashes on the City roadways.
2. Utilize community and traffic safety stakeholder input to identify opportunities to improve roadway safety.
3. Improve available crash data.
4. Participate in regional activities to promote roadway safety as a priority investment.
5. Prioritize improvements on school routes and on roadways adjacent to schools.
6. Perform regular reviews of roadway conditions to prioritize locations for repair.
7. Identify opportunities to improve railroad crossings for all users.

[52] 2018 population. Source: California Department of Finance

# SAFETY PARTNERS

A variety of agency staff and community partners were involved throughout the development of this LRSP and played an integral role in identifying priorities, providing local context, and reviewing the existing conditions analysis. Many of the strategies identified in this plan will require coordination with these partners and their support of the City's effort to create a culture of roadway safety. San Joaquin's goals reflect the importance of fathering input from the community and traffic safety stakeholders. While additional partners may be identified in the future, those involved in development of the LRSP include:

- Caltrans
- Fresno Council of Governments
- Fresno County Sheriff's Department
- Golden Plains Unified School District
- San Joaquin Police Department

# PERFORMANCE MEASURES

Performance measures are used to track progress and a key element of making data-informed decisions. Performance measures that support the City's vision, goals, and emphasis areas include:

- Annual number of crashes (city-wide and at each of the top nine priority locations)
- Annual number of fatal and severe injury crashes (city-wide and at each of the top nine priority locations)
- Annual number of pedestrian and bicycle crashes (city-wide and at each of the top twenty priority locations)
- Investments made in roadway safety countermeasures (e.g. dollars spent, grants pursued, partnerships developed, city-wide and on school routes or railroad crossings)
- Investments made in education and enforcement strategies (e.g. dollars spent, grants pursued, partnerships developed, city-wide and on school routes or railroad crossings)
- Investments made in improving roadway conditions (e.g. dollars spent, grants pursued, partnerships developed)
- Coordination with other local agencies and/or safety partners (e.g. meetings held, projects pursued)
- Coordination on crash data processes and reporting (e.g. meetings held, changes made)

As part of plan implementation, the City will identify a process for annually tracking these performance measures to support future updates to this roadway safety plan.

# DATA SUMMARY

The primary data sets used to inform the technical analyses for the City's local road safety plan were crash data and roadway network information. As noted below, future updates could incorporate traffic volume data if widely available for locations across the City.

## Crash Data

Kittelson worked with the Fresno COG to assemble crash data for the city of San Joaquin using the Statewide Integrated Traffic Records System (SWITRS) database, supplemented with location information from the Transportation Injury Mapping System (TIMS) database maintained by SafeTREC at the University of California, Berkeley.

The crash database represents the time period from January 1, 2015 through December 31, 2019 and includes reported crashes that occurred on public streets. Within the assembled regional crash database, a total of two reported crashes are located in San Joaquin. Crash severity is coded according to the highest degree of injury exhibited, and the data used for this analysis includes the following coded severity levels (listed in descending order):

- Fatal: death from injuries sustained in the crash.
- Severe Injury: Injuries include, for example, broken bones, severe lacerations, or other injuries that go beyond the reporting officer's assessment of "other visible injuries."
- Other visible injury: An injury, other than those described above, that is evident to observers at the scene of the crash. For example, bruises or minor lacerations.
- Complaint of pain: Internal or other non-visible injuries. For example, a person limps or seems incoherent.
- Property damage only (PDO): No injuries sustained.

As noted in the introduction, the crash data used in the descriptive analysis were sorted into jurisdictions based on the information available in the SWITRS and TIMS databases. This information is derived from a reporting officer's judgment and may be inconsistent with true boundaries, especially near city/county borders.

In the process of locating data into a geographic information system (GIS) for spatial analysis, Kittelson reviewed the available information and relocated some crashes to a more precise coordinate location. In so doing, Kittelson relocated some crashes to different jurisdictions than originally listed in the database. **Thus, some disparities in total crash count by jurisdiction exist between the descriptive analysis and spatial analysis even though each is internally consistent.**

In the case of San Joaquin, there is a notable difference in the two analyses due to the low numbers of reported crashes. Two crashes were reviewed in the descriptive analysis, while fourteen crashes were considered in the spatial analysis.

## Roadway Network Data

Kittelson developed a linear referencing system of all public roadways using the Fresno County roadway centerline file. This dataset was updated to develop a measurement system based on the total road length (as determined by roadway name) to locate crashes to a specific mile point along the network. The master roadway network for the County was used to spatially analyze and prioritize specific locations within each local jurisdiction.

## Traffic Volume Data

Traffic volume data was not consistently available at a sufficient level to be able to incorporate into the safety analysis. Future updates to the City's local road safety plan could incorporate traffic volume data, if available, to understand how crash frequency, severity, and type vary at different levels of traffic.

# EXISTING ROADWAY SAFETY PERFORMANCE

There were two total reported crashes in the City of San Joaquin in the period between January 1, 2015 and December 31, 2019. Therefore, patterns and trends are not applicable to this jurisdiction. The crashes are described below.

## All Road Users

The first reported crash occurred in the hour of 1 PM in April of 2017 and resulted in property damage only. The collision type is a hit object with a primary collision factor of improper turning. The crash took place at the Idaho Avenue/9th Street intersection. The reported lighting condition is daylight, the weather cloudy, and the road condition dry. There was alcohol involved.

The second reported crash occurred in the hour of 12 AM in December of 2018 and resulted in a complaint of pain. The collision type is a hit object with a primary collision factor of driving or bicycling under the influence of alcohol or drugs. The crash took place on South Main Street immediately North of West Colorado Avenue. The reported lighting condition was dark with streetlights, the weather clear, and the road conditions dry.

## Priority Locations

Kittelson identified priority intersections and segments using the annualized crash severity scores and excess predicted crashes described in the Data Summary and Analysis Approach sections (see the Introduction). As previously noted, this spatial analysis involved relocating some crashes to a more precise coordinate location, and thus includes additional crashes than the two crashes described above.

In addition, the following locations were noted by members of the Focus Group as locations to consider improvements:

- Colorado Avenue: desire to improve crossings for routes to schools, especially at Main Street and 9th Street;
- Manning Avenue and Sutter Avenue: priorities due to housing developments and the need for pedestrian improvements; and
- California Avenue: priorities at 5th Street, 6th Street and 8th Street where there are apartments.

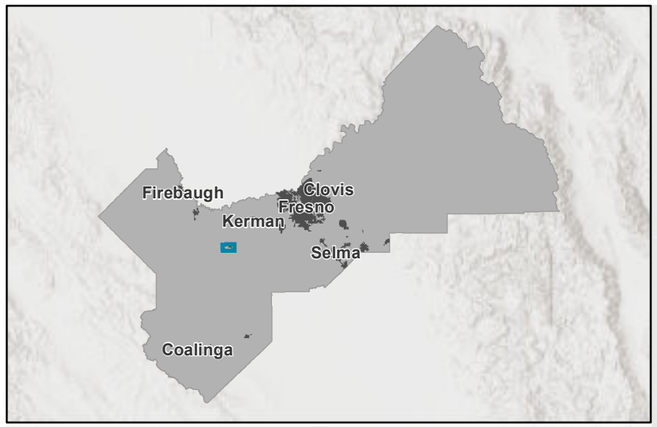
For intersection locations, the crash severity scores ranged from zero (no reported crashes during the 5 years) to 2.74. Figure 138 shows the results of the crash severity scoring. Figure 139 shows excess predicted crash scores by percentiles for intersection locations. For the half-mile roadway segments, the crash severity scores ranged from zero to 0.20. Crash severity score results for roadway segments are shown in Figure 140. Excess predicted crash score results are shown in Figure 141. Intersections or segments shown as not falling within one of the percentile breaks indicates there were no reported crashes at that location.

Table 66 presents the top nine locations with the highest crash severity scores.

**Table 66. Top Nine Locations based on Crash Severity Score**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Complaint of Pain | PDO |
| **1** | ELM AVE & PLACER AVE* | Unsignalized | 2.74 | 4 | 0 | 0 | 1 | 0 | 3 |
| **2** | MAIN ST & COLORADO RD | Unsignalized | 1.22 | 1 | 0 | 0 | 0 | 1 | 0 |
| **3** | MANNING AVE & PLACER AVE* | Unsignalized | 0.40 | 2 | 0 | 0 | 0 | 0 | 2 |
| **4** | NINTH ST & IDAHO AVE | Unsignalized | 0.40 | 2 | 0 | 0 | 0 | 0 | 2 |
| **5** | MANNING AVE & SUTTER AVE* | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **6** | MANNING AVE & IDAHO AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **7** | MANNING AVE & COLORADO RD | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **8** | DENVER AVE & PINE AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |
| **9** | RAILROAD AVE FROM MANNIN GAVE TO PINE ST | Segment | 0.20 | 1 | 0 | 0 | 0 | 0 | 1 |

*Note: PDO = Property Damage Only*




San Joaquin

S SUTTER AVE

MAIN ST

S PLACER AVE

NINTH ST

W MANNING AVE

COLORADO RD

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**Crash Severity Score**

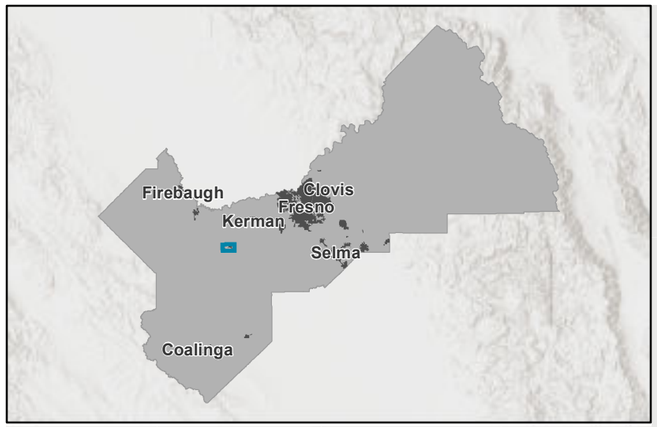
- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.225 Miles

Figure 138

**Intersection Crash Severity Scores**
**Jurisdiction Results: San Joaquin**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




San Joaquin

S SUTTER AVE

MAIN ST

S PLACER AVE

NINTH ST

W MANNING AVE

COLORADO RD

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**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile

City Limits

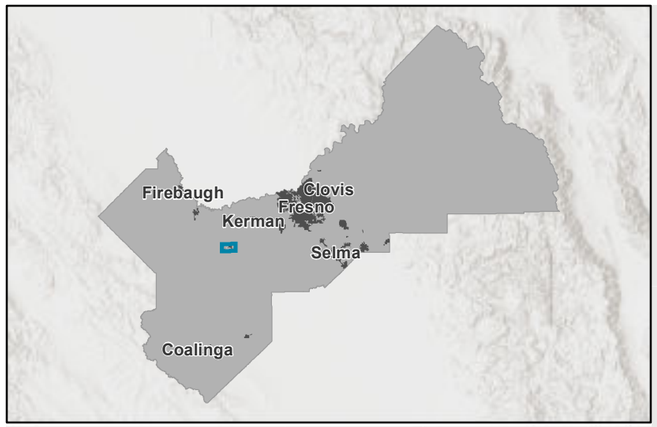
County Boundary

0 0.225 Miles

Figure 139

**Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: San Joaquin**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




San Joaquin

S SUTTER AVE

MAIN ST

S PLACER AVE

NINTH ST

W MANNING AVE

COLORADO RD

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**Crash Severity Scores**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.27 Miles

Figure 140

## Roadway Crash Severity Scores Jurisdiction Results: San Joaquin Fresno Council of Governments

KITTELSON & ASSOCIATES


**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.27 Miles

Figure 141

**Roadway Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: San Joaquin**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

# EMPHASIS AREAS

Based on key trends in the crash data, emphasis areas for the City of San Joaquin include hit object crashes, driving under the influence, focus on school routes and railroad crossings, and improved data collection.

## Hit Object Crashes

Hit object crashes were selected as an emphasis area due to their frequency. The two crashes described in the descriptive analysis were both hit object crashes and hit object crashes are the most frequent collision type based on the spatial analysis. A variety of roadway countermeasures are available targeted at reducing hit object crashes.

The California SHSP includes lane departures as one of the six high priorities in California. As indicated in the Caltrans SHSP, "the Lane Departures Challenge Area includes head-on, hit object, and overturned crashes. This includes instances where a vehicle runs off the road or crosses into the opposing lane prior to the collision." These crashes are a high priority due to their severity level.

## Driving Under the Influence

The influence of alcohol was cited in the two crashes reviewed in the descriptive analysis for San Joaquin and driving under the influence is one of the top primary collision factors based on the spatial analysis. This suggests there are opportunities to address driver behavior through countermeasures that encourage education and enforcement.

The California SHSP also identified impaired driving as one of the six high priorities in California, reflecting the potential to reduce fatalities and serious injuries by addressing this challenge area.

## School Routes and Railroad Crossings

San Joaquin's goals reflect the desire to prioritize improvements on school routes and on roadways adjacent to schools, as well as at railroad crossings. In a focus group meeting held with the City's safety partners, participants expressed the importance of improving routes that kids can take to school, such as Colorado Avenue. In addition, it was noted that there are two trains per day through San Joaquin, and may be opportunities to improve safety around railroad crossings.

# Improved Data Collection

Improved crash data collection is identified as an emphasis area as there was limited crash data available from the City. The descriptive analysis included a portion of the number of crashes as the spatial analysis findings. High quality data is an essential component of understanding safety trends, priority locations, and systematically implementing safety countermeasures.

# STRATEGIES

The following subsections present engineering, education, emergency services, and enforcement strategies to help improve roadway safety across the City.

## Engineering Strategies

The top four collision types in San Joaquin were **hit object, broadside, rear end,** and **sideswipe** crashes; the top three primary collision factors were **automobile right of way, driving under the influence,** and **improper turning**. High priority countermeasures to address these collision types and primary collision factors are shown in Table 67.

**Table 67. High Priority Countermeasures**

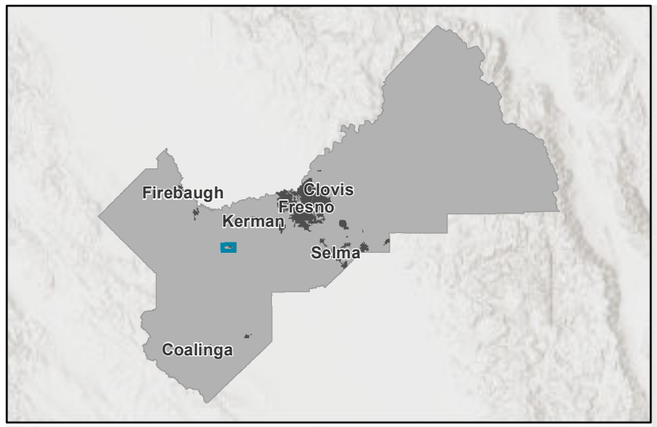
| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| **Roadway Countermeasures** | Street Lighting | R1 | Crashes at night |
| | Remove or Relocate Fixed Objects Outside of Clear Recovery Zone | R2 | Hit object |
| | Install Guardrails | R4 | Hit object |
| | Road Diet | R14 | Hit object |
| | Widen Shoulder | R15 | Hit object, sideswipe |
| | Improve Pavement Friction (High Friction Surface Treatment) | R21 | Hit object, rear end |
| | Install/Upgrade Signs with New Fluorescent Sheeting | R22 | Hit object, sideswipe |
| | Install Dynamic/Variable Speed Warning Sings | R26 | Hit object |
| | Install Edgelines and Centerlines | R28 | Hit object |
| | Install Centerline Rumble Strips/Stripes | R30 | Sideswipe |
| | Install Edgeline Rumble Strips/Stripes | R31 | Hit object |
| **Intersection Countermeasures** | Add Intersection Lighting at Intersections | S1/NS1 | Crashes at night |

*Notes: The ID number references the Caltrans Manual Local Road Safety*
*There were no high priority roadway countermeasures listed for San Joaquin. Roadway countermeasures listed were given a medium priority.*

*Appendix B* contains the regional Countermeasures Toolbox which includes more detailed information regarding the countermeasures listed above.

The following figures and tables provide data on collision types and factors for the intersections and roadways with the highest crash scores. The locations with the highest crash scores may be top priorities for implementing countermeasures and pursuing grants. San Joaquin can use the information about collision type and factors to identify potential countermeasures to apply, using the information in Table 67.

Figure 142 and Figure 143 present the top priority intersections and breakdown of the top collision types and primary collision factors, respectively. Figure 144 and Figure 145 present the top priority roadways and breakdown of the top collision types and primary collision factors, respectively.




San Joaquin

S SUTTER AVE

MAIN ST

S PLACER AVE

NINTH ST

W MANNING AVE

COLORADO RD

K:\H_Projects\2626012 - Fresno COG Local LRSPs\GIS\Task 4 mxds\San Joaquin\ntx_CrashType_SanJoaquin.mxd Date: 11/16/2021

**Collision Type**

- Hit Object
- Broadside
- Rear-end*
- Sideswipe*

*Tied for third

City Limits

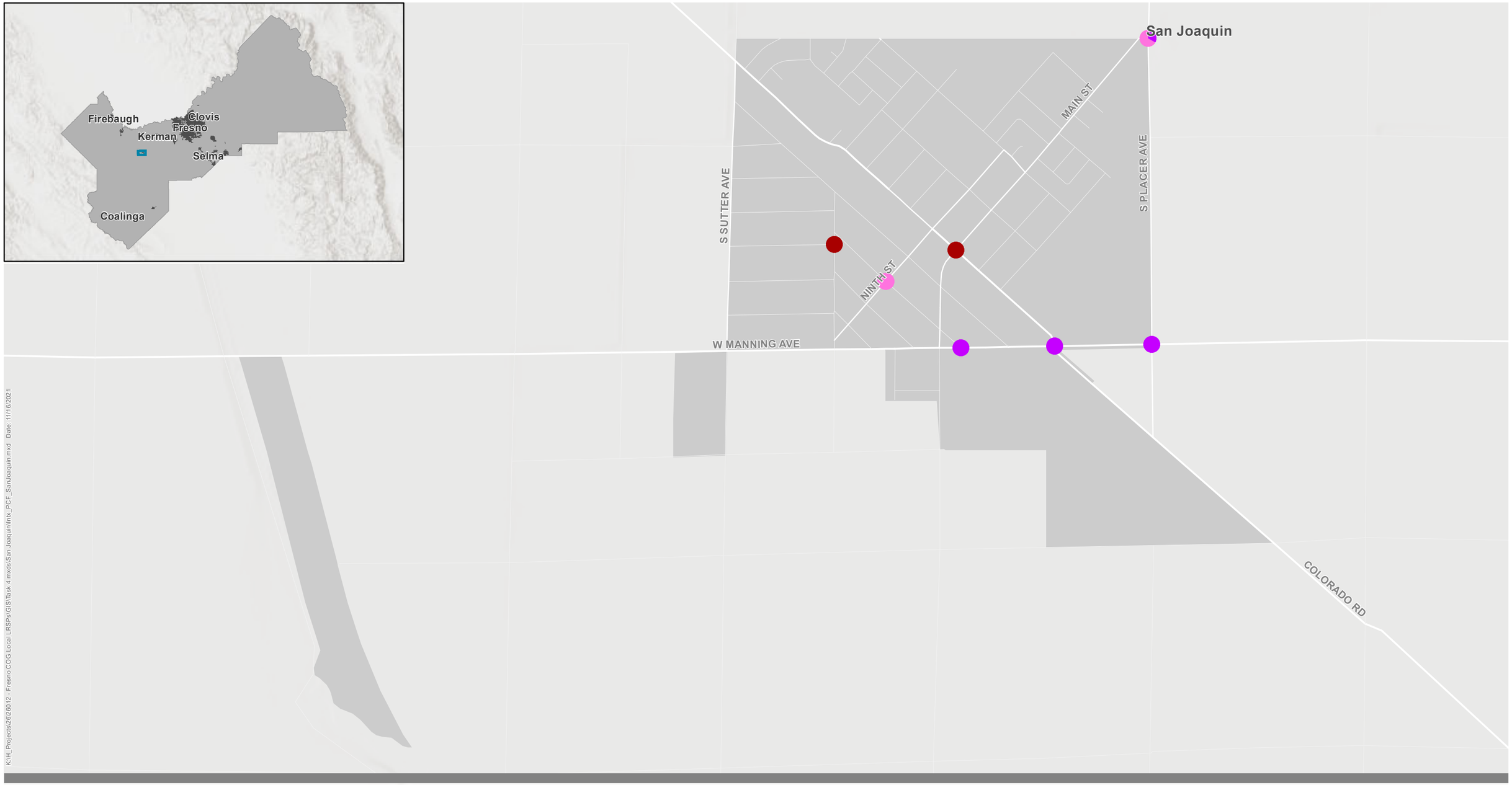
County Boundary

0 0.225 Miles

KITTELSON & ASSOCIATES

Figure 142

**Top Fatal/Severe Injury Intersection Collision Types**
**Jurisdiction Results: San Joaquin**
**Fresno Council of Governments**




**Primary Collision Factors**

- Automobile Right of Way
- Driving Under the Influence
- Improper Turning

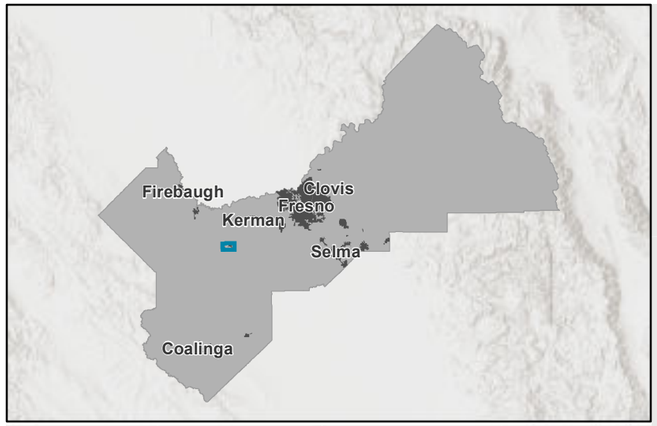
- City Limits
- County Boundary

0 0.225 Miles

Figure 143

**Top Fatal/Severe Injury Intersection Primary Collision Factors**
**Jurisdiction Results: San Joaquin**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




San Joaquin

S SUTTER AVE

MAIN ST

S PLACER AVE

NINTH ST

W MANNING AVE

COLORADO RD

K:\H_Projects\2626012 - Fresno COG Local LRSPs\GIS\Task 4 mxds\San Joaquin\Rdwy_CrashTyp...mxd Date: 11/16/2021

**Collision Type**

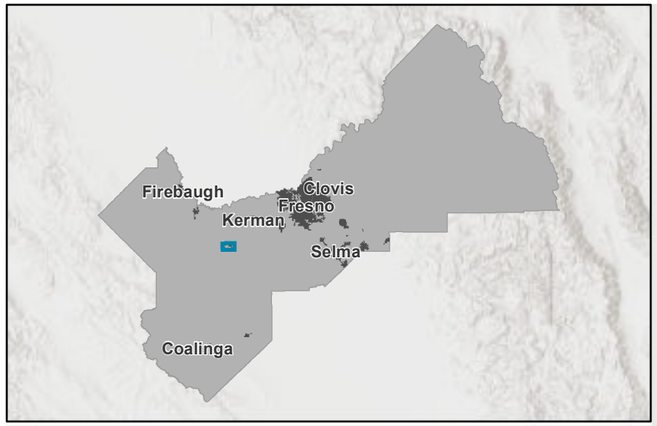
- Sideswipe
- Priority Roadways
- City Limits
- County Boundary

0 0.225 Miles

Figure 144

**Top Fatal/Severe Injury Roadway Collision Types**
**Jurisdiction Results: San Joaquin**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




San Joaquin

S SUTTER AVE

MAIN ST

S PLACER AVE

NINTH ST

W MANNING AVE

COLORADO RD

K:\H_Projects\26260\12 - Fresno COG Local LRSPs\GIS\Task 4 mxds\San Joaquin\Rdwy_PCF_San Joaquin.mxd Date: 11/16/2021

**Primary Collision Factors**

- Improper Turning
- Priority Roadways
- City Limits
- County Boundary

0 0.225 Miles

Figure 145

**Top Fatal/Severe Injury Roadway Primary Collision Factors**
**Jurisdiction Results: San Joaquin**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

Table 68 and Table 69 provide information for the top seven intersection locations (based on crash severity score), including control type (signalized or unsignalized), crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 68. Priority Intersections with Collision Type based on Top 4 Fatal/Severe Injury Collision Types**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Hit Object | Broad-side | Rear End | Side-swipe | Other |
| 1 | ELM AVE & PLACER AVE | Unsignalized | 2.74 | 4 | 3 | 1 | 0 | 0 | 0 |
| 2 | MAIN ST & COLORADO RD | Unsignalized | 1.22 | 1 | 1 | 0 | 0 | 0 | 0 |
| 3 | MANNING AVE & PLACER AVE | Unsignalized | 0.40 | 2 | 0 | 2 | 0 | 0 | 0 |
| 4 | NINTH ST & IDAHO AVE | Unsignalized | 0.40 | 2 | 1 | 0 | 0 | 1 | 0 |
| 5 | MANNING AVE & IDAHO AVE | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 | 0 |
| 6 | MANNING AVE & COLORADO RD | Unsignalized | 0.20 | 1 | 0 | 1 | 0 | 0 | 0 |
| 7 | DENVER AVE & PINE AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top four collision types*

**Table 69. Priority Intersections with Primary Collision Factor based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Auto Right of Way | Improper Turning | DUI | Other |
| 1 | ELM AVE & PLACER AVE | Unsignalized | 2.74 | 4 | 1 | 2 | 0 | 1 |
| 2 | MAIN ST & COLORADO RD | Unsignalized | 1.22 | 1 | 0 | 0 | 1 | 0 |
| 3 | MANNING AVE & PLACER AVE | Unsignalized | 0.40 | 2 | 1 | 0 | 0 | 1 |
| 4 | NINTH ST & IDAHO AVE | Unsignalized | 0.40 | 2 | 0 | 1 | 0 | 1 |
| 5 | MANNING AVE & IDAHO AVE | Unsignalized | 0.20 | 1 | 1 | 0 | 0 | 0 |
| 6 | MANNING AVE & COLORADO RD | Unsignalized | 0.20 | 1 | 1 | 0 | 0 | 0 |
| 7 | DENVER AVE & PINE AVE | Unsignalized | 0.20 | 1 | 0 | 0 | 1 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three primary collision factors*
*DUI = Driving Under the Influence*

Table 70 and Table 71 provide information for the top two roadway segments (based on crash severity score), including roadway classification, crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 70. Priority Roadways Segments with Collision Type based on Top 4 Fatal/Severe Injury Collision Type**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Collision Type | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Hit Object | Broad-side | Rear End | Side-swipe | Other |
| 1 | Railroad Ave (Boston Ave to south of Main St) | Local | 0.20 | 1 | 0 | 0 | 0 | 1 | 0 |
| 2 | Railroad Ave (north of 9th St to Manning St) | Local | 0.20 | 1 | 0 | 0 | 0 | 1 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top four collision types*

**Table 71. Priority Roadways Segments with Primary Collision Factors based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Auto Right of Way | Improper Turning | DUI | Other |
| 1 | Railroad Ave (Boston Ave to south of Main St) | Local | 0.20 | 1 | 0 | 1 | 0 | 0 |
| 2 | Railroad Ave (north of 9th St to Manning St) | Local | 0.20 | 1 | 0 | 1 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three primary collision factors*
*DUI = Driving Under the Influence*

## Education Strategies

Driving under the influence is one of the emphasis areas for San Joaquin given the prevalence of this primary collision factor in the analysis conducted for the City. In addition, information from the Focus Group Meeting for San Joaquin suggest opportunities for education around railroad crossings and schools, as well as speeding.

The Safe Roads Save Lives campaign is a marketing effort led by the Fresno COG, with the goals of:

- Educate all road users on safe transportation behaviors
- Increase safety for people walking and biking
- Highlight behaviors that cause the most crashes in Fresno County—speeding and distracted driving

SAFE ROADS SAVE LIVES

The campaign Includes branding, social media strategies, print materials, radio and video resources, school resources, and a campaign website. Unincorporated Fresno County may find these materials helpful, especially those related to speeding, driving under the influence of drugs or alcohol, watching for pedestrians, and driving appropriately near schools.

The following activities are recommended for San Joaquin, as resources allow, to implement the Safe Roads Save Lives campaign:

- Identify staff appropriate to attend a presentation by Fresno COG staff about the Safe Roads Save Lives campaign. Appropriate staff members include people associated with transportation engineering and planning, communications, traffic enforcement, school transportation, and other jurisdictional staff who work with the roadway system.
- Work with schools to distribute print materials and offer school-related transportation resources. Ensure that school communications are in both English and Spanish.

- Work with public information or communications staff to spread Safe Roads Save Lives materials throughout San Joaquin through the following, at minimum:
    - Repost and link to Fresno COG posts that refer to the Safe Roads Save Lives campaign.
    - Have print materials (flyers, bumper stickers, pins, and postcards) available at events and community festivals.
    - Work with the Fresno COG to identify a radio station to air a Safe Roads Save Lives radio public service announcement (PSA).
    - Have a direct link to Safe Roads Save Lives campaign website on the City's website.

## Emergency Services

Emergency service organizations depend on safe roadways and efficient communication processes to reach and effectively respond to emergencies. Each type of emergency services organization that serves San Joaquin – law enforcement, fire, emergency medical services (EMS), California Highway Patrol – work independently and collaboratively to develop procedures that allow them to respond to incidents in their own jurisdictions as well as support others as needed. The following recommendations may help improve emergency services response as the various organizations update procedures and policies and continue to partner on roadway safety efforts:

- All roadway safety projects should be vetted by emergency service organizations to ensure that their design does not hamper access.
- As new emergency service and response procedures are developed, roadway safety improvement opportunities should be identified and implications of changes to response times should be considered.
- San Joaquin staff should participate in periodic coordination calls between emergency response agencies to gather and share recent observations about crashes and hot spots, to understand emergent safety issues that may not have led to policy reports or yet be available through statewide crash reporting systems.

# Enforcement

Enforcement strategies can include programs or campaigns specifically focused on changing road user behavior through more visible and active enforcement of existing traffic laws, as well as focusing enforcement in areas that have historically been shown to have higher-than-average crash rates. Typically, the effectiveness of enforcement strategies is temporal, meaning they are effective at changing behavior for a discrete period of time – during and shortly after the increased enforcement activities.

The following enforcement strategies should be considered for San Joaquin:

- Focus speed enforcement efforts at locations with high crash rates and/or community member concerns.
- Use automatic enforcement, such as red-light cameras and speed feedback signs, along major corridors.

The effectiveness of each strategy should be measured and evaluated, considering the number of staff hours and amount of resources needed. The results should be reviewed and used to refine future enforcement activities.

Enforcement strategies should be undertaken with due caution to avoid inequitable enforcement activities and evaluated to determine the strategy's impact. More details about equitable enforcement can be found on page 8 (Introduction).

# EVALUATION AND IMPLEMENTATION

A key part of achieving the City's vision is consistently evaluating roadway safety performance and tracking progress towards the City's goals. The City will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

As feasible, it is recommended that the City of San Joaquin update this LRSP every three to five years using updated crash data and the performance measures. Comparing the performance measures related to investments made with the crash data should provide a clear indication of the impact of the City's and safety partner's efforts. Future LRSPs may provide new emphasis areas and top priority locations that reflect progress made and new priorities based on trends in the data.

Activities for implementing the plan include:

- Identifying countermeasures and strategies for priority locations based on the crash data.
- Utilizing the Fresno COG Regional Safety Plan to implement regional strategies and share best practices.
- Exploring funding opportunities to implement priority strategies.
- Identifying activities to support the regional Safe Roads Save Lives campaign.
- Identifying enforcement strategies to implement and evaluate.
- Regularly coordinating with safety partner agencies to assess progress, identify opportunities to implement countermeasures and strategies, and identify opportunities for citizen involvement.
- Regularly collecting and organizing data to support evaluation of the LRSP.

# 11.0 CITY OF SELMA

The City of Selma has an approximate population of 24,402.[53] The average daily vehicle miles traveled is 167,390, and the City maintains approximately 83 total roadway centerline miles. The major roadways in the city include Golden State Highway and S Highland Avenue, which both run north to south, and Floral Avenue, which runs from east to west. Based on the review of crash data conducted as part of the LRSP, pedestrians and bicyclists are overrepresented in fatal and severe injury crashes. The top three fatal and severe injury collision types in Selma were **vehicle-pedestrian, rear end,** and **hit object** crashes; the top three fatal and severe injury primary collision factors were **pedestrian violation**, **automobile right of way**, and **driving under the influence**. The LRSP provides potential engineering, education, emergency services, and enforcement strategies tailored to Selma's crash history and local priorities, as well as performance measures to evaluate progress.

## VISION AND GOALS

The City's vision for roadway safety is:

**A roadway network that supports safe travel for our community.**

The City's roadway safety goals in support of the vision are:

1. Perform regular reviews of crash data to identify and prioritize opportunities to reduce crash risk.
2. Provide opportunities for citizen engagement in identifying issues and developing solutions for roadway safety across the community.
3. Reduce the number of annual fatal and severe injury crashes across all public City roadways by 50 percent by 2026.
4. Reduce the number of pedestrian and bicycle crashes on public City roadways by 50 percent by 2026.

[53] 2018 population. Source: California Department of Finance

5. Coordinate with traffic safety stakeholders such as fire, police, schools, and parks to exchange information and ideas specific to enhancing roadway safety performance through engineering, enforcement and educational strategies.
6. Partner with other local agencies to promote roadway safety.

# SAFETY PARTNERS

A variety of agency staff and community partners were involved throughout the development of this LRSP and played an integral role in identifying priorities, providing local context, and reviewing the existing conditions analysis. Many of the strategies identified in this plan will require coordination with these partners and their support of the City's effort to create a culture of roadway safety. Selma's goals reflect the importance of partnering with local agencies, engaging with citizens, and coordinating with traffic safety stakeholders to identify issues and implement solutions. While additional partners may be identified in the future, those involved in development of the LRSP include:

- Selma Rotary
- Adventist Health
- Bringing Broken Neighborhoods Back to Life (BBNBTL)
- Caltrans
- Fresno Council of Governments
- Fresno County Rural Transit
- Kings View Community Services
- Selma Department of Engineering
- Selma Department of Public Works
- Selma District Chamber of Commerce
- Selma Fire Department
- Selma Police Department
- WestCare Foundation

# PERFORMANCE MEASURES

Performance measures are used to track progress and a key element of making data-informed decisions. Performance measures that support the City's vision, goals, and emphasis areas include:

- Annual number of crashes (city-wide and at each of the top twenty priority locations)
- Annual number of fatal and severe injury crashes (city-wide and at each of the top twenty priority locations)
- Annual number of pedestrian and bicycle crashes (city-wide and at each of the top twenty priority locations)
- Annual number of rear end crashes (city-wide)
- Annual number of hit object crashes (city-wide)
- Annual number of crashes with a primary collision factor of unsafe speed (city-wide)
- Annual number of crashes with a primary collision factor of driving or bicycling under the influence of alcohol or drugs (city-wide)

- Investments made in roadway safety countermeasures (e.g. dollars spent, grants pursued, partnerships developed)
- Investments made in education and enforcement strategies (e.g. dollars spent, grants pursued, partnerships developed)
- Coordination with other local agencies and/or safety partners (e.g. meetings held, projects pursued)
- Opportunities provided for citizen engagement (e.g. meetings held, public campaigns launched)
- Coordination between first responders and City staff (e.g. meetings held, programs implemented, strategies deployed)

As part of plan implementation, the City will identify a process for annually tracking these performance measures to support future updates to this roadway safety plan.

# DATA SUMMARY

The primary data sets used to inform the technical analyses for the City's local road safety plan were crash data and roadway network information. As noted below, future updates could incorporate traffic volume data if widely available for locations across the City. In addition, feedback from a publicly available survey was documented for consideration in identifying issues and improvement strategies.

## Public Survey Feedback

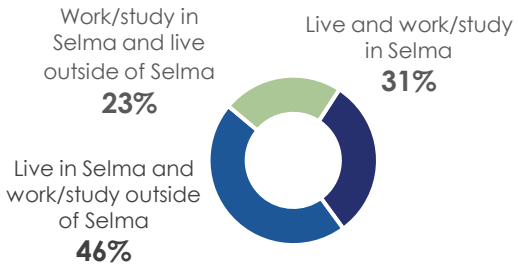
Toole Design Group worked with Fresno COG to develop an online survey and interactive webmap to provide the opportunity for public engagement on the LRSP. The goal was to collect both general and geographically specific feedback on safety problems, desired safety improvements in jurisdictions that are part of the MLRSP, as well as voluntary demographic information for Title IV reporting. Both activities were open from August 16, 2021 to September 20, 2021 and sought public feedback on spatial patterns of traffic safety concerns and desired improvements.

As the primary open public engagement opportunity during MLRSP development, the survey and interactive webmap served a crucial role in illuminating the community's traffic safety concerns and desired traffic safety improvements. Below is a summary of key findings from the online survey and interactive webmap specific to Selma. More information on the methodology and overall findings of the survey are provided in *Appendix A*.

**13**
PEOPLE RESPONDED

**6**
LOCATIONS IDENTIFIED

**WHERE PARTICIPANTS WORK AND LIVE**




**MOST COMMON SAFETY CONCERNS**

- Lack of safe places to walk, bike, or wait for the bus
- Lack of safe opportunities to cross the street
- Poor lighting or poor visibility

- The survey asked respondents to provide input on the top road safety improvements needed in their communities. While the survey prompted participants to pick three improvements, some selected more than three responses. A total of 41 responses were received for Selma from 13 participants, with the most common desired improvement types including
  - Maintenance of existing roads and streets (10 responses)
  - Rural road improvements to prevent run-off-road crashes (6 responses)
  - Speed enforcement (6 responses)
  - Bike lanes/bikeways (5 responses)
- Participants dropped points in the webmap in specific locations across Fresno County where they experienced road safety concerns. When leaving a point, participants could select from a list of traffic safety concerns and the kinds of travel impacted, with the ability to select as many responses as applicable. A text box gave participants the option to note what they think would make the location safer. A total of 6 locations were noted in Selma, noting the following traffic safety concerns:
  - Lack of safe places to walk, bike, or wait for the bus (5 responses)
  - Lack of safe opportunities to cross the street (3 responses)
  - Poor lighting or poor visibility (3 responses)
  - Crashes or near misses happen here (3 responses)
  - Speeding or aggressive driving (2 responses)
  - People driving do not obey red lights, stop signs, or turn signals (1 response)
- The survey asked participants where they live and work or study, with the option to select from a list of jurisdictions or outside of Fresno County. The participants who selected Selma included:
  - 4 who live and work/study in Selma
  - 6 who live in Selma and work/study outside of Selma
  - 3 who work/study in Selma and live outside of Selma

# Crash Data

Kittelson worked with Fresno COG to assemble crash data for the City of Selma using the Statewide Integrated Traffic Records System (SWITRS) database, supplemented with location information from the Transportation Injury Mapping System (TIMS) database maintained by SafeTREC at the University of California, Berkeley.

The crash database represents the time period from January 1, 2015 through December 31, 2019 and includes reported crashes that occurred on public streets. Within the assembled regional crash database, a total of 629 reported crashes are located in Selma. Crash severity is coded according to the highest degree of injury exhibited, and the data used for this analysis includes the following coded severity levels (listed in descending order):

- Fatal: death from injuries sustained in the crash.
- Severe Injury: Injuries include, for example, broken bones, severe lacerations, or other injuries that go beyond the reporting officer's assessment of "other visible injuries."
- Other visible injury: An injury, other than those described above, that is evident to observers at the scene of the crash. For example, bruises or minor lacerations.
- Complaint of pain: Internal or other non-visible injuries. For example, a person limps or seems incoherent.
- Property damage only (PDO): No injuries sustained.

# Roadway Network Data

Kittelson developed a linear referencing system of all public roadways using the Fresno County roadway centerline file. This dataset was updated to develop a measurement system based on the total road length (as determined by roadway name) to locate crashes to a specific mile point along the network. The master roadway network for the County was used to spatially analyze and prioritize specific locations within each local jurisdiction.

# Traffic Volume Data

Traffic volume data was not consistently available at a sufficient level to be able to incorporate into the safety analysis. Future updates to the City's local road safety plan could incorporate traffic volume data, if available, to understand how crash frequency, severity, and type vary at different levels of traffic.

# EXISTING ROADWAY SAFETY PERFORMANCE

The findings in this section are based on the crash database, which includes reported crashes from January 1, 2015 through December 31, 2019. It is organized as follows:

- All Road Users
  - Severity by Road User
  - Year, Month, and Weather
  - Collision Type
  - Location, Collision Type, and Severity
  - Primary Collision Factor
  - Lighting
  - Time of Day
- Pedestrian-involved Crashes
  - Year and Month
  - Pedestrian Action and Location
  - Lighting
- Bicyclist-involved Crashes
  - Collision Type
  - Primary Collision Factor
  - Lighting

# All Road Users

This section includes analysis and findings for all reported crashes. Subsequent sections focus exclusively on crashes involving pedestrians and bicyclists.

## SEVERITY BY ROAD USER

Table 72 presents reported crashes, organized by severity level and road user. Five of the 11 fatal crashes are vehicle-only crashes; pedestrians or bicyclists were involved with the remaining six fatalities. The most common severity type for both pedestrian and bicycle involved crashes is visible injury.

**Table 72: Crash Severity by Road User Involved**

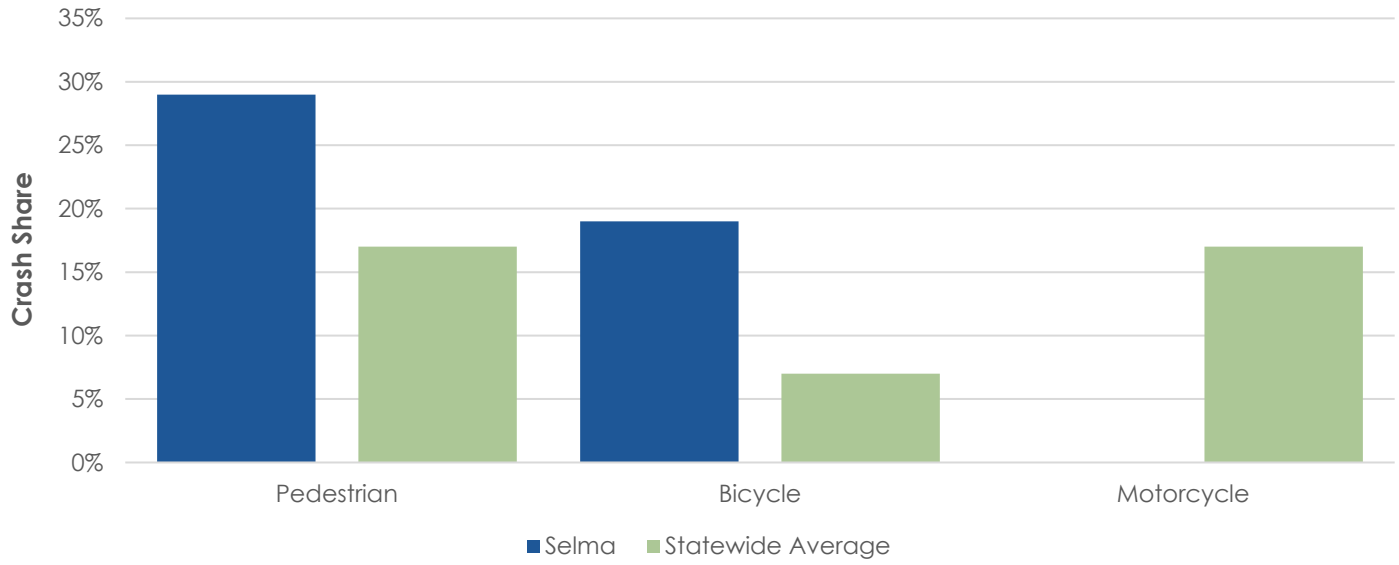
| Road Users Involved | Fatal (% of column) | Severe Injury (% of column) | Visible Injury (% of column) | Complaint of Pain (% of column) | Property Damage Only (% of column) | Total (% of column) |
|---|---|---|---|---|---|---|
| Pedestrian Involved | 3 (10%) | 3 (10%) | 11 (38%) | 10 (35%) | 2 (7%) | 29 (4.5%) |
| Bicycle Involved | 3 (10%) | 1 (3%) | 12 (41%) | 9 (31%) | 4 (15%) | 29 (4.5%) |
| Vehicle Only or Vehicle-Fixed Object | 5 (1%) | 6 (1%) | 50 (9%) | 140 (24%) | 370 (65%) | 571 (91%) |
| Reported Crashes | 11 (100%) | 10 (100%) | 73 (100%) | 159 (100%) | 376(100%) | 629 (100%) |
| Severity Share of Reported Crashes | 2% | 2% | 11% | 25% | 60% | 100% |

*Source: SWITRS, TIMS, Kittelson, 2021.*

California's Strategic Highway Safety Plan (SHSP) includes 16 challenge areas to focus statewide resources and efforts. Three of those challenge areas are crashes involving pedestrians, bicyclists, and motorcyclists. The SHSP analyzed the share of fatal and severe injury crashes involving each of these road users. Figure 146 compares crash trends in Selma to the statewide trends reported in the SHSP.

- There is a higher proportion of pedestrian and bicycle crashes among fatal/severe injury crashes in Selma compared to the statewide average.
- City of Selma has no reported fatal/severe motorcycle crashes.

**Figure 146: City of Selma Fatal and Severe Injury Crash Shares by Road User Compared to Statewide Trends**

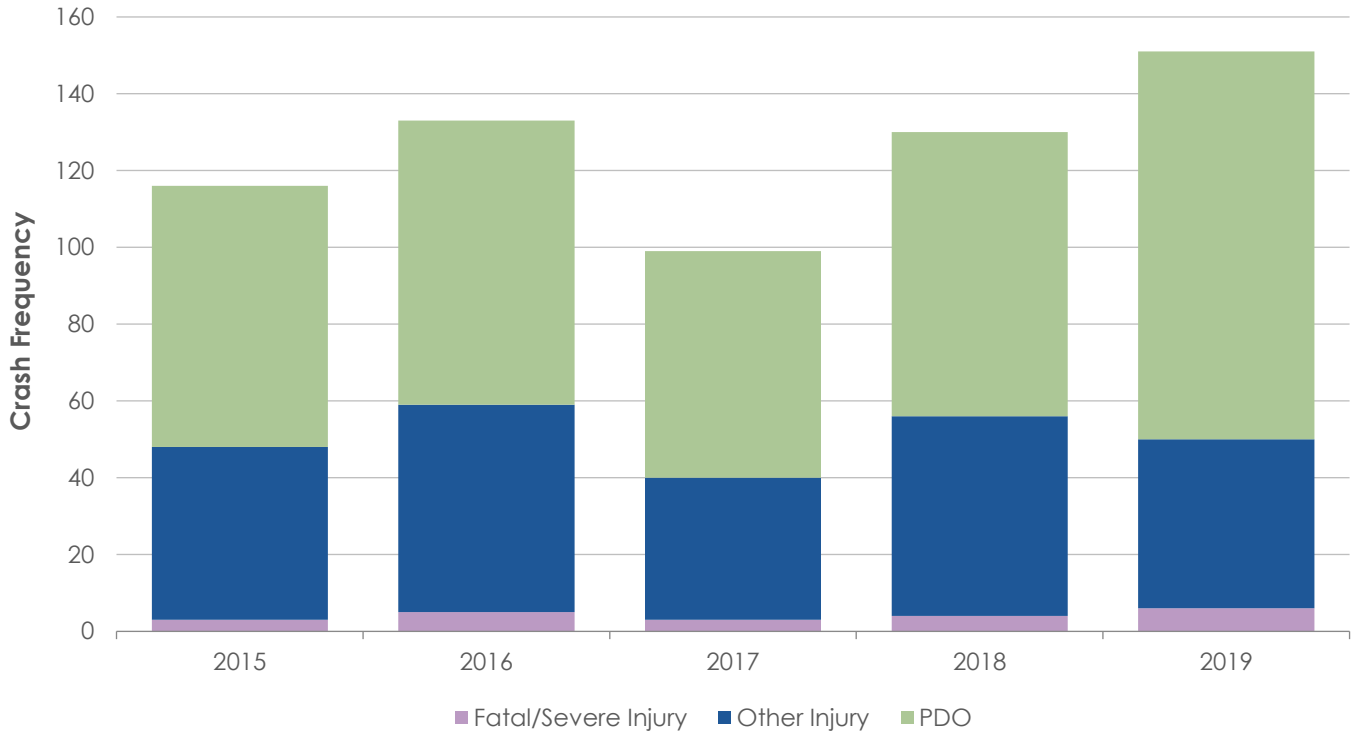



*Source: SHRP, SWITRS, TIMS, Kittelson, 2021.*

## YEAR, MONTH, AND WEATHER

Figure 147 shows year-over-year trends in the data by severity. The annual average number of reported crashes is 126. Except for a notably low number of reported crashes in 2017, year-over-year trends generally indicate an increase in crashes over time. Fluctuations from a single year to the next tend to represent the degree of randomness in crash occurrence and are not necessarily indicative of an overall trend.

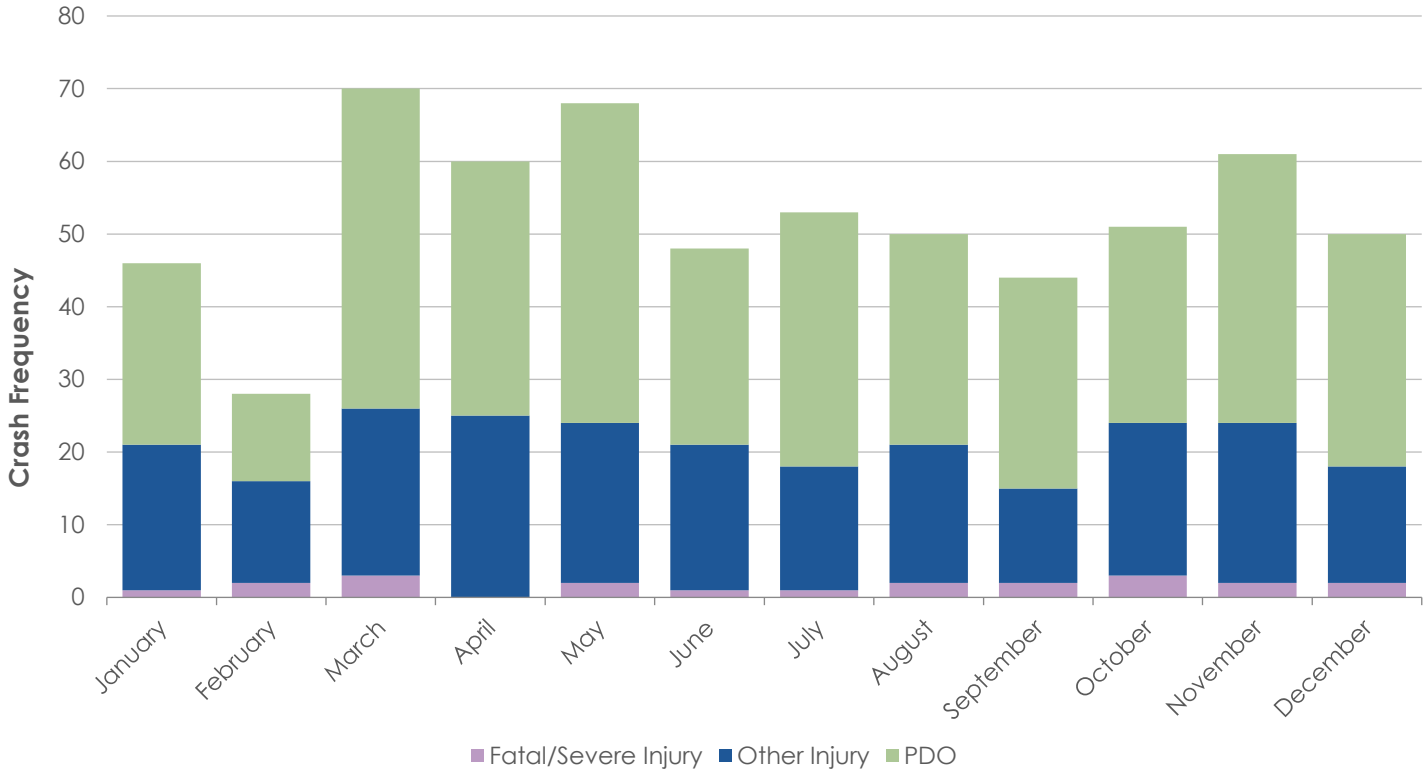
**Figure 147: Year-over-Year Trends in Crash Data by Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*

Figure 148 shows the total monthly crash trends by severity. The average monthly crash frequency is 52. There is some fluctuation in each month near the average. Higher frequencies are observed in March and May and lower frequencies in February.

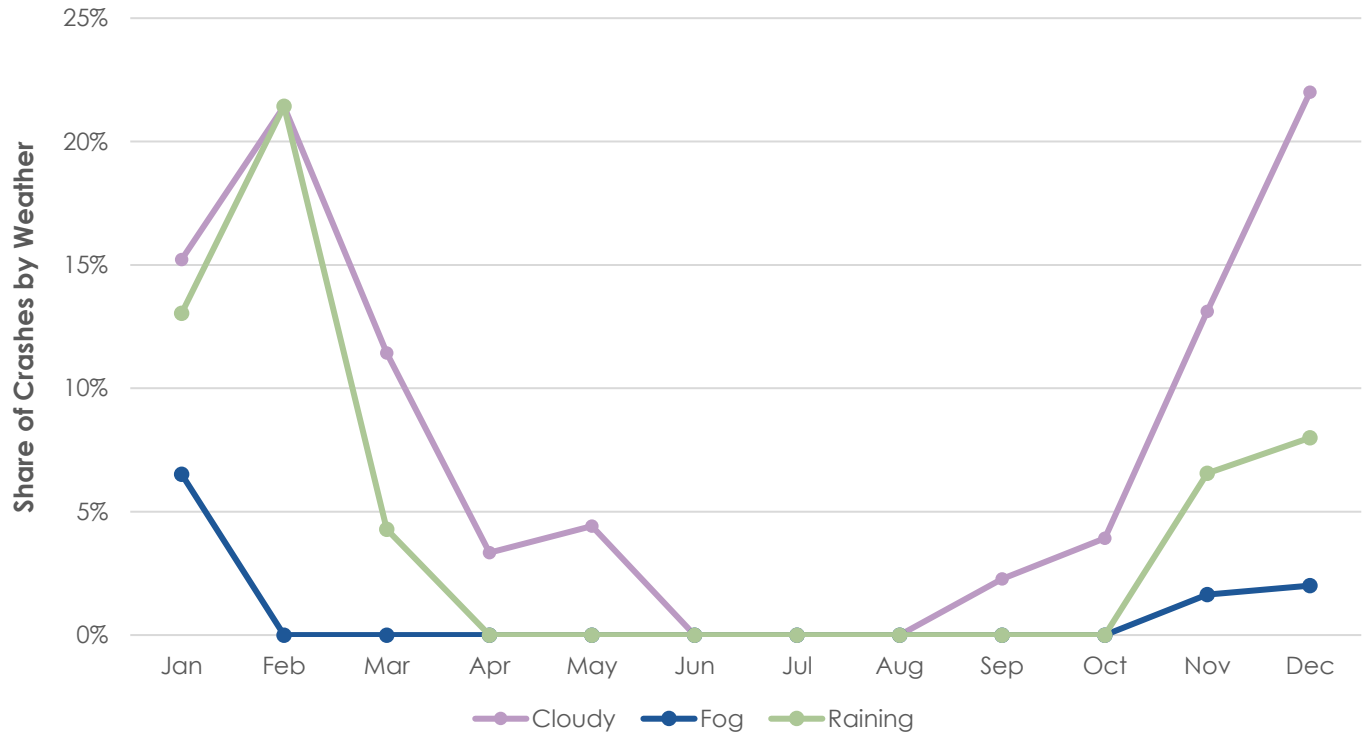
**Figure 148: Crashes by Month and Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

Figure 149 illustrates crashes by month weather condition. The most common weather condition, clear weather, is not shown in the chart below to highlight the weather's factor on crash trends. Most crashes occurred in clear conditions (85 percent), while 8 percent in cloudy conditions, 4 percent in rainy conditions, and 1 percent in foggy conditions. Crashes in cloudy conditions are higher in winter between November and March, and rainy conditions peak in the same months to a lesser extent.

**Figure 149: Crashes by Month and Weather Condition**



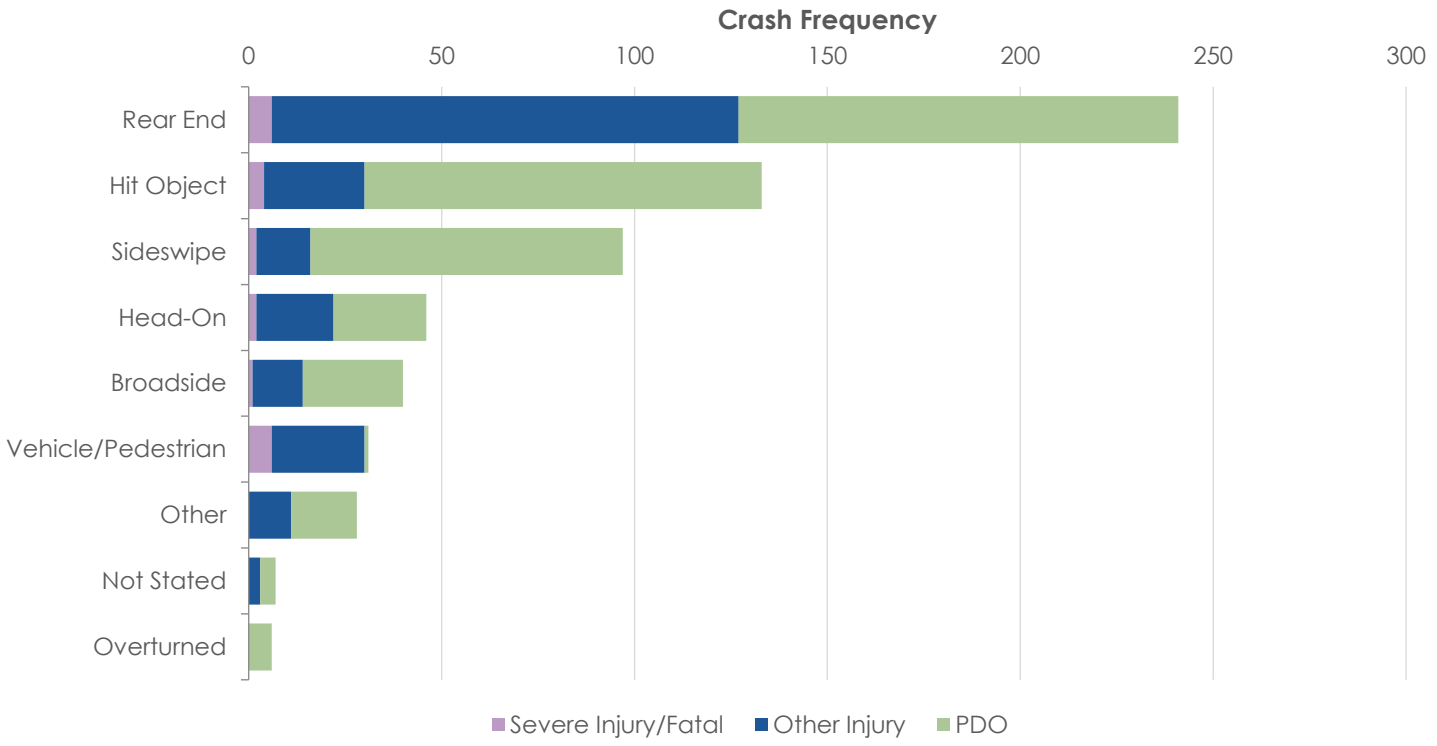

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: Only select conditions shown to improve legibility for less frequent weather conditions.*

## COLLISION TYPE

Figure 150 presents the collision types by severity.

- The most frequent collision types are **rear end** (53 percent of crashes), **hit object** (23 percent), and **sideswipe** (16 percent).
- Among fata/severe injury crashes, the most frequent collision types are **vehicle/pedestrian** (29 percent), **rear end** (29 percent), and **hit object** (19 percent).

**Figure 150: Crashes by Collision Type and Severity**



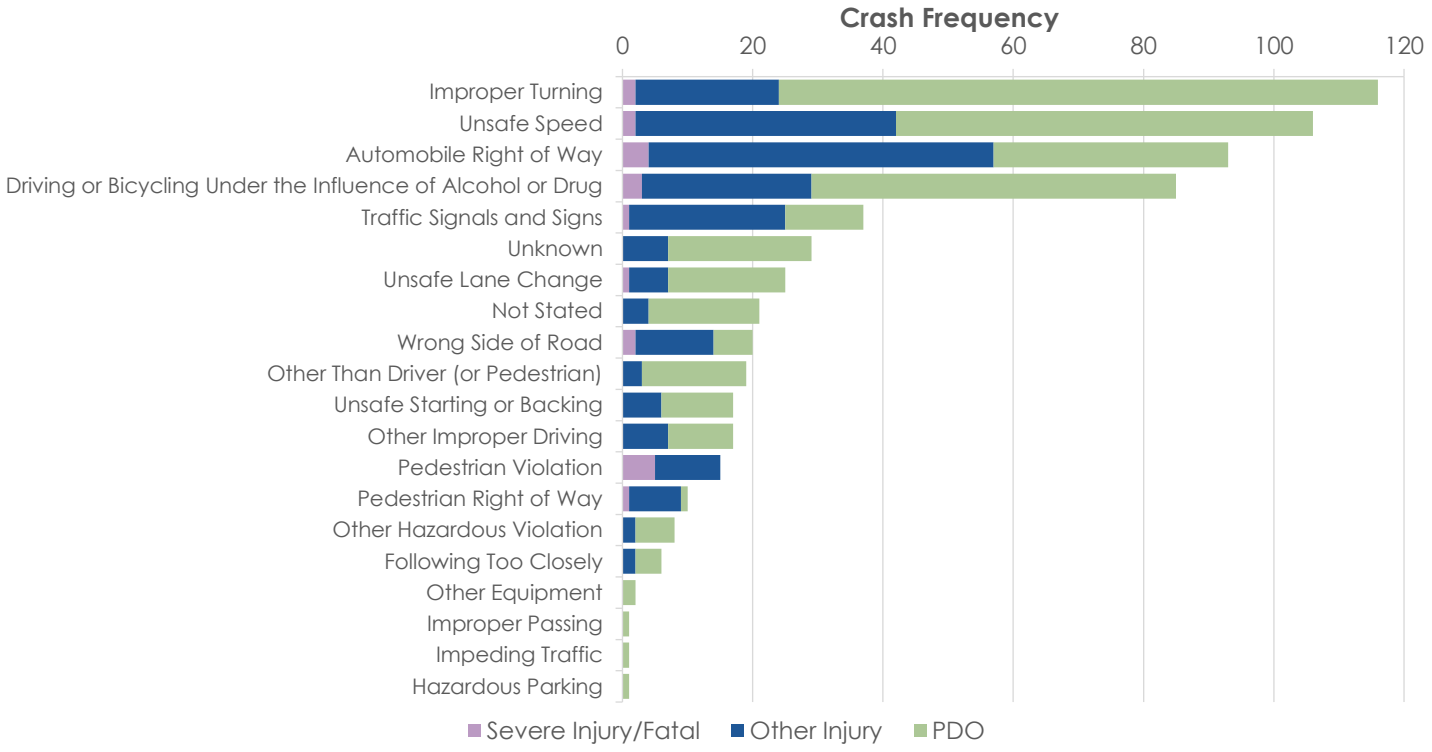

*Source: SWITRS, TIMS, Kittelson, 2021*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## PRIMARY COLLISION FACTOR

Reporting officers identify a primary collision factor (PCF) for each crash. It is up to the officer's judgement and information available at the scene for them to select the factor that is most relevant. Officers select one from among a list of PCFs based on California Vehicle Code (CVC) and road user behavior. Figure 151 presents the most frequently cited PCFs in crashes in Selma.

- The three most common PCFs for all collision types are **improper turning**[54] (18 percent), **unsafe speed**[55] (17 percent), and **automobile right of way**[56] (15 percent).
- The three most frequently reported PCFs among fatal/severe injury crashes are **pedestrian violation**[57], **automobile right of way**[56], and **driving or bicycling under the influence of alcohol or drugs**[58].

**Figure 151: Crashes by Reported PCF**



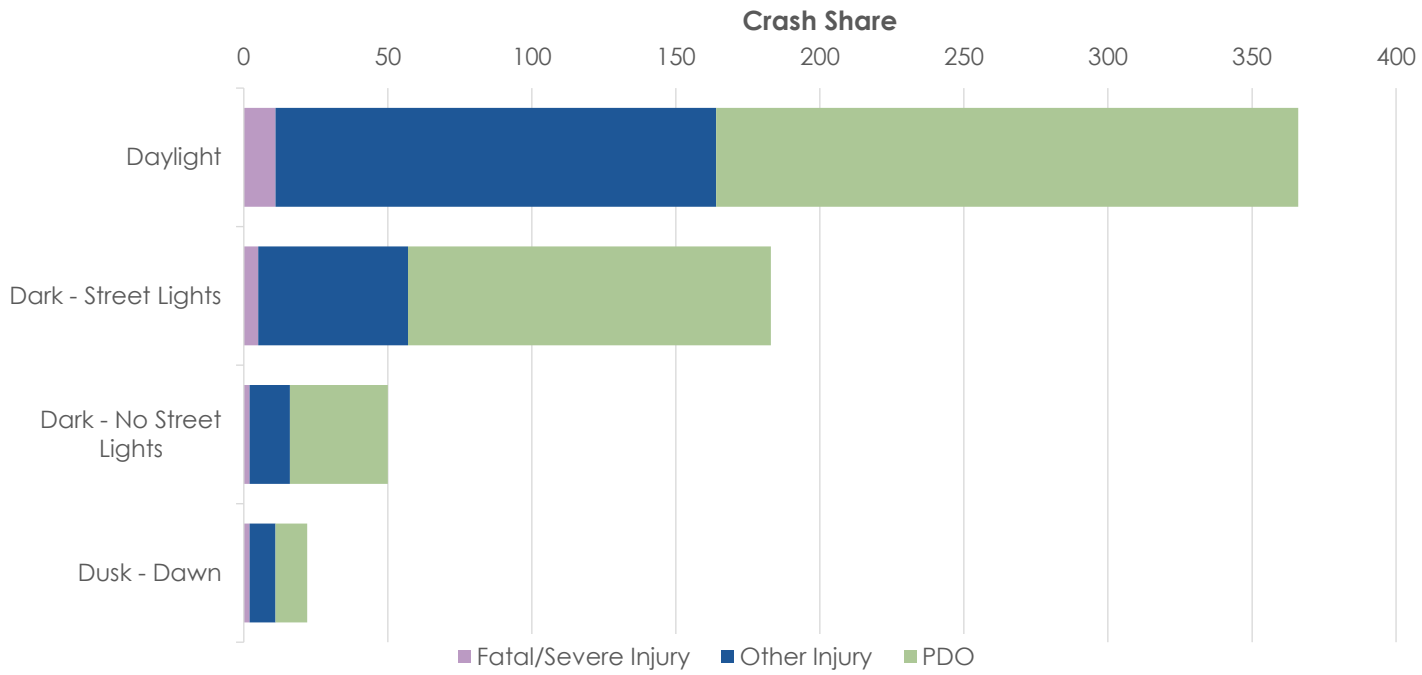

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

[54] Reported PCF based on CVC violation indicating a failure while turning from a direct course without reasonable safety or not signaling appropriately.
[55] Reported PCF based on CVC violation indicating unsafe speeding on a highway.
[56] Reported PCF based on CVC violation indicating a driver turning failed to yield right-of-way to oncoming traffic.
[57] Reported PCF based on CVC violation indicating a pedestrian failure to yield the right of way to other vehicles.
[58] Reported PCF based on CVC violation indicating driver was under the influence of alcohol.

## LIGHTING

Figure 152 shows crashes by reported lighting condition and severity. Over half of reported crashes occurred in daylight and 30 percent of all crashes occurred in the dark with streetlights. Most fatal/severe injury crashes occurred in daylight.

**Figure 152: Crashes by Lighting and Severity**

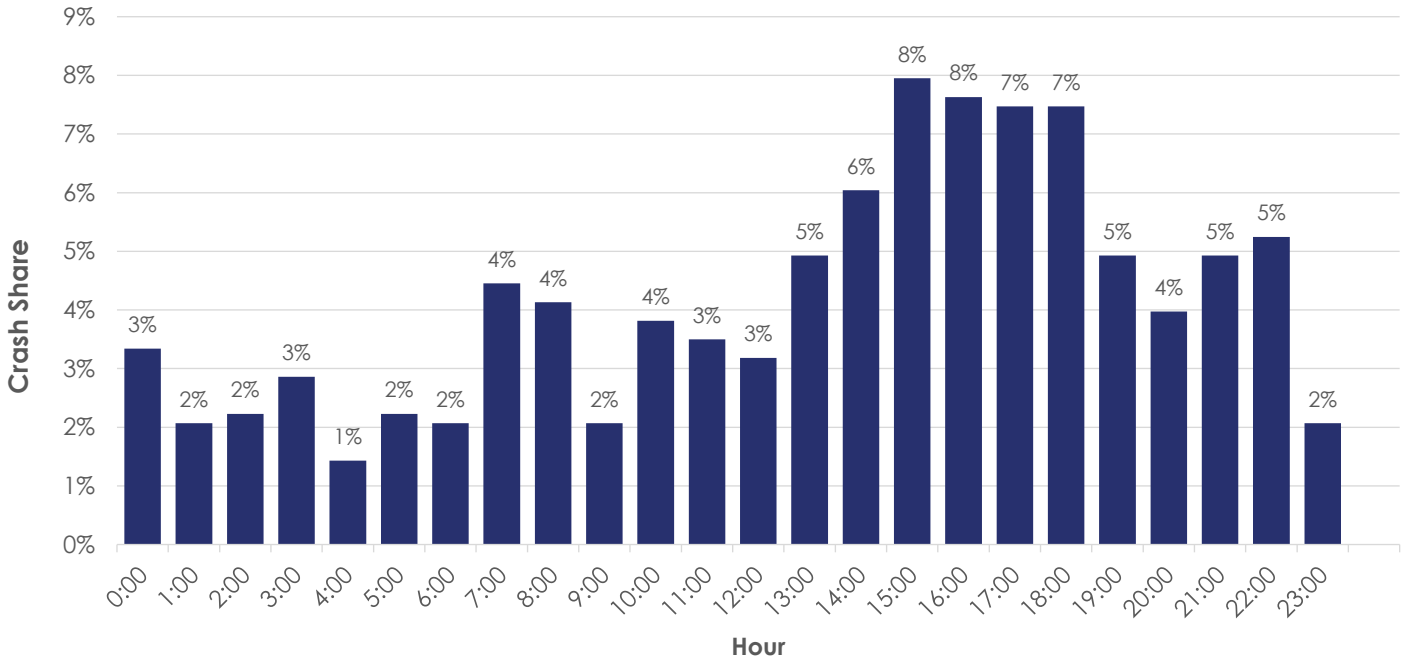



*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## TIME OF DAY

Figure 153 shows crashes by time of day. Crashes are highest between the hours of 3 PM and 6 PM. Crashes are lowest overnight between 11 PM and 7 AM.

**Figure 153: Crash Share by Time of Day**




*Source: SWITRS, TIMS, Kittelson, 2021.*

# Pedestrians

This section focuses exclusively on reported crashes involving pedestrians. Table 73 shows the distribution of pedestrian crashes by severity. Crashes resulting in fatalities or severe injuries represent 20 percent of reported pedestrian-involved crashes. Most crashes resulted in some level of injury, while 8 percent resulted in property damage only.

**Table 73: Severity by Pedestrians Involved**

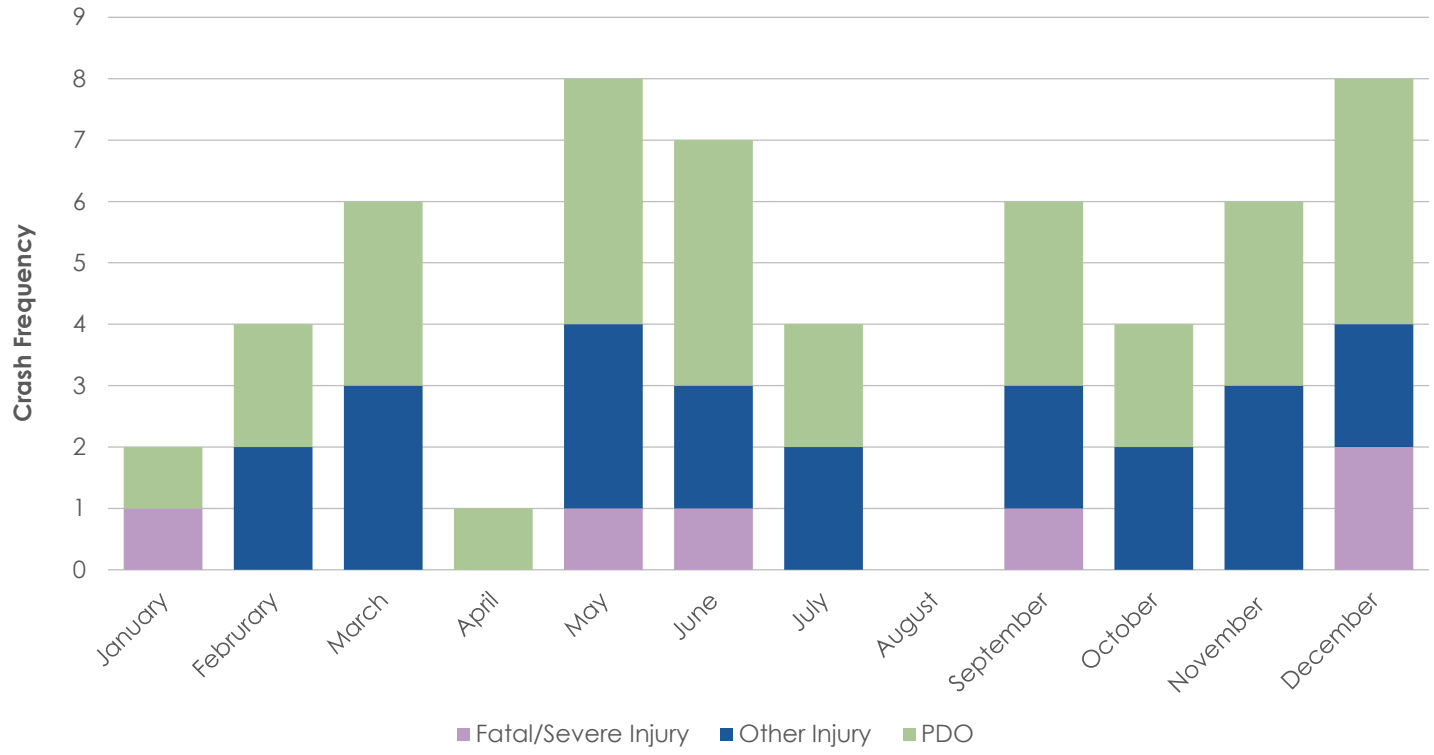
| | Fatal (% of Total) | Severe Injury (% of Total) | Other Injury (% of Total) | Property Damage Only (% of Total) | Total |
|---|---|---|---|---|---|
| Pedestrian Involved | 3 (10%) | 3 (10%) | 21 (72%) | 2 (8%) | 29 (100%) |

*Source: SWITRS, TIMS, Kittelson, 2021.*

## SEVERITY AND MONTH

Figure 154 shows pedestrian crashes by month and type. Pedestrian crashes are highest during May, June and December, and lowest in August with no crashes. Fatal/severe injury crashes are reported in January, May, June, September, and December.

**Figure 154: Pedestrian Crashes by Month and Severity**



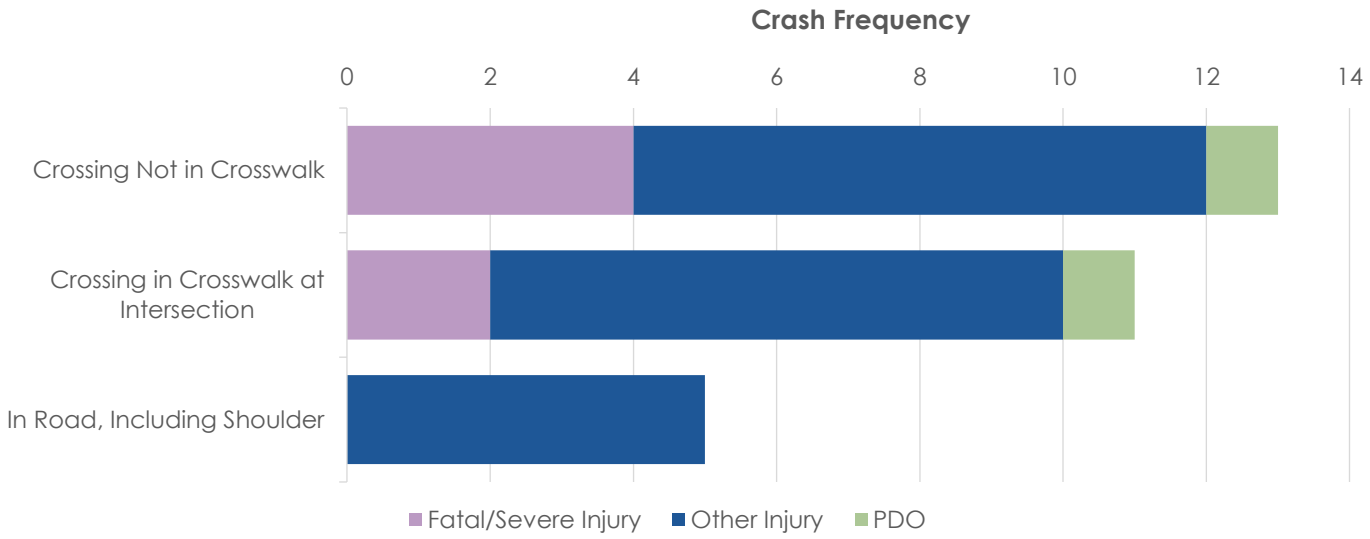

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## PEDESTRIAN ACTION AND LOCATION

For pedestrian crashes, data is recorded according to the reporting officer's best judgment about the pedestrian's action and location preceding the crash.

Figure 155 reports these trends in the City of Selma. All reported fatal and severe injury crashes occurred when a pedestrian was either crossing not in a crosswalk or crossing in a crosswalk at an intersection.

**Figure 155: Pedestrian Crashes by Reported Action/Location and Severity**

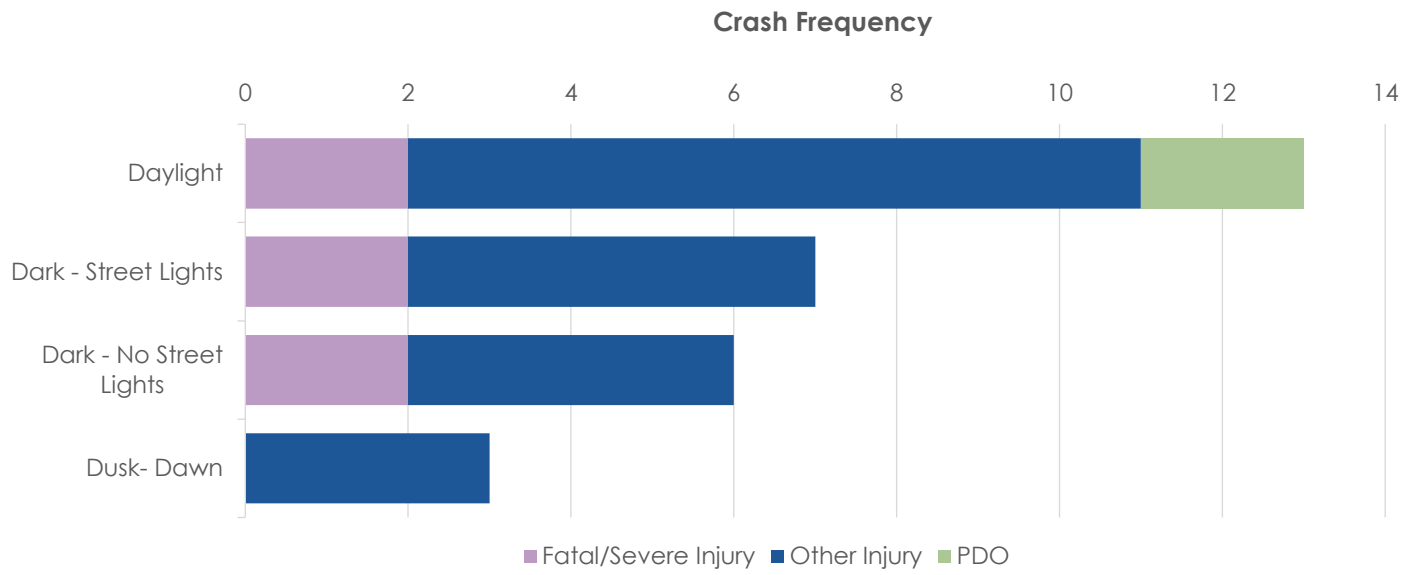



*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

## LIGHTING

Figure 156 shows reported pedestrian crashes by lighting condition. Nearly half (45 percent) of crashes occurred in daylight, while 24 percent occurred in the dark with streetlights, 21 percent occurred in the dark with no streetlights, and 10 percent occurred in dusk-dawn.

**Figure 156: Pedestrian Crashes by Lighting Condition and Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

# Bicyclists

This section focuses exclusively on reported crashes involving bicyclists. Table 74 presents bicyclist-involved crashes organized by severity level. Of the 29 bicyclist crashes in the Selma, 11 percent resulted in fatalities or severe injuries. Most crashes resulted in other injury, and four crashes resulted in property damage only.

**Table 74: Bicycle User Involved Crashes by Severity**

| | Fatal (% of total) | Severe Injury (% of total) | Other Injury (% of total) | Property Damage Only (% of total) | Total (% of total) |
|---|---|---|---|---|---|
| Bicycle Involved | 3 (10%) | 1 (4%) | 21 (72%) | 4 (14%) | 29 (100%) |

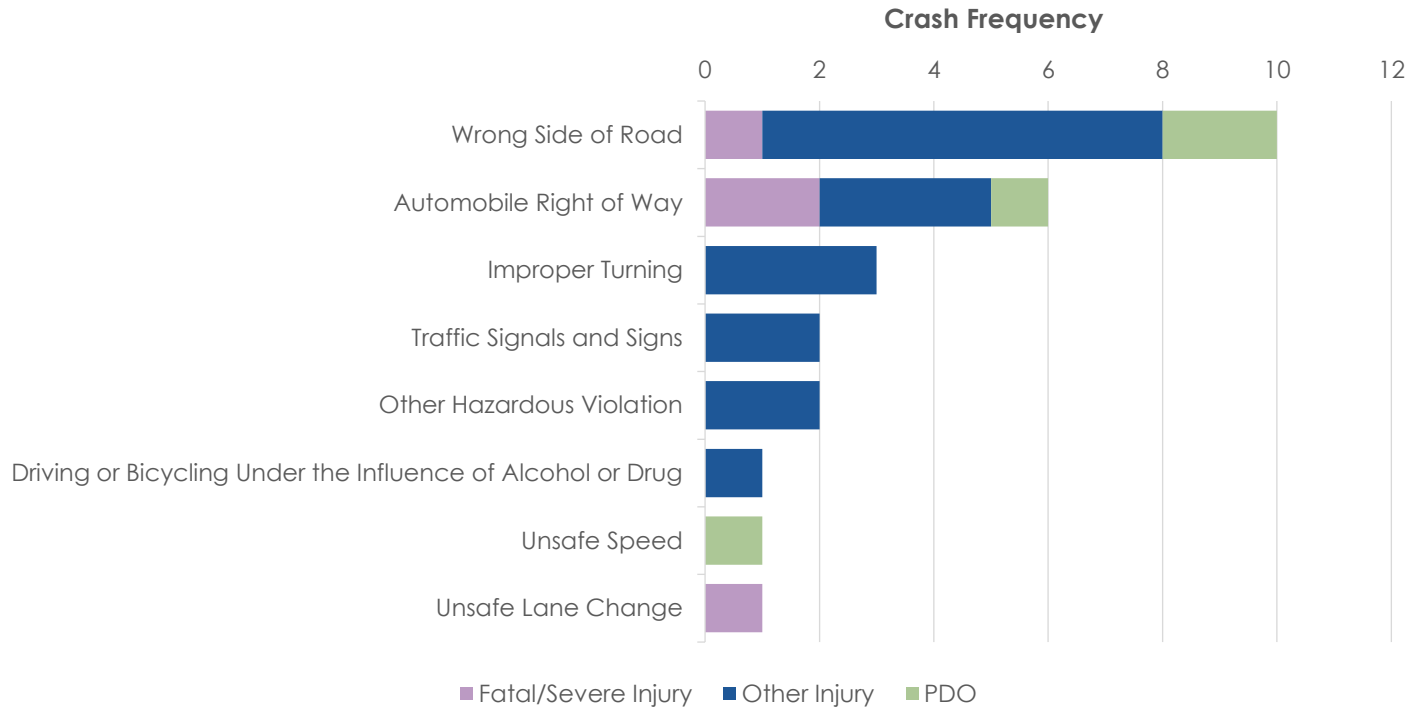
*Source: SWITRS, TIMS, Kittelson, 2021.*

## PRIMARY COLLISION FACTOR

Figure 157 shows bicycle-involved crashes by reported PCF.

- The most frequent PCF is **wrong side of road**[59] at ten crashes followed **by automobile right of way**[60] at six crashes.
- The most severe outcomes occurred with the PCFs **wrong side of road**[59], **automobile right of way**[60], and **unsafe lane change**[61].

**Figure 157: Bicycle Crashes by Primary Collision Factor and Severity**



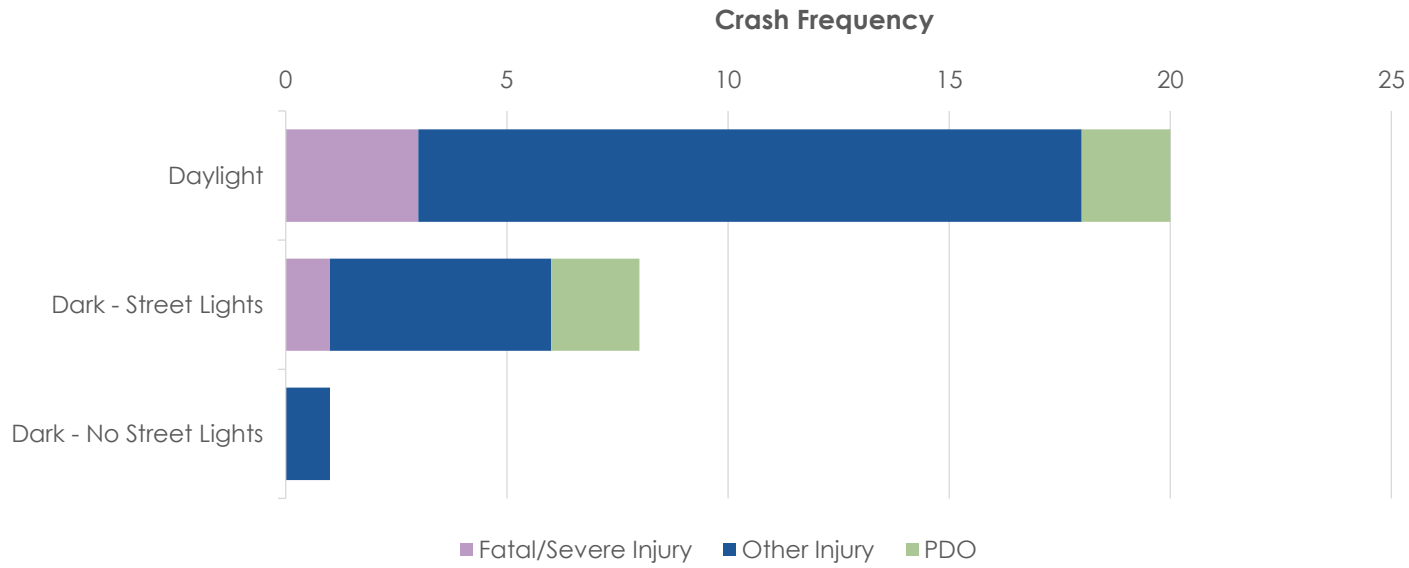

*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

[59] Reported PCF based on CVC violation indicating the driver/rider was on the wrong side of the road.
[60] Reported PCF based on CVC violation indicating a driver turning failed to yield right-of-way to oncoming traffic.
[61] This is a reported PCF that indicated one of several California Vehicle Violation codes indicating driver performed unsafe lane change.

## LIGHTING

Figure 158 shows bicycle crashes by lighting condition. Just over two thirds of crashes occurred in daylight, while about a third occurred in the dark with streetlights. The majority of fatal and severe injury crashes occurred in daylight.

**Figure 158: Bicycle Crashes by Lighting and Severity**




*Source: SWITRS, TIMS, Kittelson, 2021.*
*Note: "Other injury" includes "Other visible injury" and "Complaint of pain" crashes. "PDO" = property damage only.*

# Priority Locations

Kittelson identified priority intersections and segments using the annualized crash severity scores and excess predicted crashes described in the Data Summary and Analysis Approach sections (see the Introduction).

For intersection locations, the crash severity scores ranged from zero (no reported crashes during the five years) to 77.51. Figure 159 shows the results of the crash severity scoring. Figure 160 shows excess predicted crash scores by percentiles for intersection locations. For the half-mile roadway segments, the crash severity scores ranged from zero to 70.02. Crash severity score results for roadway segments are shown in Figure 161. Excess predicted crash score results are shown in Figure 162. Intersections or segments shown as not falling within one of the percentile breaks indicates there were no reported crashes at that location.

Members of the Focus Group for Selma noted that at-grade crossings should also be considered as priority locations for improvement.

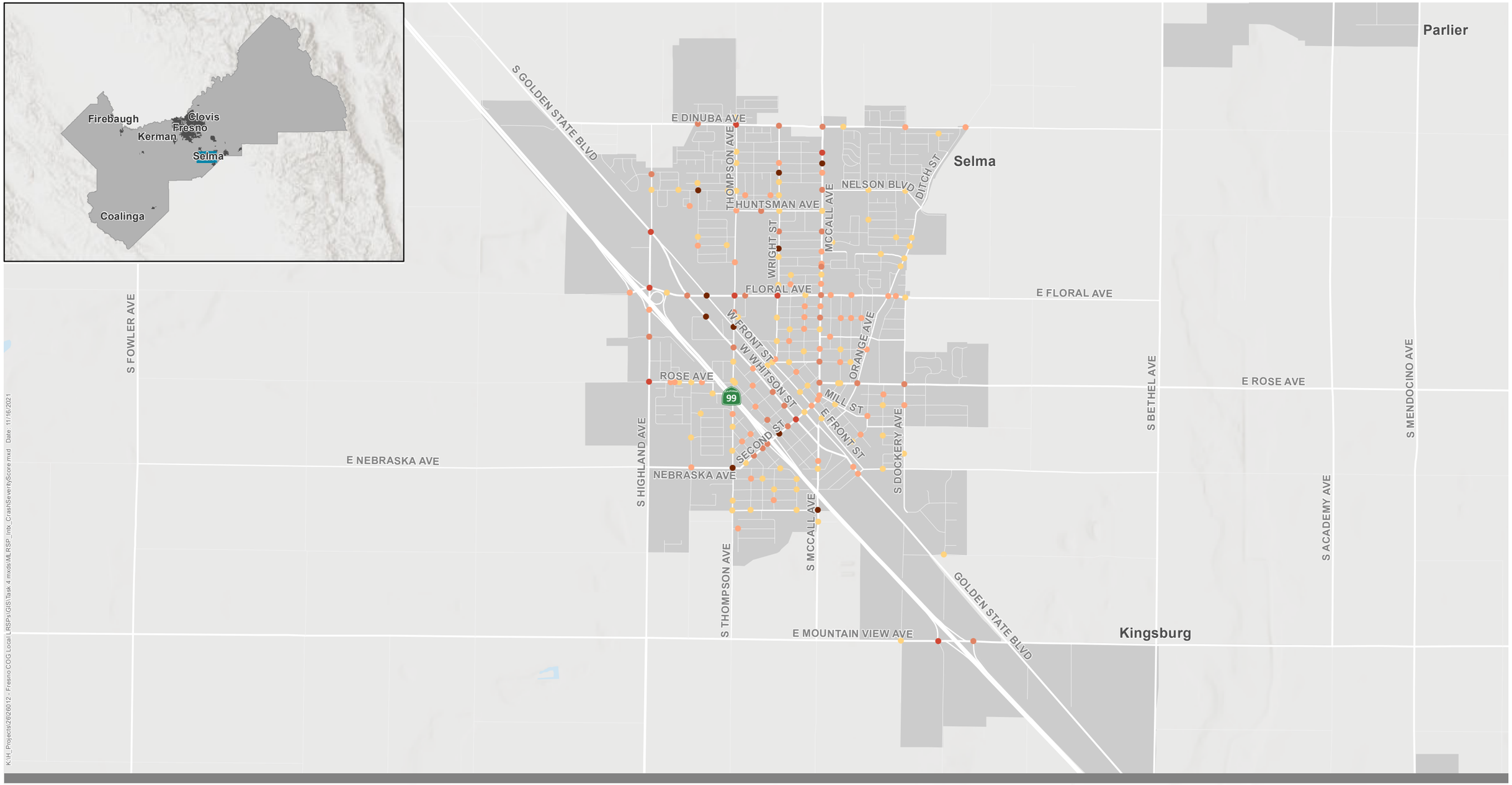
Table 75 presents the top twenty locations with the highest crash severity scores.

**Table 75. Top 20 Locations based on Crash Severity Score**

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Com-plaint of Pain | PDO |
| **1** | MCCALL AVE & GOLDRIDGE ST | Unsignalized | 77.51 | 4 | 0 | 2 | 0 | 1 | 1 |
| **2** | FLORAL AVE FROM WEST OF DE WOLF AVE TO EAST OF LEONARD AVE | Segment | 70.02 | 8 | 2 | 0 | 1 | 1 | 4 |
| **3** | MOUNTAIN VIEW AVE FROM WEST OF MCCALL AVE TO EAST OF MCCALL AVE | Segment | 68.40 | 5 | 1 | 1 | 1 | 0 | 2 |
| **4** | WHITSON ST & GAITHER ST | Unsignalized | 40.88 | 5 | 1 | 0 | 0 | 2 | 2 |
| **5** | SECOND ST & YOUNG ST | Unsignalized | 40.06 | 6 | 0 | 1 | 0 | 1 | 4 |
| **6** | FLORAL AVE & FRONT ST | Unsignalized | 39.86 | 5 | 1 | 0 | 0 | 1 | 3 |
| **7** | THOMPSON AVE & FRONT ST | Unsignalized | 39.46 | 3 | 0 | 1 | 0 | 1 | 1 |
| **8** | MITCHELL AVE & NELSON BLVD | Unsignalized | 38.65 | 4 | 1 | 0 | 0 | 0 | 3 |
| **9** | MCCALL AVE & VALLEY VIEW AVE | Unsignalized | 38.45 | 3 | 0 | 1 | 0 | 0 | 2 |
| **10** | THOMPSON AVE & NEBRASKA AVE | Unsignalized | 38.45 | 3 | 0 | 1 | 0 | 0 | 2 |
| **11** | WRIGHT ST & ASPEN ST | Unsignalized | 38.05 | 1 | 0 | 1 | 0 | 0 | 0 |
| **12** | WRIGHT ST & NORTHHILL ST | Unsignalized | 38.05 | 1 | 0 | 1 | 0 | 0 | 0 |
| **13** | MOUNTAIN VIEW AVE FROM EAST OF MCCALL AVE TO WEST OF STATE ROUTE 99 | Segment | 37.29 | 15 | 1 | 0 | 4 | 1 | 9 |
| **14** | HIGHLAND AVE FROM NEBRASKA AVE TO ROSE AVE | Segment | 36.58 | 7 | 1 | 1 | 0 | 3 | 2 |

| # | Location | Type | Crash Severity Score | Total Number of Crashes | Severity | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | | | | Fatal | Severe Injury | Other Visible Injury | Com-plaint of Pain | PDO |
| **15** | WHITSON ST FROM CINEMA WY TO FRONT ST | Segment | 35.07 | 2 | 1 | 0 | 1 | 0 | 0 |
| **16** | HIGHLAND AVE FROM STATE ROUTE 99 to FRONT ST | Segment | 34.55 | 4 | 1 | 0 | 0 | 1 | 2 |
| **17** | DITCH RD FROM DINUBA AVE TO NORTH OF DINUBA AVE | Segment | 33.53 | 4 | 1 | 0 | 0 | 0 | 3 |
| **18** | WHITSON ST FROM GOLDEN STATE BLVD TO 3RD ST | Segment | 33.13 | 2 | 0 | 1 | 0 | 0 | 1 |
| **19** | WRIGHT ST & FLORAL AVE | Signal | 32.24 | 8 | 1 | 0 | 2 | 3 | 2 |
| **20** | HIGHLAND AVE & FRONT ST & GOLDEN STATE BLVD | Signal | 26.73 | 10 | 1 | 0 | 0 | 1 | 8 |

*Note: PDO = Property Damage Only*




**Crash Severity Score**

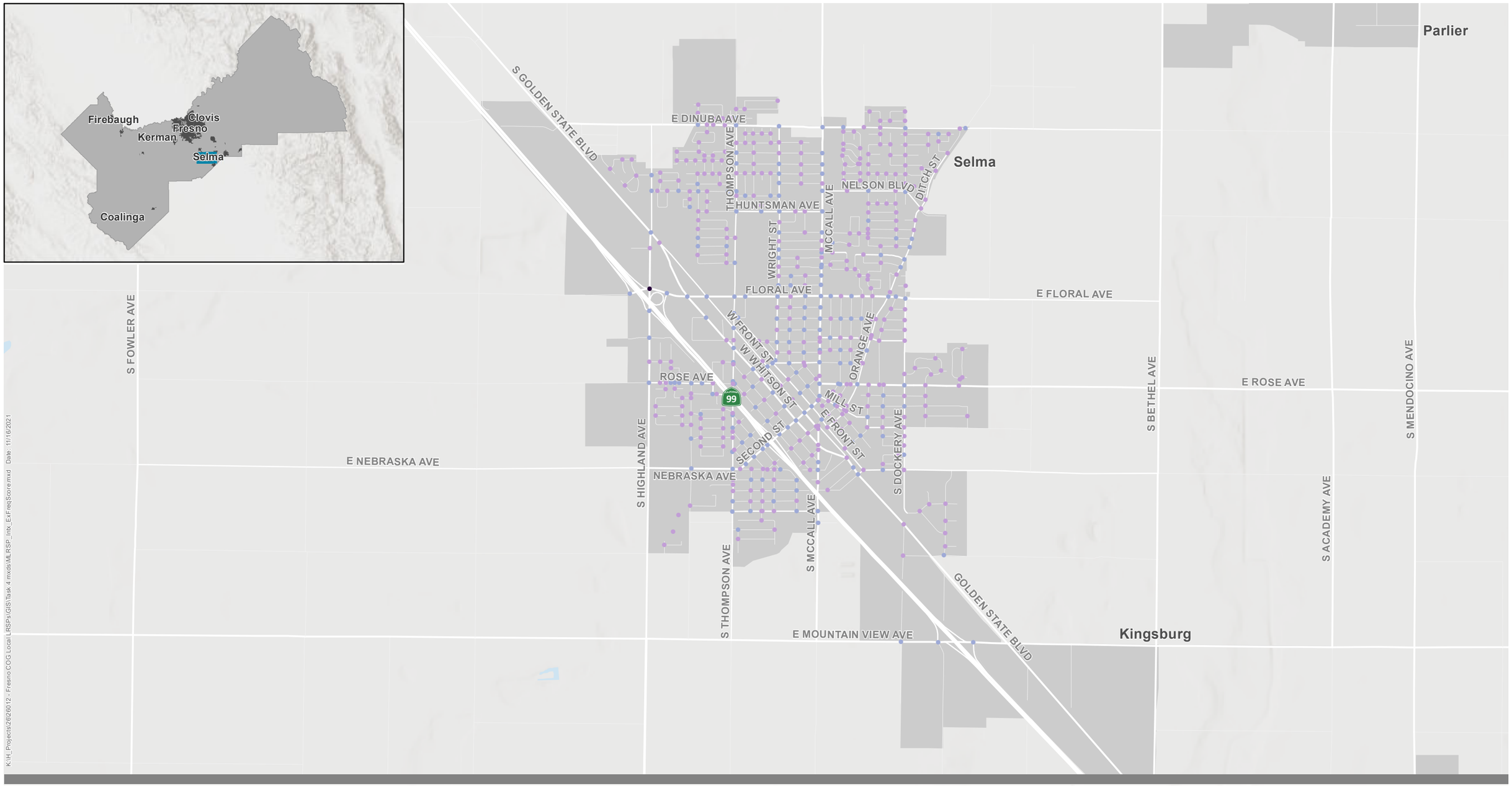
- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.45 Miles

Figure 159

**Intersection Crash Severity Scores**
**Jurisdiction Results: Selma**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




**Excess Expected Frequency**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile

City Limits

County Boundary

0 0.45 Miles

Figure 160

## Excess Predicted Average Crash Frequency Using Method of Moments
## Jurisdiction Results: Selma
## Fresno Council of Governments

KITTELSON & ASSOCIATES


**Crash Severity Scores**

- 95-100th Percentile
- 90-95th Percentile
- 75-90th Percentile
- 50-75th Percentile
- 0-50th Percentile
- City Limits
- County Boundary

0 0.6 Miles

Figure 161

**Roadway Crash Severity Scores**
**Jurisdiction Results: Selma**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

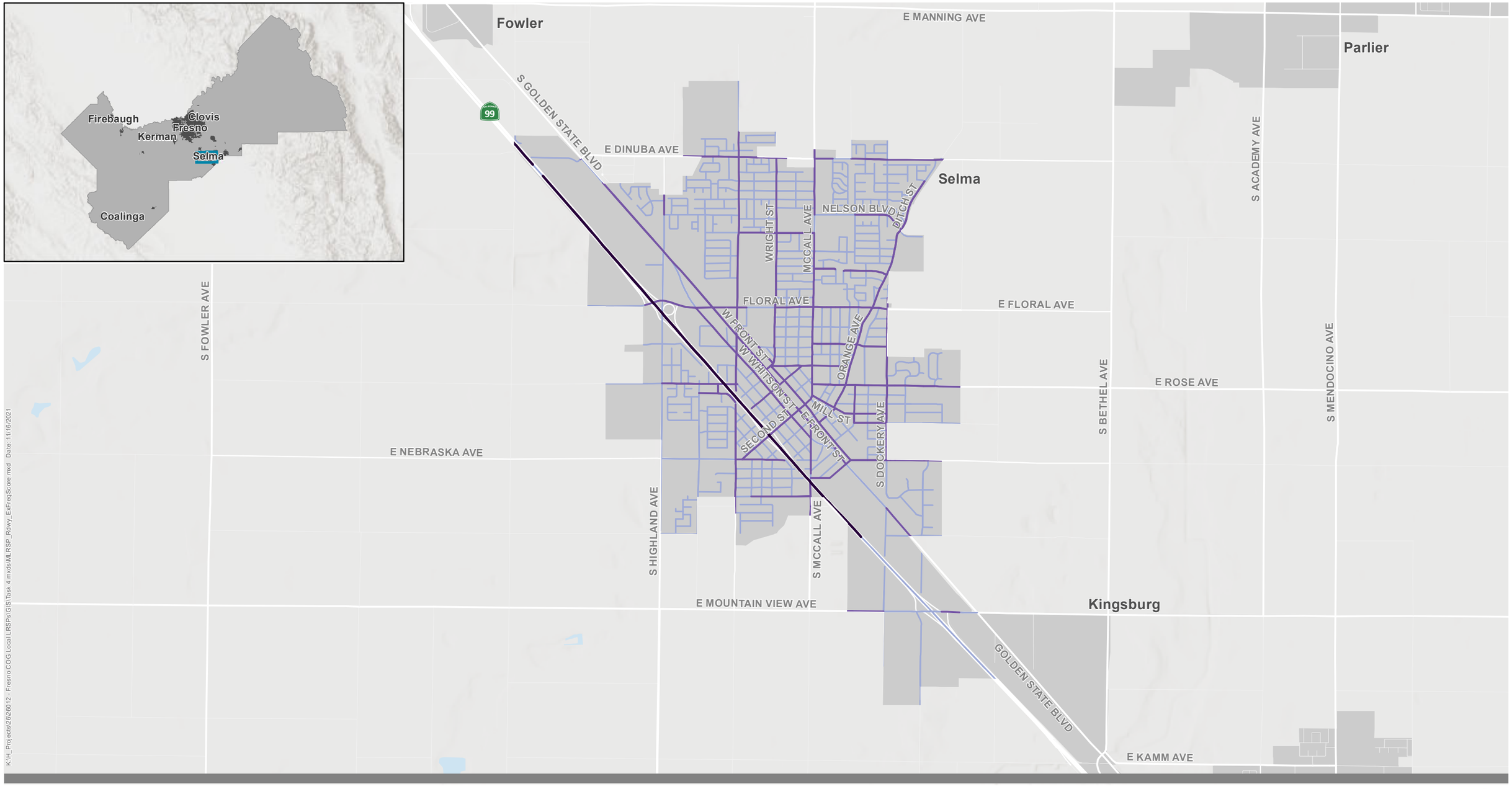



Figure 162

**Roadway Excess Predicted Average Crash Frequency Using Method of Moments**
**Jurisdiction Results: Selma**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES

# EMPHASIS AREAS

Based on key trends in the crash data, emphasis areas for the City of Selma include pedestrian and bicycle crashes, rear end crashes, hit object crashes, and strategies aimed at unsafe speed and driving under the influence. Each of these areas is further discussed below.

## Pedestrian and Bicycle Crashes

Pedestrian and bicycle crashes were identified as a focus area given the overrepresentation of pedestrians and bicyclists in fatal and severe crashes. Of the eleven fatal crashes, three involved a pedestrian and three involved a bicyclist. Of the ten severe injury crashes, three involved a pedestrian and one involved a bicyclist. The most common pedestrian action preceding a crash was crossing the roadway outside a crosswalk, followed by crossing the roadway in a crosswalk. The most frequently cited primary collision factor in bicycle crashes was wrong side of road driving/riding, which could indicate bicyclists riding in the opposite direction from traffic along a shoulder or sidewalk depending on their options for crossing a street to access adjacent land uses. These pedestrian actions and bicyclist behaviors suggest opportunities for improvements to pedestrian and bicycle infrastructure.

Pedestrians and bicyclists are identified as two of the six high priority challenge areas in the California SHSP. These challenge areas "were identified through historical data evaluations and feedback from traffic safety stakeholders across the state" (Caltrans SHSP). The high priorities represent "the greatest opportunity to reduce fatalities and serious injuries across the state" (Caltrans SHSP).

## Rear End Crashes

Rear end crashes were identified as a focus area due to the frequency and severity of these collision types. Rear end crashes are the most common collision type and include two of the eleven fatal crashes and four of the ten severe injury crashes. As discussed below under Engineering Strategies, countermeasures are available targeted at rear end crashes.

## Hit Object Crashes

Hit object crashes were selected as an emphasis area due to their frequency and severity. They are the second most common collision type and comprise three of the eleven fatal crashes. A variety of roadway countermeasures are available targeted at slowing traffic speeds and reducing hit object crashes.

The California SHSP includes lane departures as one of the six high priorities in California. As indicated in the Caltrans SHSP, "the Lane Departures Challenge Area includes head-on, hit object, and overturned crashes. This includes instances where a vehicle runs off the road or crosses into the opposing lane prior to the collision." These crashes are a high priority due to their severity level.

## Driver Behavior

Unsafe speed is the second most frequently reported PCF among all reported crashes and was cited in one fatal crash and one severe injury crash. Driving or bicycling under the influence of alcohol and drugs is the third most common PCF cited in fatal/severe injury crashes. This suggests there are opportunities to address driver behavior through countermeasures that encourage lower speeds and education and enforcement.

The California SHSP also identified speed management/aggressive driving and impaired driving as two of the six high priorities in California, reflecting the potential to reduce fatalities and serious injuries by addressing these challenge areas.

# STRATEGIES

The following subsections present engineering, education, emergency services, and enforcement strategies to help improve roadway safety across the City.

## Engineering Strategies

The top three fatal and severe injury collision types in Selma were **vehicle-pedestrian, rear end,** and **hit object** crashes; the top three fatal and severe injury primary collision factors were **pedestrian violation**, **automobile right of way**, and **driving under the influence**. High priority countermeasures to address these collision types and primary collision factors in Table 76.

**Table 76. High Priority Countermeasures**

| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| **Roadway Countermeasures** | Street Lighting | R1 | Crashes at night |
| | Remove or Relocate Fixed Objects Outside of Clear Recovery Zone | R2 | Hit Object |
| | Install Guardrails | R4 | Hit Object |
| | Road Diet | R14 | Hit Object |
| | Widen Shoulder | R15 | Hit Object |
| | Improve Pavement Friction (High Friction Surface Treatment) | R21 | Rear end, hit object |
| | Install/Upgrade Signs with New Fluorescent Sheeting | R22 | Hit Object |
| | Install Dynamic/Variable Speed Warning Sings | R26 | Hit Object |
| | Install Edgelines and Centerlines | R28 | Hit Object |
| | Install Edgeline Rumble Strips/Stripes | R31 | Hit Object |
| | Install Dynamic Regulatory Speed Warning Signs | | Hit Object |

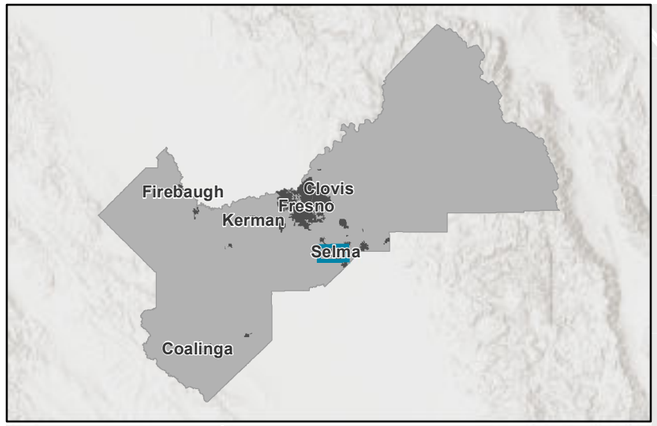
| | Countermeasure Name | ID | Crashes Addressed |
|---|---|---|---|
| **Intersection Countermeasures** | Add Intersection Lighting at Intersections | S1/NS1 | Crashes at night |
| | Improve Signal Hardware: Lenses, Backplates with Retroreflective Border, Mounting Size, Number | S2 | Rear end |
| | Provide Advanced Dilemma-Zone Detection | S4 | Rear end |
| | Install Flashing Beacons as Advance Warning | S10/NS9 | Rear end |
| | No Right-Turn on Red | | Vehicle-pedestrian |
| | Install/Upgrade Stop Signs or Intersection Warning/ Regulatory Signs | NS6 | All |
| | Upgrade Intersection Pavement Markings | NS7 | All |
| | Install Splitter Islands for Minor Street Approaches | NS13 | Rear end |
| **Pedestrian/Bicycle Countermeasures** | Install Bike Lanes | R32PB | Overrepresented bicycle collision*crashes* |
| | Install Sidewalk/Pathway | R34PB | Vehicle-pedestrian |
| | Install/Upgrade Pedestrian Crossing with Enhanced Features | R35PB | Vehicle-pedestrian |
| | Install Raised Medians (or Refuge Islands) | NS19PB | Vehicle-pedestrian |
| | Install/Upgrade Pedestrian Crossing at Uncontrolled Locations (with Enhanced Safety Features) | NS21PB | Vehicle-pedestrian |
| | Bike Lane Extension Through Intersections | | Overrepresented bicycle crashes |
| | Bike Boxes | | Overrepresented bicycle crashes |

*Note: The ID number references the Caltrans Manual Local Road Safety*

*Appendix B* contains the regional Countermeasures Toolbox which includes more detailed information regarding the countermeasures listed above.

The following figures and tables provide data on collision types and factors for the intersections and roadways with the highest crash scores. The locations with the highest crash scores may be top priorities for implementing countermeasures and pursuing grants. Selma can use the information about collision type and factors to identify potential countermeasures to apply, using the information in Table 76.

Figure 163 and Figure 164 present the top priority intersections and breakdown of the top collision types and primary collision factors, respectively. Figure 165 and Figure 166 present the top priority roadways and breakdown of the top collision types and primary collision factors, respectively.




S GOLDEN STATE BLVD
E DINUBA AVE
THOMPSON AVE
Selma
NELSON BLVD
DITCH ST
HUNTSMAN AVE
MCCALL AVE
WRIGHT ST
FLORAL AVE
E FLORAL AVE
W FRONT ST
W WHITSON ST
ORANGE AVE
ROSE AVE
99
MILL ST
E FRONT ST
SECOND ST
S DOCKERY AVE
S BETHEL AVE
E ROSE AVE
Parlier
S MENDOCINO AVE
S FOWLER AVE
E NEBRASKA AVE
NEBRASKA AVE
S HIGHLAND AVE
S THOMPSON AVE
S MCCALL AVE
S ACADEMY AVE
GOLDEN STATE BLVD
E MOUNTAIN VIEW AVE
Kingsburg

K:\H_Projects\26\26012 - Fresno COG Local LRSPs\GIS\Task 4 mxds\Selma\intx_CrashType_Selma.mxd Date: 11/16/2021

**Collision Type**

- Vehicle/Pedestrian
- Rear End
- Hit Object

City Limits

County Boundary

0 0.45 Miles

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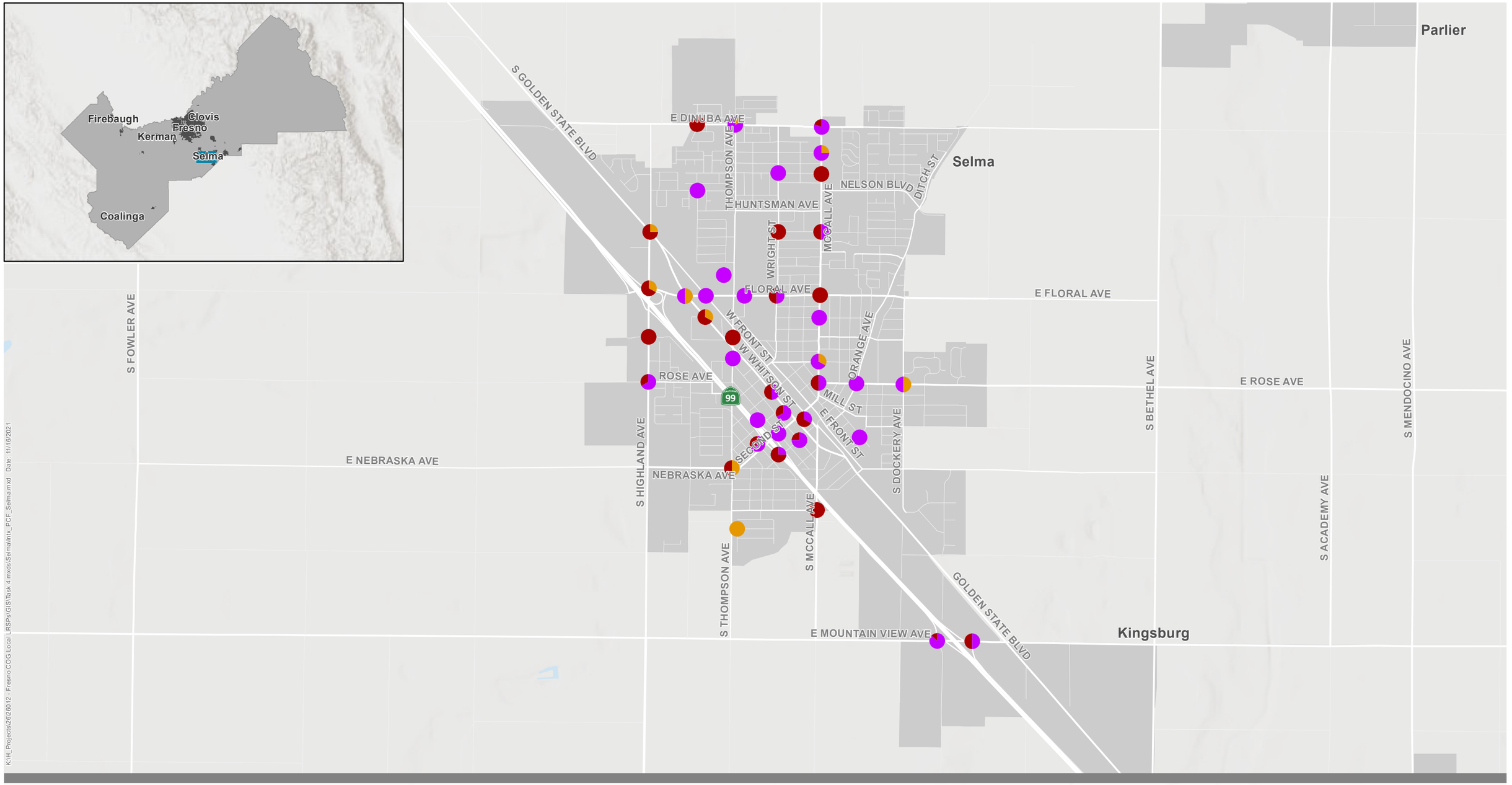
Figure 163

**Top Fatal/Severe Injury Intersection Collision Type**
**Jurisdiction Results: Selma**
**Fresno Council of Governments**




**Primary Collision Factors**

- Pedestrian Violation
- Automobile Right of Way
- Driving Under the Influence

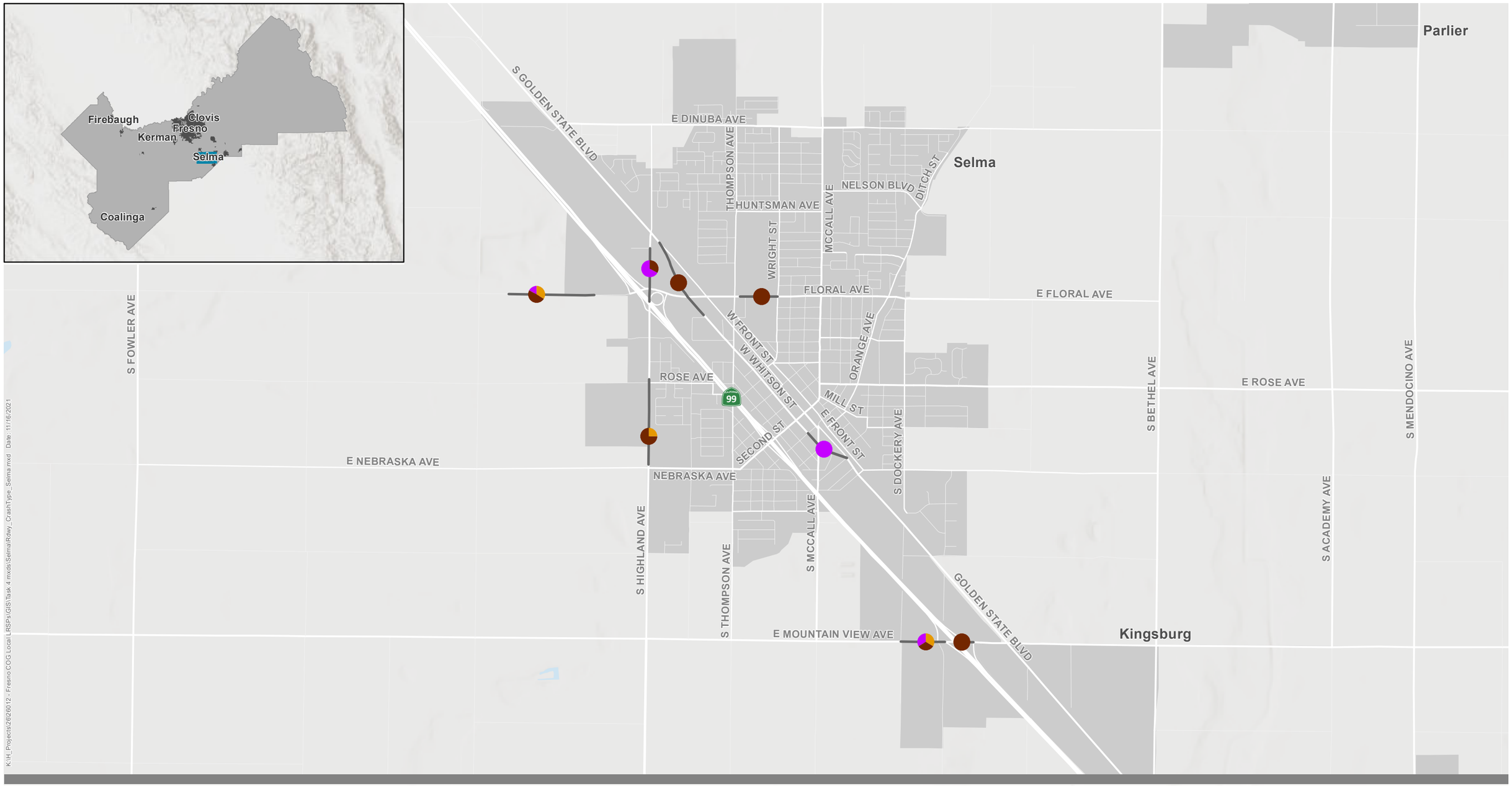
- City Limits
- County Boundary

0 0.45 Miles

Figure 164

**Top Fatal/Severe Injury Intersection Primary Collision Factors**
**Jurisdiction Results: Selma**
**Fresno Council of Governments**

KITTELSON & ASSOCIATES




## Collision Type

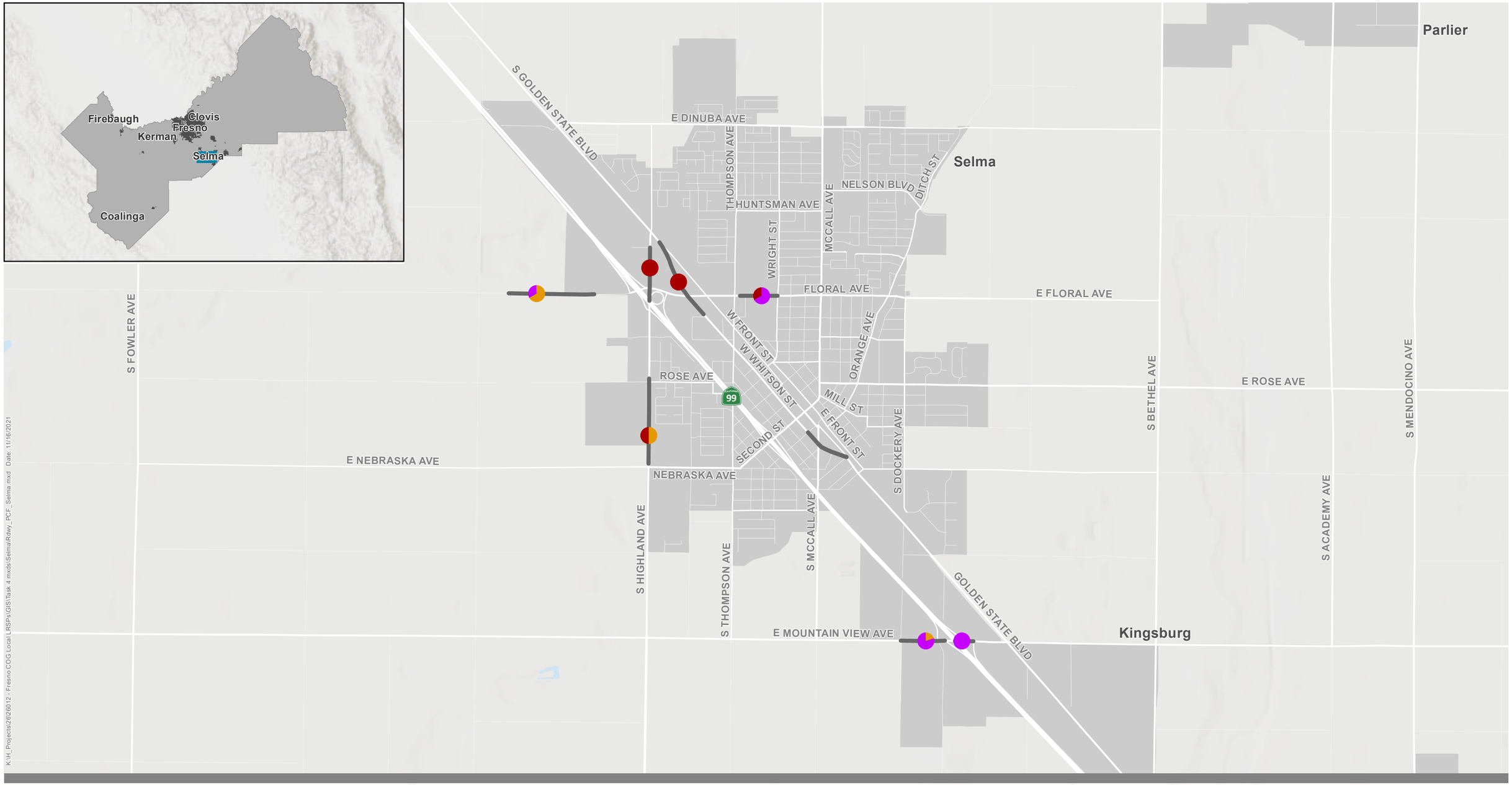
- Vehicle/Pedestrian
- Rear End
- Hit Object
- Priority Roadways
- City Limits
- County Boundary

0 0.45 Miles

KITTELSON & ASSOCIATES

Figure 165

**Top Fatal/Severe Injury Roadway Collision Type**
**Jurisdiction Results: Selma**
**Fresno Council of Governments**




**Primary Collision Factors**

- Pedestrian Violation
- Automobile Right of Way
- Driving Under the Influence

- Priority Roadways
- City Limits
- County Boundary

0 0.45 Miles

Figure 166

## Top Fatal/Severe Injury Roadway Primary Collision Factors
## Jurisdiction Results: Selma
## Fresno Council of Governments

KITTELSON & ASSOCIATES

Table 77 and Table 78 provide information for the top fifty intersection locations (based on crash severity score), including control type (signalized or unsignalized), crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 77. Priority Intersections with Collision Type based on Top 3 Fatal/Severe Injury Collision Types**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle/ Ped | Rear End | Hit Object | Other |
| 1 | MCCALL AVE & GOLDRIDGE ST | Unsignalized | 77.51 | 4 | 0 | 3 | 1 | 0 |
| 2 | WHITSON ST & GAITHER ST | Unsignalized | 40.88 | 5 | 2 | 0 | 1 | 2 |
| 3 | SECOND ST & YOUNG ST | Unsignalized | 40.06 | 6 | 0 | 6 | 0 | 0 |
| 4 | FLORAL AVE & FRONT ST | Unsignalized | 39.86 | 5 | 0 | 2 | 2 | 1 |
| 5 | THOMPSON AVE & FRONT ST | Unsignalized | 39.46 | 3 | 0 | 1 | 0 | 2 |
| 6 | MITCHELL AVE & NELSON BLVD | Unsignalized | 38.65 | 4 | 0 | 1 | 1 | 2 |
| 7 | MCCALL AVE & VALLEY VIEW AVE | Unsignalized | 38.45 | 3 | 0 | 0 | 1 | 2 |
| 8 | THOMPSON AVE & NEBRASKA AVE | Unsignalized | 38.45 | 3 | 1 | 1 | 0 | 1 |
| 9 | WRIGHT ST & ASPEN ST | Unsignalized | 38.05 | 1 | 1 | 0 | 0 | 0 |
| 10 | WRIGHT ST & NORTHHILL ST | Unsignalized | 38.05 | 1 | 0 | 1 | 0 | 0 |
| 11 | WRIGHT ST & FLORAL AVE | Signal | 32.24 | 8 | 0 | 3 | 1 | 4 |
| 12 | HIGHLAND AVE & FRONT ST & GOLDEN STATE BLVD | Signal | 26.73 | 10 | 1 | 0 | 5 | 4 |
| 13 | THOMPSON AVE & FLORAL AVE | Signal | 11.98 | 10 | 1 | 5 | 1 | 3 |
| 14 | FLORAL AVE & HIGHLAND AVE | Signal | 11.13 | 21 | 1 | 10 | 0 | 10 |
| 15 | THOMPSON AVE & DINUBA AVE | Signal | 10.47 | 8 | 2 | 3 | 0 | 3 |
| 16 | MOUNTAIN VIEW AVE & VAN HORN AVE & CA-99 SB OFFRAMP OFF | Unsignalized | 10.41 | 22 | 0 | 9 | 0 | 13 |
| 17 | MCCALL AVE & HICKS ST | Unsignalized | 10.07 | 6 | 2 | 3 | 0 | 1 |
| 18 | SECOND ST & WHITSON ST | Signal | 7.08 | 10 | 0 | 3 | 4 | 3 |
| 19 | HIGHLAND AVE & ROSE AVE | Unsignalized | 7.02 | 6 | 0 | 5 | 1 | 0 |
| 20 | MCCALL AVE & NELSON BLVD | Unsignalized | 6.71 | 4 | 0 | 3 | 0 | 1 |
| 21 | MCCALL AVE & DINUBA AVE | Unsignalized | 6.57 | 13 | 0 | 3 | 3 | 7 |
| 22 | SECOND ST & BAUDER ST | Unsignalized | 6.39 | 7 | 1 | 1 | 2 | 3 |
| 23 | DOCKERY AVE & ROSE AVE | Unsignalized | 5.99 | 5 | 1 | 2 | 1 | 1 |
| 24 | ORANGE AVE & ROSE AVE | Unsignalized | 5.79 | 4 | 0 | 3 | 0 | 1 |
| 25 | SECOND ST & CA-99 SB ONRAMP ON & CA-99 SB OFFRAMP OFF | Unsignalized | 5.77 | 9 | 1 | 2 | 2 | 4 |
| 26 | WHITSON ST & FLORAL AVE | Signal | 5.07 | 5 | 1 | 2 | 1 | 1 |
| 27 | GAITHER ST & MCCALL AVE | Unsignalized | 4.77 | 4 | 0 | 3 | 0 | 1 |
| 28 | ARRANTS ST & MCCALL AVE | Signal | 4.36 | 7 | 1 | 1 | 2 | 3 |
| 29 | FLORAL AVE & MCCALL AVE | Signal | 4.23 | 11 | 0 | 6 | 3 | 2 |
| 30 | CA-99 NB OFFRAMP OFF & MOUNTAIN VIEW AVE | Unsignalized | 3.96 | 5 | 0 | 1 | 2 | 2 |

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle/ Ped | Rear End | Hit Object | Other |
| **31** | SECOND ST & SYLVIA ST | Unsignalized | 3.85 | 4 | 0 | 3 | 0 | 1 |
| **32** | MCCALL AVE & BARBARA ST | Signal | 3.85 | 4 | 1 | 2 | 0 | 1 |
| **33** | WRIGHT ST & DINUBA AVE | Unsignalized | 3.76 | 4 | 0 | 1 | 2 | 1 |
| **34** | SECOND ST & WILSON ST | Unsignalized | 3.56 | 3 | 0 | 0 | 1 | 2 |
| **35** | MCCALL AVE & ALTON ST | Unsignalized | 3.56 | 3 | 0 | 2 | 0 | 1 |
| **36** | THOMPSON AVE & CHANDLER ST | Unsignalized | 3.36 | 2 | 0 | 0 | 0 | 2 |
| **37** | HIGHLAND AVE & NORTHHILL ST | Unsignalized | 3.36 | 2 | 0 | 1 | 1 | 0 |
| **38** | THOMPSON AVE & WHITSON ST | Signal | 3.23 | 6 | 1 | 3 | 0 | 2 |
| **39** | HIGHLAND AVE & STILLMAN ST & PEA SOUP ANDERSEN BLVD | Signal | 3.23 | 6 | 0 | 3 | 1 | 2 |
| **40** | FIRST ST & WHITSON ST | Unsignalized | 3.03 | 5 | 0 | 3 | 0 | 2 |
| **41** | MCCALL AVE & ROSE AVE & GRANT ST | Signal | 3.03 | 5 | 0 | 3 | 0 | 2 |
| **42** | NORTH ST & WHITSON ST | Unsignalized | 2.83 | 4 | 0 | 1 | 1 | 2 |
| **43** | FLORAL AVE & WILLOW AVE | Unsignalized | 2.83 | 4 | 0 | 3 | 0 | 1 |
| **44** | WRIGHT ST & BARBARA ST | Unsignalized | 2.74 | 4 | 0 | 1 | 2 | 1 |
| **45** | FIRST ST & YOUNG ST | Unsignalized | 2.54 | 3 | 0 | 1 | 0 | 2 |
| **46** | HUNTSMAN AVE & GAYNOR ST | Unsignalized | 2.34 | 2 | 0 | 0 | 2 | 0 |
| **47** | DINUBA AVE & MITCHELL AVE | Unsignalized | 2.34 | 2 | 0 | 0 | 1 | 1 |
| **48** | MAGNOLIA ST & SAN CARLOS ST | Unsignalized | 2.14 | 1 | 1 | 0 | 0 | 0 |
| **49** | LOCUST ST & GROVE ST & CENTER ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |
| **50** | LOCUST ST & MILL ST | Unsignalized | 2.14 | 1 | 0 | 1 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 78. Priority Intersections with Primary Collision Factor based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ped Violation | Auto Right of Way | DUI | Other |
| **1** | MCCALL AVE & GOLDRIDGE ST | Unsignalized | 77.51 | 4 | 0 | 0 | 1 | 3 |
| **2** | WHITSON ST & GAITHER ST | Unsignalized | 40.88 | 5 | 1 | 0 | 2 | 2 |
| **3** | SECOND ST & YOUNG ST | Unsignalized | 40.06 | 6 | 0 | 3 | 0 | 3 |
| **4** | FLORAL AVE & FRONT ST | Unsignalized | 39.86 | 5 | 0 | 2 | 0 | 3 |
| **5** | THOMPSON AVE & FRONT ST | Unsignalized | 39.46 | 3 | 0 | 0 | 1 | 2 |
| **6** | MITCHELL AVE & NELSON BLVD | Unsignalized | 38.65 | 4 | 0 | 1 | 0 | 3 |
| **7** | MCCALL AVE & VALLEY VIEW AVE | Unsignalized | 38.45 | 3 | 0 | 0 | 1 | 2 |
| **8** | THOMPSON AVE & NEBRASKA AVE | Unsignalized | 38.45 | 3 | 1 | 0 | 1 | 1 |
| **9** | WRIGHT ST & ASPEN ST | Unsignalized | 38.05 | 1 | 0 | 0 | 0 | 1 |
| **10** | WRIGHT ST & NORTHHILL ST | Unsignalized | 38.05 | 1 | 0 | 1 | 0 | 0 |

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ped Violation | Auto Right of Way | DUI | Other |
| **11** | WRIGHT ST & FLORAL AVE | Signal | 32.24 | 8 | 0 | 1 | 1 | 6 |
| **12** | HIGHLAND AVE & FRONT ST & GOLDEN STATE BLVD | Signal | 26.73 | 10 | 1 | 0 | 3 | 6 |
| **13** | THOMPSON AVE & FLORAL AVE | Signal | 11.98 | 10 | 0 | 3 | 0 | 7 |
| **14** | FLORAL AVE & HIGHLAND AVE | Signal | 11.13 | 21 | 1 | 0 | 2 | 18 |
| **15** | THOMPSON AVE & DINUBA AVE | Signal | 10.47 | 8 | 1 | 5 | 0 | 2 |
| **16** | MOUNTAIN VIEW AVE & VAN HORN AVE & CA-99 SB OFFRAMP OFF | Unsignalized | 10.41 | 22 | 0 | 7 | 1 | 14 |
| **17** | MCCALL AVE & HICKS ST | Unsignalized | 10.07 | 6 | 1 | 3 | 0 | 2 |
| **18** | SECOND ST & WHITSON ST | Signal | 7.08 | 10 | 0 | 1 | 2 | 7 |
| **19** | HIGHLAND AVE & ROSE AVE | Unsignalized | 7.02 | 6 | 0 | 2 | 1 | 3 |
| **20** | MCCALL AVE & NELSON BLVD | Unsignalized | 6.71 | 4 | 0 | 0 | 0 | 4 |
| **21** | MCCALL AVE & DINUBA AVE | Unsignalized | 6.57 | 13 | 0 | 4 | 1 | 8 |
| **22** | SECOND ST & BAUDER ST | Unsignalized | 6.39 | 7 | 0 | 1 | 3 | 3 |
| **23** | DOCKERY AVE & ROSE AVE | Unsignalized | 5.99 | 5 | 1 | 1 | 0 | 3 |
| **24** | ORANGE AVE & ROSE AVE | Unsignalized | 5.79 | 4 | 0 | 3 | 0 | 1 |
| **25** | SECOND ST & CA-99 SB ONRAMP ON & CA-99 SB OFFRAMP OFF | Unsignalized | 5.77 | 9 | 0 | 2 | 1 | 6 |
| **26** | WHITSON ST & FLORAL AVE | Signal | 5.07 | 5 | 1 | 1 | 0 | 3 |
| **27** | GAITHER ST & MCCALL AVE | Unsignalized | 4.77 | 4 | 0 | 1 | 0 | 3 |
| **28** | ARRANTS ST & MCCALL AVE | Signal | 4.36 | 7 | 1 | 2 | 0 | 4 |
| **29** | FLORAL AVE & MCCALL AVE | Signal | 4.23 | 11 | 0 | 0 | 1 | 10 |
| **30** | CA-99 NB OFFRAMP OFF & MOUNTAIN VIEW AVE | Unsignalized | 3.96 | 5 | 0 | 1 | 1 | 3 |
| **31** | SECOND ST & SYLVIA ST | Unsignalized | 3.85 | 4 | 0 | 3 | 1 | 0 |
| **32** | MCCALL AVE & BARBARA ST | Signal | 3.85 | 4 | 0 | 1 | 1 | 2 |
| **33** | WRIGHT ST & DINUBA AVE | Unsignalized | 3.76 | 4 | 0 | 0 | 0 | 4 |
| **34** | SECOND ST & WILSON ST | Unsignalized | 3.56 | 3 | 0 | 0 | 0 | 3 |
| **35** | MCCALL AVE & ALTON ST | Unsignalized | 3.56 | 3 | 0 | 0 | 0 | 3 |
| **36** | THOMPSON AVE & CHANDLER ST | Unsignalized | 3.36 | 2 | 0 | 0 | 0 | 2 |
| **37** | HIGHLAND AVE & NORTHHILL ST | Unsignalized | 3.36 | 2 | 0 | 0 | 0 | 2 |
| **38** | THOMPSON AVE & WHITSON ST | Signal | 3.23 | 6 | 0 | 1 | 0 | 5 |
| **39** | HIGHLAND AVE & STILLMAN ST & PEA SOUP ANDERSEN BLVD | Signal | 3.23 | 6 | 0 | 0 | 1 | 5 |
| **40** | FIRST ST & WHITSON ST | Unsignalized | 3.03 | 5 | 0 | 2 | 1 | 2 |
| **41** | MCCALL AVE & ROSE AVE & GRANT ST | Signal | 3.03 | 5 | 0 | 1 | 1 | 3 |
| **42** | NORTH ST & WHITSON ST | Unsignalized | 2.83 | 4 | 0 | 1 | 1 | 2 |
| **43** | FLORAL AVE & WILLOW AVE | Unsignalized | 2.83 | 4 | 0 | 1 | 0 | 3 |
| **44** | WRIGHT ST & BARBARA ST | Unsignalized | 2.74 | 4 | 0 | 0 | 1 | 3 |

| # | Location | Control Type | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ped Violation | Auto Right of Way | DUI | Other |
| **45** | FIRST ST & YOUNG ST | Unsignalized | 2.54 | 3 | 0 | 1 | 0 | 2 |
| **46** | HUNTSMAN AVE & GAYNOR ST | Unsignalized | 2.34 | 2 | 0 | 0 | 0 | 2 |
| **47** | DINUBA AVE & MITCHELL AVE | Unsignalized | 2.34 | 2 | 0 | 0 | 2 | 0 |
| **48** | MAGNOLIA ST & SAN CARLOS ST | Unsignalized | 2.14 | 1 | 1 | 0 | 0 | 0 |
| **49** | LOCUST ST & GROVE ST & CENTER ST | Unsignalized | 2.14 | 1 | 0 | 1 | 0 | 0 |
| **50** | LOCUST ST & MILL ST | Unsignalized | 2.14 | 1 | 0 | 0 | 0 | 1 |

*Notes: Other crashes include all crashes that are not coded as one of the top three primary collision factors*
*DUI = Driving Under the Influence*

Table 79 and Table 80 provide information for the top eight roadway segments (based on crash severity score), including roadway classification, crash severity score, and total number of crashes by collision type or primary collision factor.

**Table 79. Priority Roadways Segments with Collision Type based on Top 3 Fatal/Severe Injury Collision Types**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Collision Type | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Vehicle/ Ped | Rear End | Hit Object | Other |
| **1** | E Floral Ave (east of S De Wolf Ave to west of SR 99) | Local | 70.02 | 8 | 2 | 3 | 1 | 2 |
| **2** | E Mountain View Ave (S Dockery Ave to SR 99 SB on ramp) | Arterial/Collector | 37.29 | 8 | 1 | 1 | 1 | 5 |
| **3** | S Highland Dr (Rose Ave to Nebraska Ave) | Arterial/Collector | 36.58 | 4 | 1 | 3 | 0 | 0 |
| **4** | Whitson St (W Front Rd to north of Gaither St) | Arterial/Collector | 35.07 | 2 | 0 | 1 | 0 | 1 |
| **5** | S Highland Ave (Art Gonzales Pkwy to SR 99 NB on ramp) | Arterial/Collector | 34.55 | 7 | 0 | 2 | 4 | 1 |
| **6** | W Whitson St (3rd St to W Front St) | Arterial/Collector | 33.13 | 2 | 0 | 0 | 1 | 1 |
| **7** | E Mountain View Ave (SR 99 to SR 99 NB off ramp) | Arterial/Collector | 11.58 | 14 | 0 | 14 | 0 | 0 |
| **8** | Floral Ave (west of Willow Ave to Wright St) | Arterial/Collector | 6.71 | 4 | 0 | 4 | 0 | 0 |

*Note: Other crashes include all crashes that are not coded as one of the top three collision types*

**Table 80. Priority Roadways Segments with Primary Collision Factors based on Top 3 Fatal/Severe Injury Primary Collision Factors**

| # | Location | Classification | Crash Severity Score | Total Number of Crashes | Primary Collision Factor | | | |
|---|---|---|---|---|---|---|---|---|
| | | | | | Ped Violation | Auto Right of Way | DUI | Other |
| 1 | E Floral Ave (east of S De Wolf Ave to west of SR 99) | Local | 70.02 | 8 | 2 | 1 | 0 | 5 |
| 2 | E Mountain View Ave (S Dockery Ave to SR 99 SB on ramp) | Arterial/Collector | 37.29 | 8 | 1 | 4 | 0 | 3 |
| 3 | S Highland Dr (Rose Ave to Nebraska Ave) | Arterial/Collector | 36.58 | 4 | 1 | 0 | 1 | 2 |
| 4 | Whitson St (W Front Rd to north of Gaither St) | Arterial/Collector | 35.07 | 2 | 0 | 0 | 1 | 1 |
| 5 | S Highland Ave (Art Gonzales Pkwy to SR 99 NB on ramp) | Arterial/Collector | 34.55 | 4 | 0 | 0 | 2 | 2 |
| 6 | W Whitson St (3rd St to W Front St) | Arterial/Collector | 33.13 | 2 | 0 | 0 | 0 | 2 |
| 7 | E Mountain View Ave (SR 99 to SR 99 NB off ramp) | Arterial/Collector | 11.58 | 14 | 0 | 7 | 0 | 7 |
| 8 | Floral Ave (west of Willow Ave to Wright St) | Arterial/Collector | 6.71 | 4 | 0 | 2 | 1 | 1 |

*Notes: Other crashes include all crashes that are not coded as one of the top three primary collision factors*
*DUI = Driving Under the Influence*

## Education Strategies

Education strategies for Selma are targeted at unsafe speed and driving or bicycling under the influence of drugs or alcohol, given the prevalence of these primary collision factors in fatal/severe crashes. In addition, pedestrian and bicycle crashes were identified as a focus area given the overrepresentation of pedestrians and bicyclists in fatal and severe crashes.

The Safe Roads Save Lives campaign is a marketing effort led by the Fresno COG, with the goals of:

- Educate all road users on safe transportation behaviors
- Increase safety for people walking and biking
- Highlight behaviors that cause the most crashes in Fresno County—speeding and distracted driving

SAFE ROADS SAVE LIVES

The campaign Includes branding, social media strategies, print materials, radio and video resources, school resources, and a campaign website. Unincorporated Fresno County may find these materials helpful, especially those related to speeding, watching out for pedestrians, and not using the roadway under the influence of drugs or alcohol.

The following activities are recommended for Selma as they move forward on implementing the Safe Roads Save Lives campaign:

- Identify staff appropriate to attend a presentation by Fresno COG staff about the Safe Roads Save Lives campaign. Appropriate staff members include staff associated with transportation engineering and planning, communications, traffic enforcement, school transportation, and other jurisdictional staff who work with the roadway system.
- Work with school districts to distribute print materials and offer school-related transportation resources. Ensure that school communications are in both English and Spanish.
- Work with public information or communications staff to spread Safe Roads Save Lives materials throughout Selma through the following channels:
    - Repost and link to Fresno COG posts that refer to the Safe Roads Save Lives campaign.
    - Have print materials (flyers, bumper stickers, pins, and postcards) available at events and community festivals.
    - Post materials at governmental buildings such as City Hall, libraries, DMVs, and other facilities that the public regularly uses.
    - Work with the Fresno COG to identify a radio station to air a Safe Roads Save Lives radio public service announcement (PSA).
    - Have a direct link to Safe Roads Save Lives campaign website on the City's website.

## Emergency Services

Emergency service organizations depend on safe roadways and efficient communication processes to reach and effectively respond to emergencies. Each type of emergency services organization that serves Selma – law enforcement, fire, emergency medical services (EMS), California Highway Patrol – work independently and collaboratively to develop procedures that allow them to respond to incidents in their own jurisdictions as well as support others as needed. The following recommendations may help improve emergency services response as the various organizations update procedures and policies and continue to partner on roadway safety efforts:

- All roadway safety projects should be vetted by emergency service organizations to ensure that their design does not hamper access.
- As new emergency service and response procedures are developed, roadway safety improvement opportunities should be identified and implications of changes to response times should be considered.
- Selma staff should participate in periodic coordination calls between emergency response agencies to gather and share recent observations about crashes and hot spots, to understand emergent safety issues that may not have led to policy reports or yet be available through statewide crash reporting systems.

# Enforcement

Enforcement strategies can include programs or campaigns specifically focused on changing road user behavior through more visible and active enforcement of existing traffic laws, as well as focusing enforcement in areas that have historically been shown to have higher-than-average crash rates. Typically, the effectiveness of enforcement strategies is temporal, meaning they are effective at changing behavior for a discrete period of time – during and shortly after the increased enforcement activities.

- The following enforcement strategies should be considered for Selma:
- Schedule heightened speed (or other behavior) enforcement checks during strategic times of the year, such as when students return to school or the beginning of fog season.
- Focus speed enforcement efforts in locations with high crash rates.
- Use automatic enforcement, such as red-light cameras or speed feedback signs, especially in school zones.
- Deploy speed feedback signs in areas with high crash rates or speeding citations.

The effectiveness of each strategy should be measured and evaluated, considering the number of staff hours and amount of resources needed. The results should be reviewed and used to refine future enforcement activities.

Enforcement strategies should be undertaken with due caution to avoid inequitable enforcement activities and evaluated to determine the strategy's impact. More details about equitable enforcement can be found on page 8 (Introduction).

# EVALUATION AND IMPLEMENTATION

A key part of achieving the City's vision is consistently evaluating roadway safety performance and tracking progress towards the City's goals. The City will develop a process to regularly collect data and information around the performance measures that can be used to assess changes city-wide and at the top priority locations.

As feasible, it is recommended that the City of Selma update this LRSP every three to five years using updated crash data and the performance measures. Comparing the performance measures related to investments made with the crash data should provide a clear indication of the impact of the City's and safety partner's efforts. Future LRSPs may provide new emphasis areas and top priority locations that reflect progress made and new priorities based on trends in the data.

Activities for implementing the plan include:

- Identifying countermeasures and strategies for priority locations based on the crash data.
- Utilizing the Fresno COG Regional Safety Plan to implement regional strategies and share best practices.
- Exploring funding opportunities to implement priority strategies.
- Identifying activities to support the regional Safe Roads Save Lives campaign.
- Identifying enforcement strategies to implement and evaluate.
- Regularly coordinating with safety partner agencies to assess progress, identify opportunities to implement countermeasures and strategies, and identify opportunities for citizen involvement.
- Regularly collecting and organizing data to support evaluation of the LRSP.

# 12.0 APPENDICES

## Appendix A. Stakeholder Engagement Materials

## Appendix B. Regional Countermeasures Toolbox

# APPENDIX A. STAKEHOLDER ENGAGEMENT MATERIALS

Appendix A provides materials documenting the stakeholder engagement throughout development of the LRSP. It includes:

- Local Working Group Roster
- Local Working Group Meeting Notes
- Local Working Group Meeting Materials
- Web-Based Survey and Interactive Map Results
- Focus Group Participant Lists
- Focus Group Meeting Notes
- Focus Group Meeting Materials

# Local Working Group Roster

| City | Staff | Local Working Group |
|---|---|---|
| **City of Clovis** | Ryan Burnett<br>Colleen Vidinoff<br>Shelby Elia | LWG A |
| **City of Coalinga** | Sean Brewer<br>Larry Miller | LWG C |
| **City of Firebaugh** | Danny Reed<br>Ben Gallegos | LWG B |
| **City of Huron** | Paul Serano | LWG C |
| **City of Kerman** | Jerry Jones | LWG B |
| **City of Mendota** | Michael Osborn | LWG B |
| **City of Orange Cove** | Angela Hall | LWG C |
| **City of San Joaquin** | Danny Reed<br>Elizabeth Nunez<br>Matt Flood | LWG B |
| **City of Selma** | Isaac Moreno<br>Philip Romero | LWG C |
| **County of Fresno** | Wendy Nakagawa | LWG A |

# Local Working Group Meeting Notes

# Local Working Group Meeting Materials

# Web-Based Survey and Interactive Map Results

# Focus Group Participant Lists

## CLOVIS

- Amy Hance, Clovis Transit
- Carolina Ilic, Fresno Area Express
- Chad Fitzgerald, Clovis Fire Department
- Chad McCollum, Clovis Public Affairs and Information
- Claudia Cazares, Engineering
- Colleen Vidinoff, LWG Member
- David Merchen, Planning
- Denver Stairs, Clovis Unified School District
- Glen Eastes, Clovis Department of Public Utilities
- John Cross, Engineering
- John Holt, Clovis City Manager's Office
- Michael Navarro, Caltrans District 6
- Mike Harrison, Engineering
- Renee Mathis, Director Clovis Department of Planning and Development Services
- Richard Ashcraft, Clovis Police Department
- Ryan Burnett, LWG Member
- Scott Mozier, City of Fresno
- Sean Smith, Engineering
- Shelby Elia, LWG Member
- Sherry Call-Richards, Clovis Unified School District
- Stephanie Babb, Clovis Community College
- Steven White, County of Fresno
- Thad Avery, Engineering
- Tim Barker, Engineering
- Tina Sumner, Fresno Cycling Club

## COALINGA

- Darren Blevins, Coalinga Police Chief
- Greg Dupuis, Coalinga Fire Chief
- Katie Delano, Director of Transportation, Coalinga-Huron Unified School District
- Larry Miller, Coalinga Utilities Coordinator and LWG Member
- Lori Villanueva, Superintendent, Coalinga-Huron Unified School District
- Sean Brewer, Coalinga Assistant City Manger

## FIREBAUGH

- Ben Gallegos, City Manager/Public Works Director, LWG Member
- Brady Jenkins, Mayor Pro Tem
- John Borboa, Fire Chief,
- Mario Gouveia, City Engineer,
- Pio Martin, Finance Director

- Danny Barragan, MOT Director
- Danny Reed, LWG Member
- Freddy Valdez, Mayor
- Sal Raygoza, Police Chief

## FRESNO COUNTY (UNINCORPORATED)

- Bill Maines, BNSF Railroad - Manager Signals
- Carlos Martinez, Tarpey Neighborhood
- Crystal Lanfranco, Central Unified School District, Head of Transportation
- Eric Franco, School Safety and Security, Riverdale Unified School District
- Greg Reinke, Fresno County CAO office
- John Campbell, Superintendent, Kings Canyon Unified School District
- John Rowland, Traffic Engineer
- John Zanoni, Fresno County Assistant Sheriff
- Ofc. Justice Jones, California Highway Patrol
- Leonard Ludi, Construction Project Manager
- Mariah C. Thompson, California Rural Legal Assistance, Inc
- Ofc. Mark Halvorson, California Highway Patrol
- Mike Leonardo, Fresno County Transportation Authority
- Ofc. Robert Brunell, California Highway Patrol
- Moses Stites, Fresno County Rural Transit
- Naindeep Singh Chann, Central Unified School District, Board of Trustee Member
- Ofc. Vance Wedeking, California Highway Patrol
- Victoria Santillan, California Rural Legal Assistance, Inc
- Wendy Nakagawa, LWG Member

## HURON

- Alfonso Manrique, City Engineer
- Ana Trejo, Huron Resident
- Arely Arellano, Huron Resident
- Ben Silva, Huron Resident
- Carmen Lopez, Huron Resident
- David Mercado, Huron Resident
- Eddye Ramirez, Huron Resident
- Eva Ramos, Huron Resident
- Katie Delano, Coalinga-Huron School District Transportation Director
- Maria Avina, Huron Resident
- Nereida Vega, Huron Resident
- Paul Serano, LWG Member
- Rey Leon, Mayor,
- Roberto Pimentel, Mayor Pro Tem, Huron City Council

- Francisco Hernandez, Huron Middle School Principal
- Jocelyn Distancia, Huron Resident
- Sophie Phin-Rizo, Huron Elementary School Principal

## KERMAN

- Bob Felker, Rotary
- Chief John Golden, Kerman PD
- Jerry Jones, City Engineer, LWG Member
- Jesus Orozco, Community Development Director
- John Jansons, City Manager
- Michael Barajas, Direct Kerman Public Works
- Moses Stites, Fresno County Rural Transit Agency
- Nicole Wolf, Executive Director Chamber of Commerce
- Philip Gallegosm Parks & Rec. Director
- Robert Frausto, School District Superintendent
- Chief Tim Henry, North Central Fire Protection District

## MENDOTA

- Cristian Gonzalez, Mendota City Manager
- Daniel Urias, Battalion Chief, Calfire/Fresno County Fire
- Dino Perez, Westside Youth, Inc.
- Graciela Santillano James, Community Outreach
- Jessica Sanchez, Mendota Boys & Girls Club
- John Liu, Caltrans
- Joseph Amador, Committee Member, Mendota Public Safety SubCommittee
- Kevin Smith, Mendota Chief of Police
- Mark Banuelos, Mendota Public Works Superintendent
- Michael Navarro, Caltrans
- Michael Osborn, LWG Member
- Moses Stites, Fresno County Rural Transit Agency
- Nancy Diaz, Mendota Budget Officer
- Oscar Rosales, Vice Chairperson, Mendota Public Safety SubCommittee,
- Dr. Paul Lopez, Superintendent, Mendota Unified School District
- Robert Gonzalez, Director of M.O.T, Mendota Unified School District
- Rolando Castro, Chairperson, Mendota Public Safety SubCommittee
- Sergio Valdez, Mendota Youth Recreation

## ORANGE COVE

- Alfonso Manrique, City Engineer,
- Andy Valencia, Interim Public Works Superintendent
- Angela Hall, Assistant Engineer, LWG Member
- Rudy Hernandez, Interim City Manager
- Shun Patlan, City Planner

## SAN JOAQUIN

- Brent Stalker, Police Lt.
- Colleen Vidinoff, CalTrans District 6 HSIP Coordinator
- Danny Reed, City Engineer
- Elizabeth Nunez, City Manager
- Manual Chavez, Fresno County Sheriff's Department
- Martin Macias, School Superintendent
- Matt Flood, Assistant City Manager

## SELMA

- Amanda Torres, Kings View Community Services
- Beverly Cho, Selma Mayor Pro Tem
- Bob Allen, Director Selma District Chamber of Commerce
- Dave Padilla, Branch Chief, Cal Trans
- Delfina Vasquez, BBNBTL (Bringing Broken Neighborhoods Back to Life)
- Captain Jesse Gomez, Selma Fire Dept. PIO
- Pastor Joe Alvarez, BBNBTL (Bringing Broken Neighborhoods Back to Life)
- Sgt. Justin Holt, Selma Police Dept. PIO
- Maria Rodriguez, Program Director Housing Services, WestCare
- Dr. Marilyn Shepherd, Selma Unified School District
- Moses Stites, Fresno County Rural Transit Agency
- Philip L. Romero, PE, Selma Engineer
- Commander Rene Garza, Selma Police Commander
- Chief Rob Peterson, Selma Fire Chief
- Scott Robertson, Selma Mayor
- Shane Ferrell, Selma Public Works Director
- Steven Johnson, Selma Rotary
- Suzette Wheeler, Associate VP of Nursing, Adventist Health

# Focus Group Meeting Notes

# Focus Group Meeting Materials

# APPENDIX B. REGIONAL COUNTERMEASURES TOOLBOX