

Profile of Rail-Related Injuries for Greater Sacramento

A pedestrian or other road user is involved in a collision with a train every three hours in the U.S., and 1 in 10 of these involves children ages 19 and under.^{1,2} These incidents are often deadly, and, most importantly, are preventable. They are primarily the result of two types of incidents:

- **Trespassing injuries** occur when a person is injured while on private railroad property without permission. They are most often pedestrians taking a shortcut across or along tracks, but also include loiterers and those engaging in recreational activities such as hunting or jogging.¹
- **Railroad crossing injuries** are when a person or highway user is struck by a train while attempting to cross at a designated crossing where tracks intersect a roadway or walkway at the same level.

This profile describes data reported to the Federal Railroad Administration (FRA) on trespassing and railroad crossing injuries occurring in Greater Sacramento area. Data are for years 2011 to 2020 and are combined for the California counties of Sacramento, Yuba, Placer, Yolo, Nevada, and Sutter (no injuries were reported for El Dorado County). Injuries are divided into trespassing injuries and railroad crossing injuries. Data include both fatal and nonfatal rail-related injuries. Excluded from this profile are injuries to rail passengers and rail workers, as well as cases of suicides and attempted suicide.

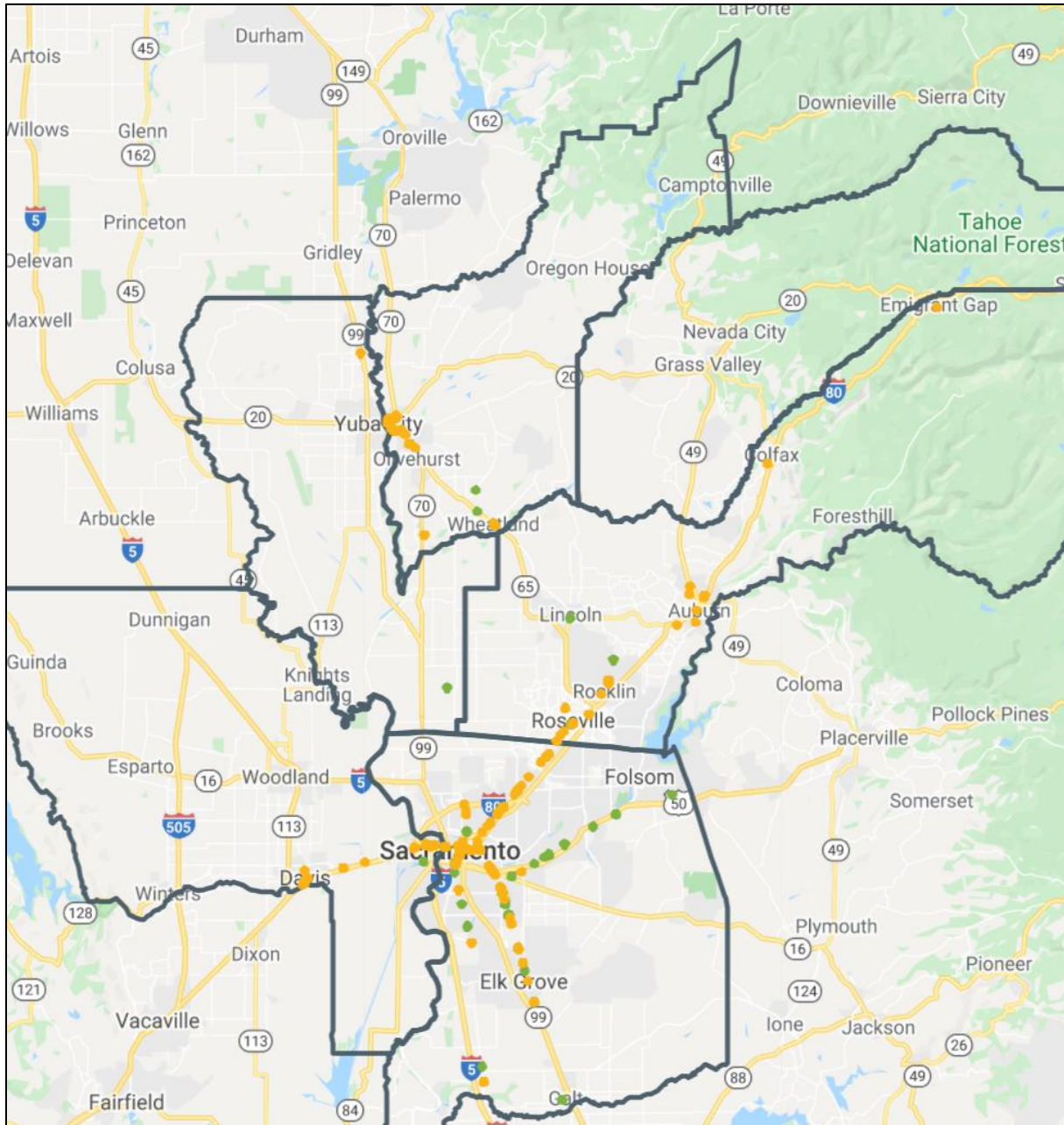
This report and other rail safety resources for families, educators and community partners can be downloaded from the **Safe Kids Rail Safety Station** online hub at safekids.org/RailSafetyStation.

Summary

- There were 195 rail-related injuries in the Greater Sacramento area from 2011 to 2020, most of which occurred in Sacramento County.
- Children ages 19 years and under accounted for about 1 in 10 injuries. There was a relatively even distribution of injuries from ages 20 to 49 years old.
- Rail-related injuries were most often the result of trespassing incidents, but railroad crossing injuries were more often fatal.
- Nine in 10 injuries involved on-track equipment, most of which were freight trains.
- Trespassing injuries predominated from fall through winter months (Sep-Feb), while the frequency of railroad crossing incidents varied little by season.
- Of those injured at railroad crossings, 7 in 10 were motor vehicle occupants and about 1 in 4 were pedestrians.
- Nearly 4 in 10 railroad crossing injuries occurred during dark or low-light hours. Of those, at least 4 in 10 occurred at crossings that weren't illuminated.
- Going through or around the crossing gates was the activity most associated with injury at railroad crossings.
- Of the 8 in 10 trespassers who were struck by on-track equipment, more than half were on the tracks when they were struck and 1 in 4 were beside the tracks.



Map 1. Rail-Related Injuries by Incident Type;
Yuba, Placer, Yolo, Nevada, and Sutter Counties, CA



● Railroad crossing injury ● Trespassing injury

See pages 9-22 for county-level maps by incident type and for children versus adults.



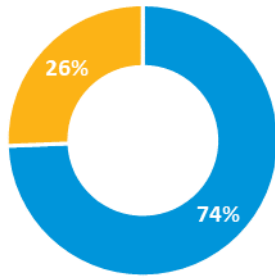
Overview	Distribution of Rail-Related Injuries by County														
<p>2019 Population³</p> <p style="font-size: 24pt; color: #0070C0;">2,446,281</p> <p>Number of Railroad Crossings⁴</p> <p style="font-size: 24pt; color: #FFC000;">1,197</p> <p>Total Rail-Related Injuries, 2011–2020</p> <p style="font-size: 24pt; color: #4CAF50;">195</p> <p>Injuries per 100,000 People, 2011–2020</p> <p style="font-size: 24pt; color: #0070C0;">0.83</p> <p>Percent Injured that were Ages 0–19 yr.</p> <p style="font-size: 24pt; color: #E91E63;">8%</p>	<p>Figure 1. Six in 10 injuries occurred in Sacramento county.</p> <table border="1"> <caption>Data for Figure 1: Distribution of Rail-Related Injuries by County</caption> <thead> <tr> <th>County</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Sacramento</td> <td>59%</td> </tr> <tr> <td>Yuba</td> <td>14%</td> </tr> <tr> <td>Placer</td> <td>13%</td> </tr> <tr> <td>Yolo</td> <td>11%</td> </tr> <tr> <td>Nevada</td> <td>2%</td> </tr> <tr> <td>Sutter</td> <td>1%</td> </tr> </tbody> </table> <p><i>Red indicates the category with the highest percent.</i></p>	County	Percentage	Sacramento	59%	Yuba	14%	Placer	13%	Yolo	11%	Nevada	2%	Sutter	1%
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Overall Injuries																																																				
<p>Figure 2. On average, there were 20 injuries per year in the decade from 2011 to 2020. The number of injuries during that period was highest in 2020.</p> <p style="text-align: center;">Number of Rail-Related Injuries by Year (N=195)</p> <table border="1"> <caption>Data for Figure 2: Number of Rail-Related Injuries by Year</caption> <thead> <tr> <th>Year</th> <th>Number of Injuries</th> </tr> </thead> <tbody> <tr><td>2011</td><td>12</td></tr> <tr><td>2012</td><td>19</td></tr> <tr><td>2013</td><td>14</td></tr> <tr><td>2014</td><td>22</td></tr> <tr><td>2015</td><td>18</td></tr> <tr><td>2016</td><td>24</td></tr> <tr><td>2017</td><td>17</td></tr> <tr><td>2018</td><td>17</td></tr> <tr><td>2019</td><td>24</td></tr> <tr><td>2020</td><td>28</td></tr> </tbody> </table> <p>Figure 3. Of those who were injured, about 1 in 10 were children ages 19 and under. There was a relatively even distribution of injuries from ages 20 to 49.*</p> <p style="text-align: center;">Rail-Related Injuries by 5-Year Age Groups (N=187)</p> <table border="1"> <caption>Data for Figure 3: Rail-Related Injuries by 5-Year Age Groups</caption> <thead> <tr> <th>Age Group</th> <th>Percentage</th> </tr> </thead> <tbody> <tr><td>1-4</td><td>2%</td></tr> <tr><td>5-9</td><td>0%</td></tr> <tr><td>10-14</td><td>2%</td></tr> <tr><td>15-19</td><td>5%</td></tr> <tr><td>20-24</td><td>13%</td></tr> <tr><td>25-29</td><td>11%</td></tr> <tr><td>30-34</td><td>13%</td></tr> <tr><td>35-39</td><td>10%</td></tr> <tr><td>40-44</td><td>9%</td></tr> <tr><td>45-49</td><td>10%</td></tr> <tr><td>50-54</td><td>7%</td></tr> <tr><td>55-59</td><td>5%</td></tr> <tr><td>60-64</td><td>3%</td></tr> <tr><td>65+</td><td>10%</td></tr> </tbody> </table> <p><small>*Age data missing for 8 cases.</small></p>	Year	Number of Injuries	2011	12	2012	19	2013	14	2014	22	2015	18	2016	24	2017	17	2018	17	2019	24	2020	28	Age Group	Percentage	1-4	2%	5-9	0%	10-14	2%	15-19	5%	20-24	13%	25-29	11%	30-34	13%	35-39	10%	40-44	9%	45-49	10%	50-54	7%	55-59	5%	60-64	3%	65+	10%
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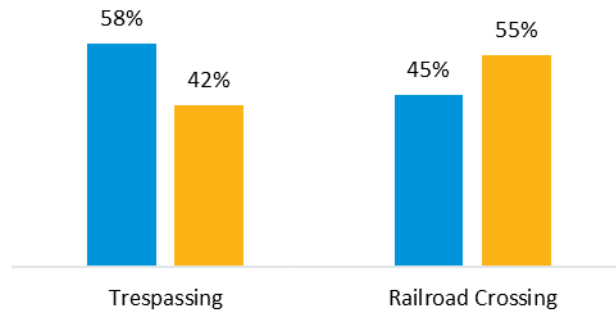
Figure 4. The majority of injuries were trespassing-related. However, railroad crossing injuries were more often fatal than were trespassing injuries.

Rail-Related Injuries by Incident Type (N=195)



■ Trespassing ■ Railroad crossing

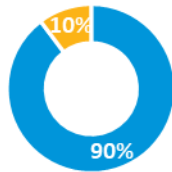
Injury Severity for Trespassing (N=145) and Railroad Crossing (N=50) Incidents



■ Non-fatal ■ Fatal

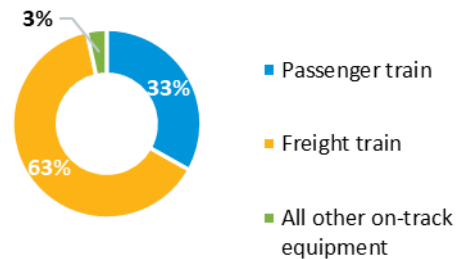
Figure 5. Nine in 10 injuries involved on-track equipment,* most of which were freight trains.

Rail-Related Injuries by On-Track Equipment Involvement (N=195)



■ Involved on-track equipment
■ Did not involve on-track equipment

On-Track Equipment Involved (N=175)**



■ Passenger train
■ Freight train
■ All other on-track equipment

*Of cases where on-track equipment type was available. On-track equipment includes freight cars and trains, passenger trains and cars, locomotives, inspection vehicles, maintenance of way equipment and other on-track equipment.

** Total percent does not equal 100 due to rounding.

Figure 6. Trespassing injuries more frequently involved freight trains, while railroad crossing injuries more frequently involved passenger trains.

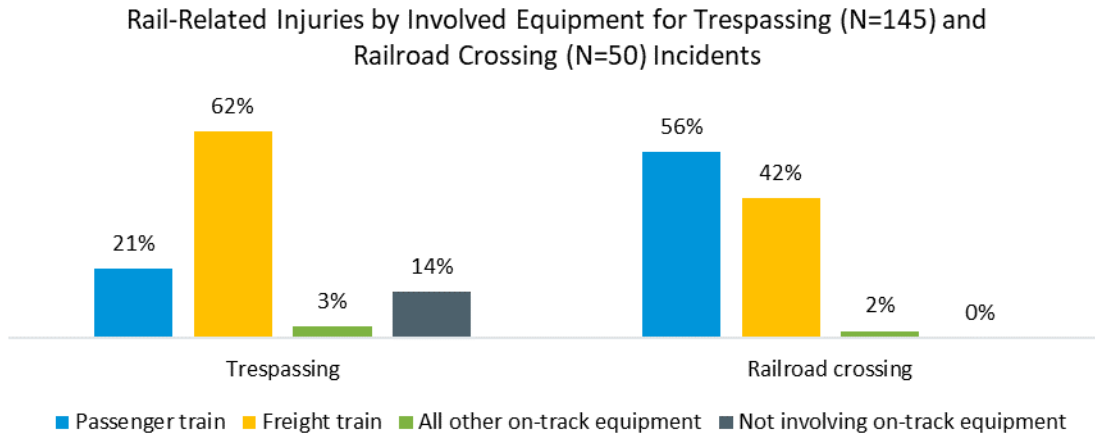


Figure 7. Trespassing injuries were most frequent from fall through winter, while the frequency of railroad crossings varied little by season.

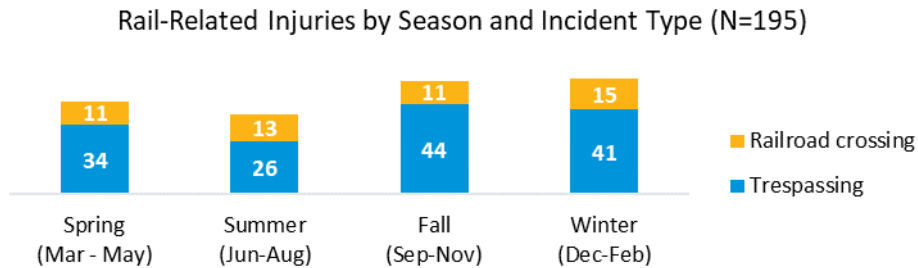


Figure 8. Overall, injuries were less frequent on Monday and Tuesday.

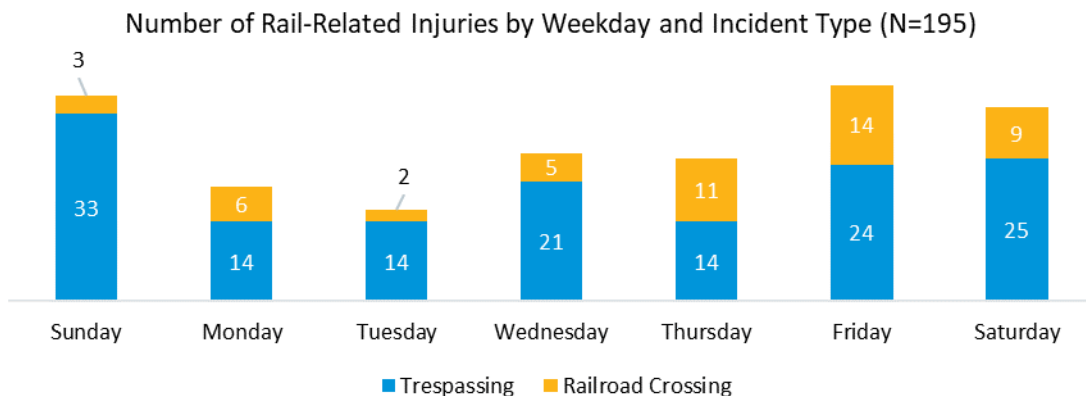
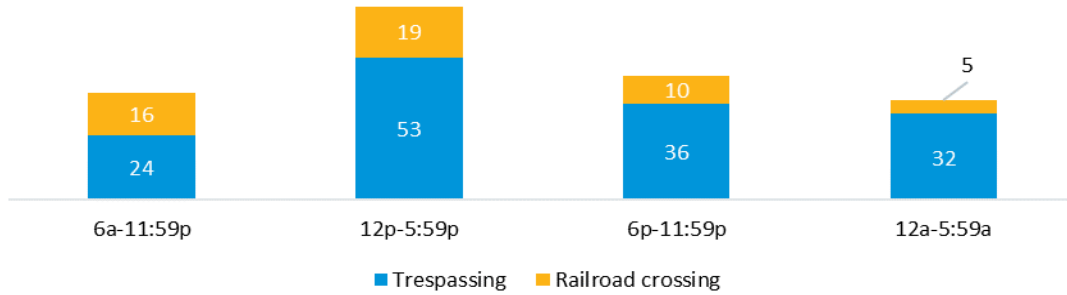


Figure 9. Overall, injuries were most frequent between 12 PM and 5:59 PM.

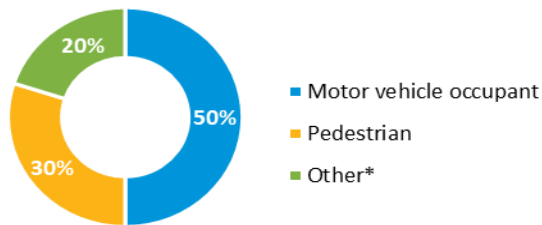
Number of Rail-Related Injuries by Time of Day and Incident Type (N=195)



Railroad Crossing Circumstances

Figure 10. Half of those injured at railroad crossings were motor vehicle occupants, and 1 in 3 were pedestrians.

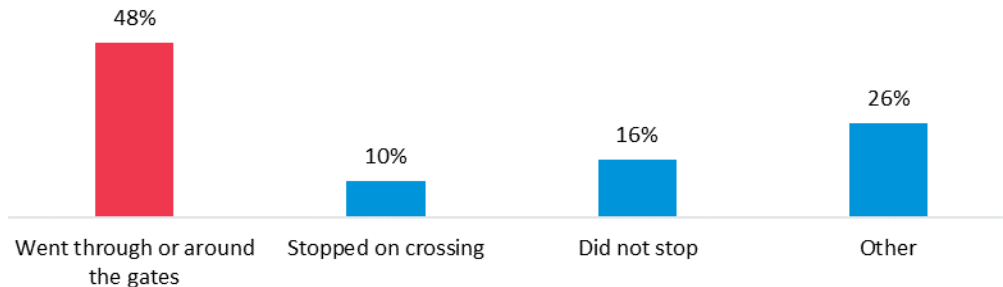
Railroad Crossing Injuries by Highway User Type (N=50)



* Other includes unspecified highway users.

Figure 11. Nearly half of those injured in grade crossing incidents were going through or around the crossing gates when injured.

Railroad Crossing Injuries by Action of Highway User (N=50)



Red indicates the category with the highest percent.



Figure 12. Nearly all railroad crossing injuries occurred when the weather was clear.

Railroad Crossing Injuries by Weather Condition (N=50)

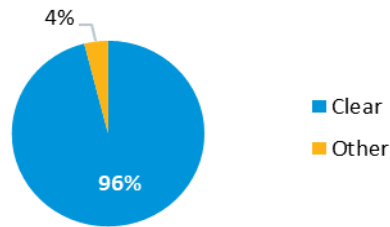
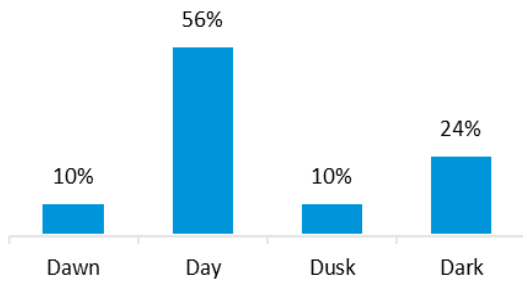
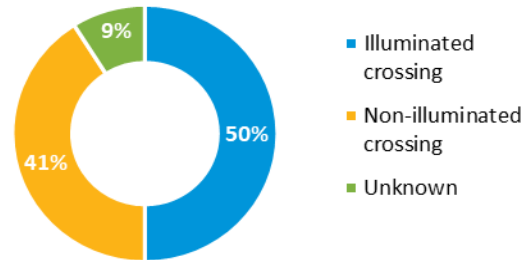


Figure 13. Four in 10 railroad crossing injuries occurred during dark or low-light hours. Of those, at least 4 in 10 occurred at crossings that were not illuminated by streetlights or special lights.

Railroad Crossing Injuries by Light Conditions (N=50)



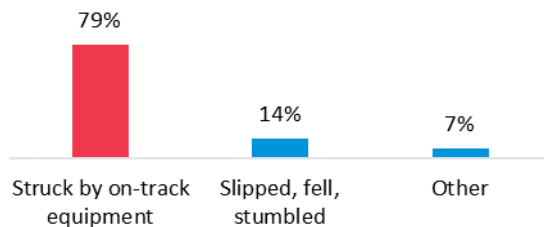
Illumination of Crossing for Railroad Crossing Injuries Occuring at Dawn, Dark or Dusk (N=22)



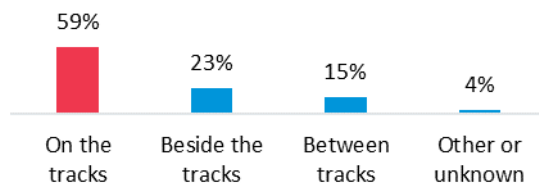
Trespassing Circumstances

Figure 14. About 8 in 10 trespassers who were injured had been struck by on-track equipment. Of those, 6 in 10 were on the tracks at the time of impact.

Trespassing Injuries by Injury Event Type (N=145)



Location of Trespassers When Struck by On Track Equipment (N=114)*

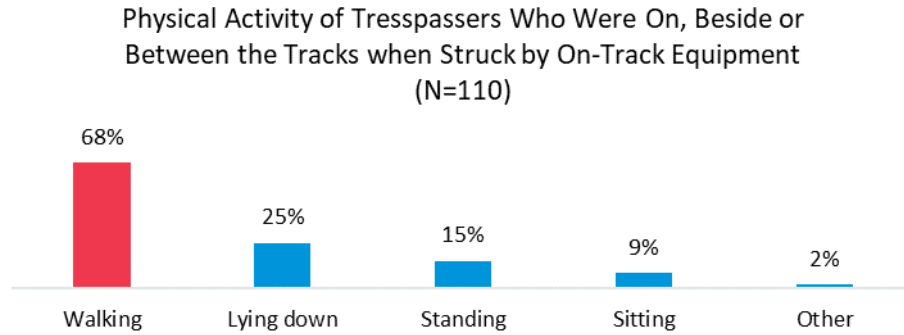


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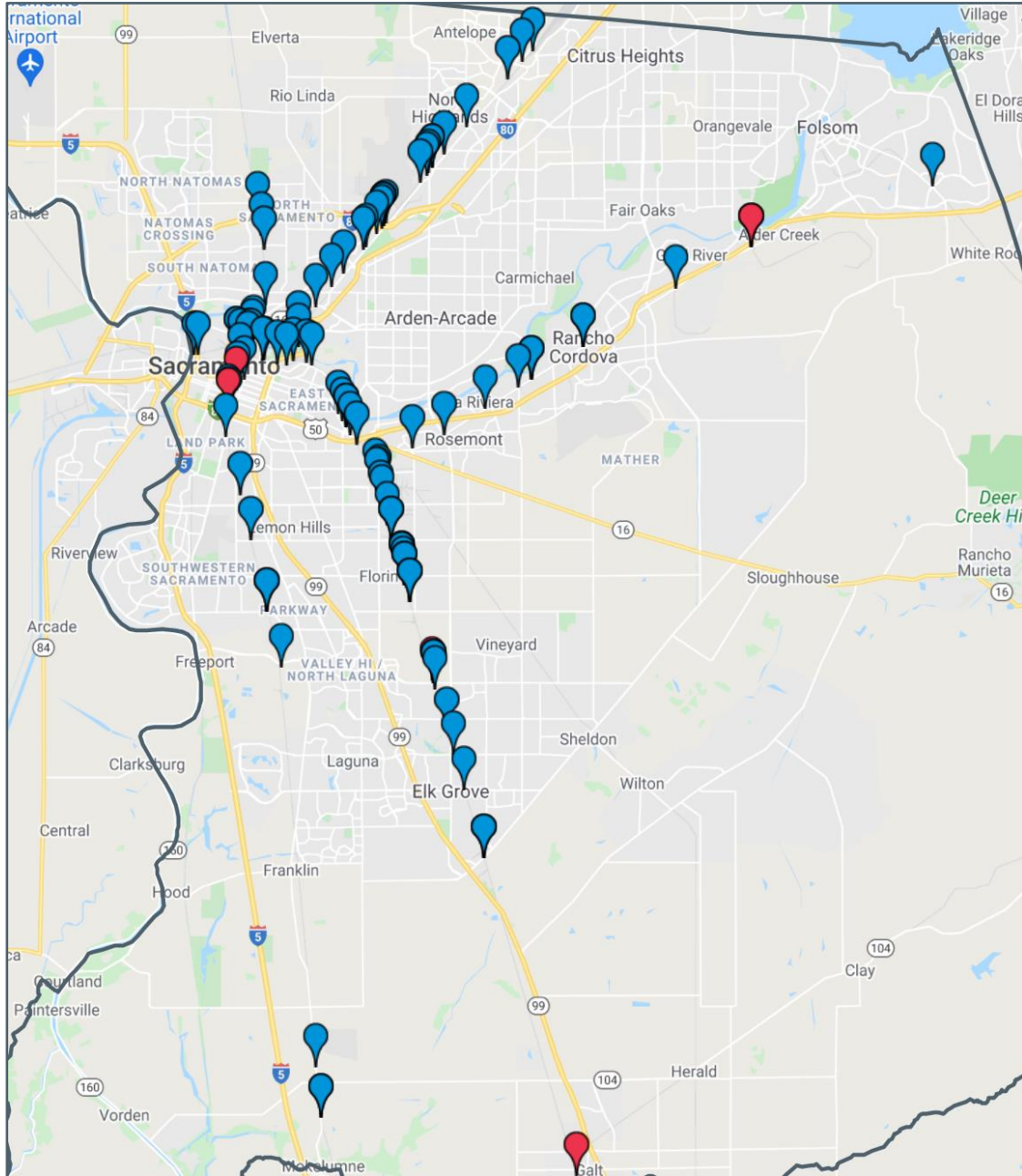


Figure 15. Of trespassers who were struck by on-track equipment, more than half were walking and 1 in 4 were lying on or near the tracks at the time of impact.



Red indicates the category with the highest percent.

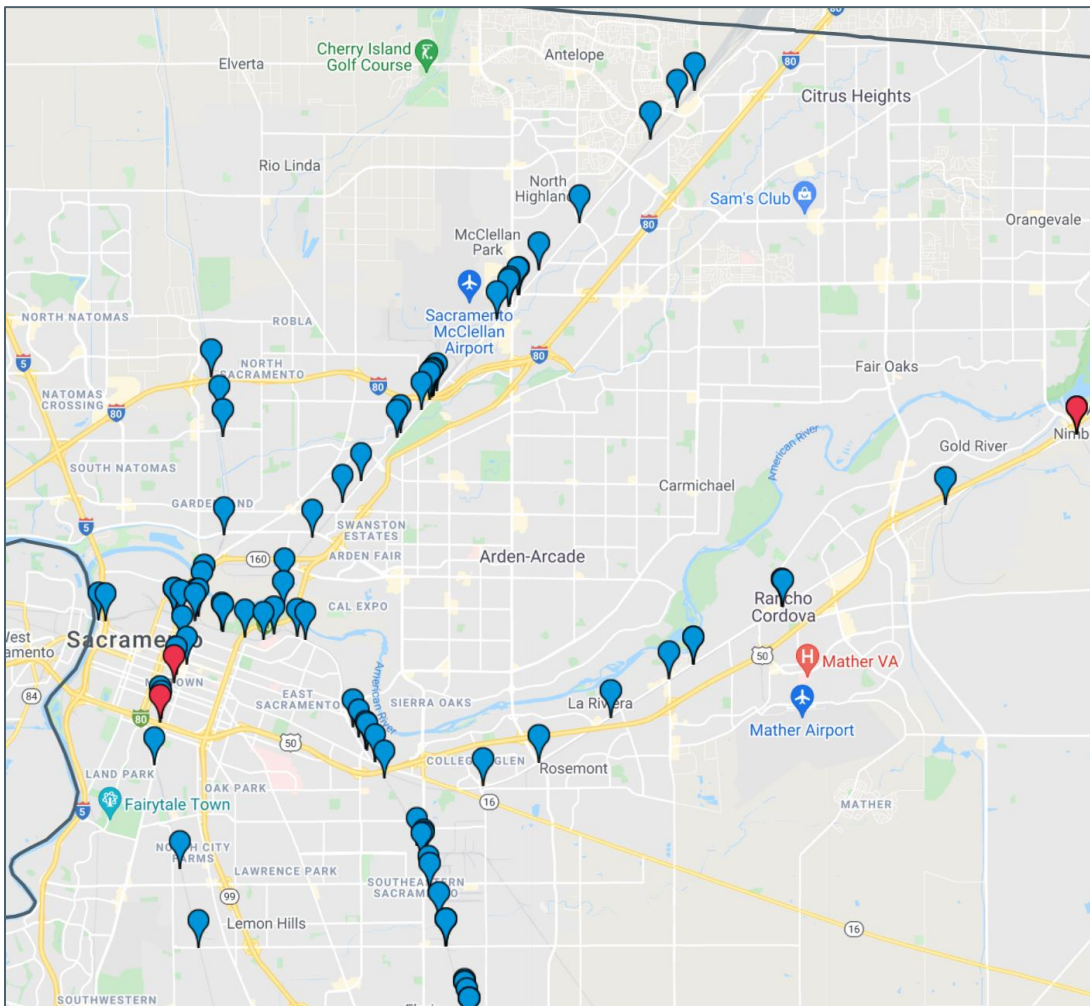
Map 2. Sacramento County – Injuries by Age Group



● Adult injury ● Child injury (ages 0-19 years)



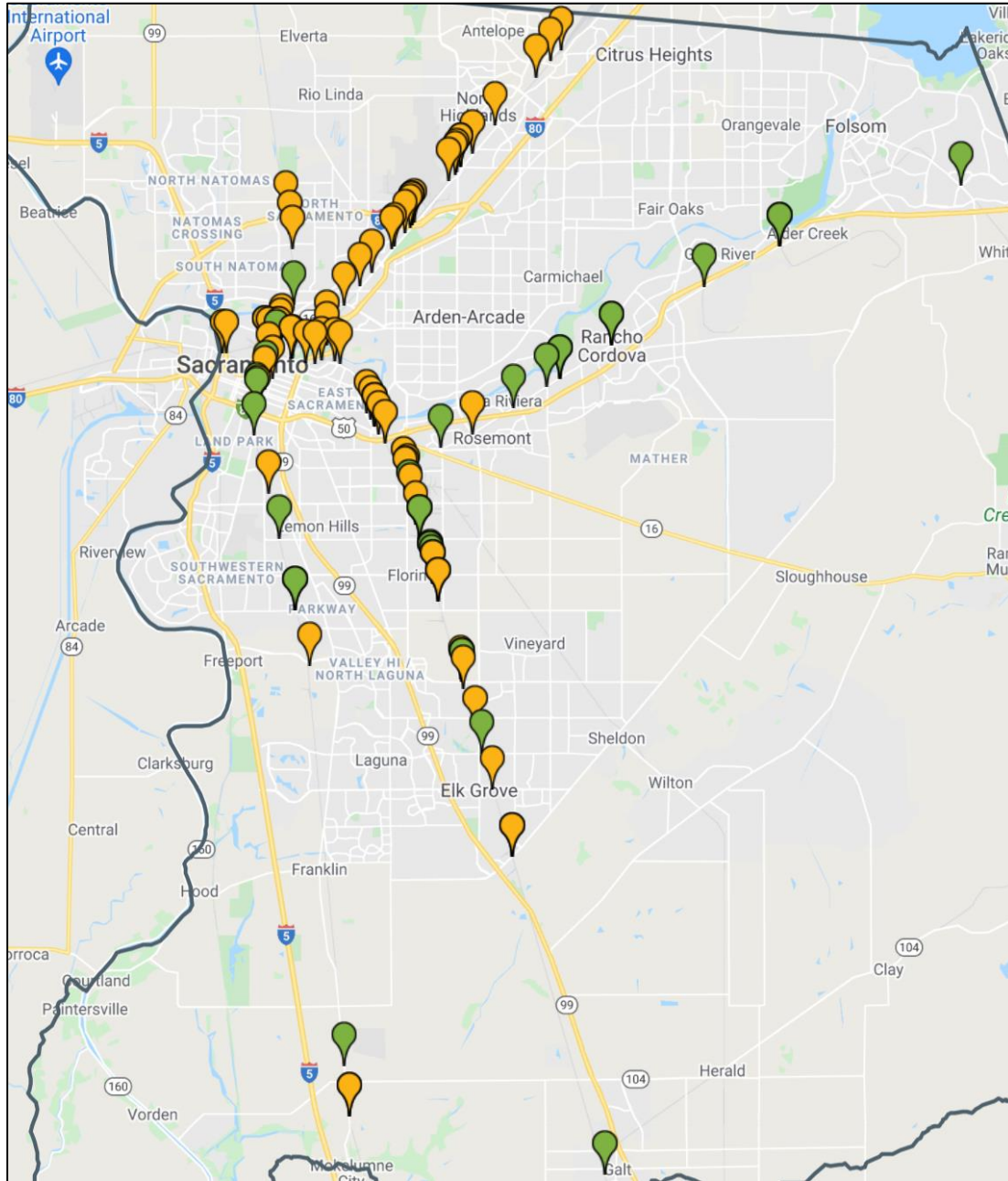
Map 3. Sacramento County – Injuries by Age Group – North Side



● Adult injury ● Child injury (ages 0-19 years)



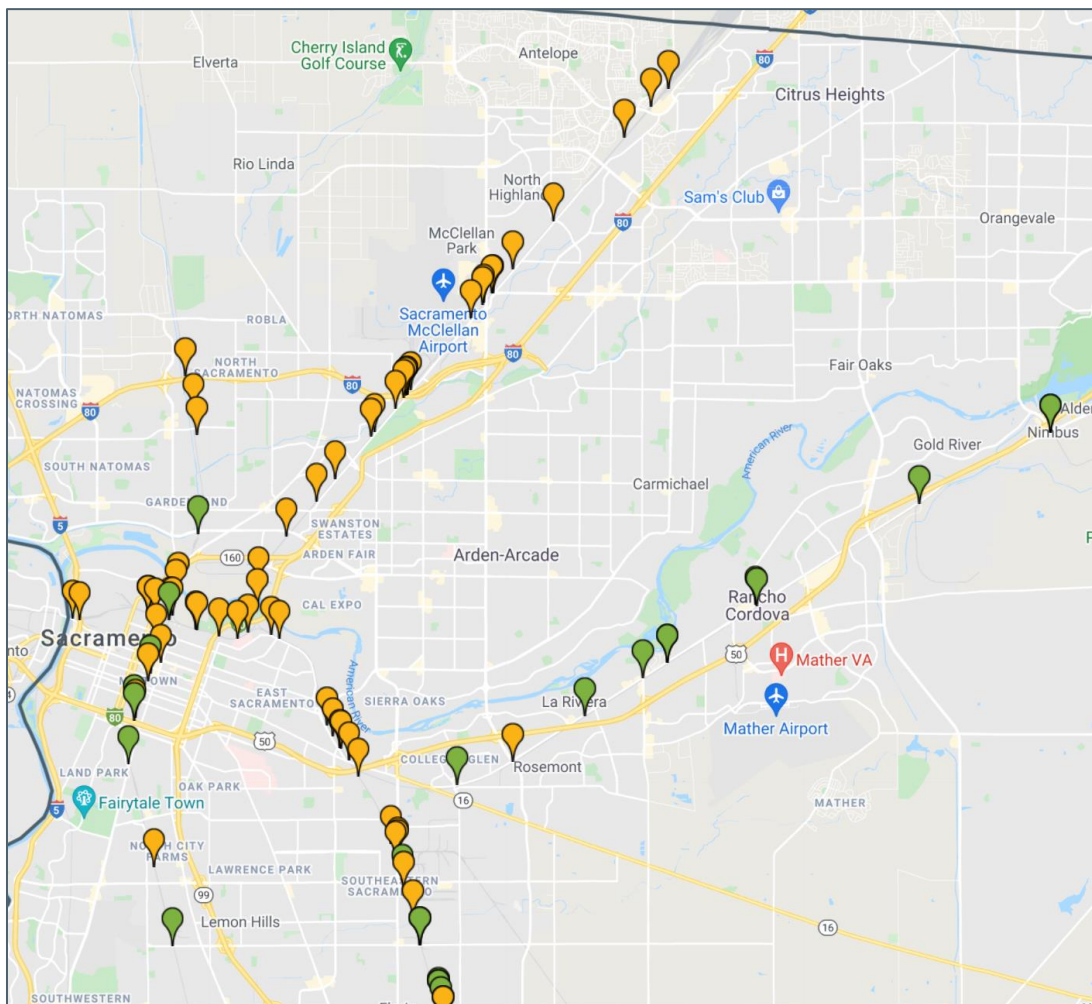
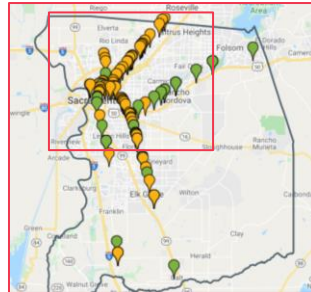
Map 4. Sacramento County – Injuries by Incident Type



● Railroad crossing injury ● Trespassing injury



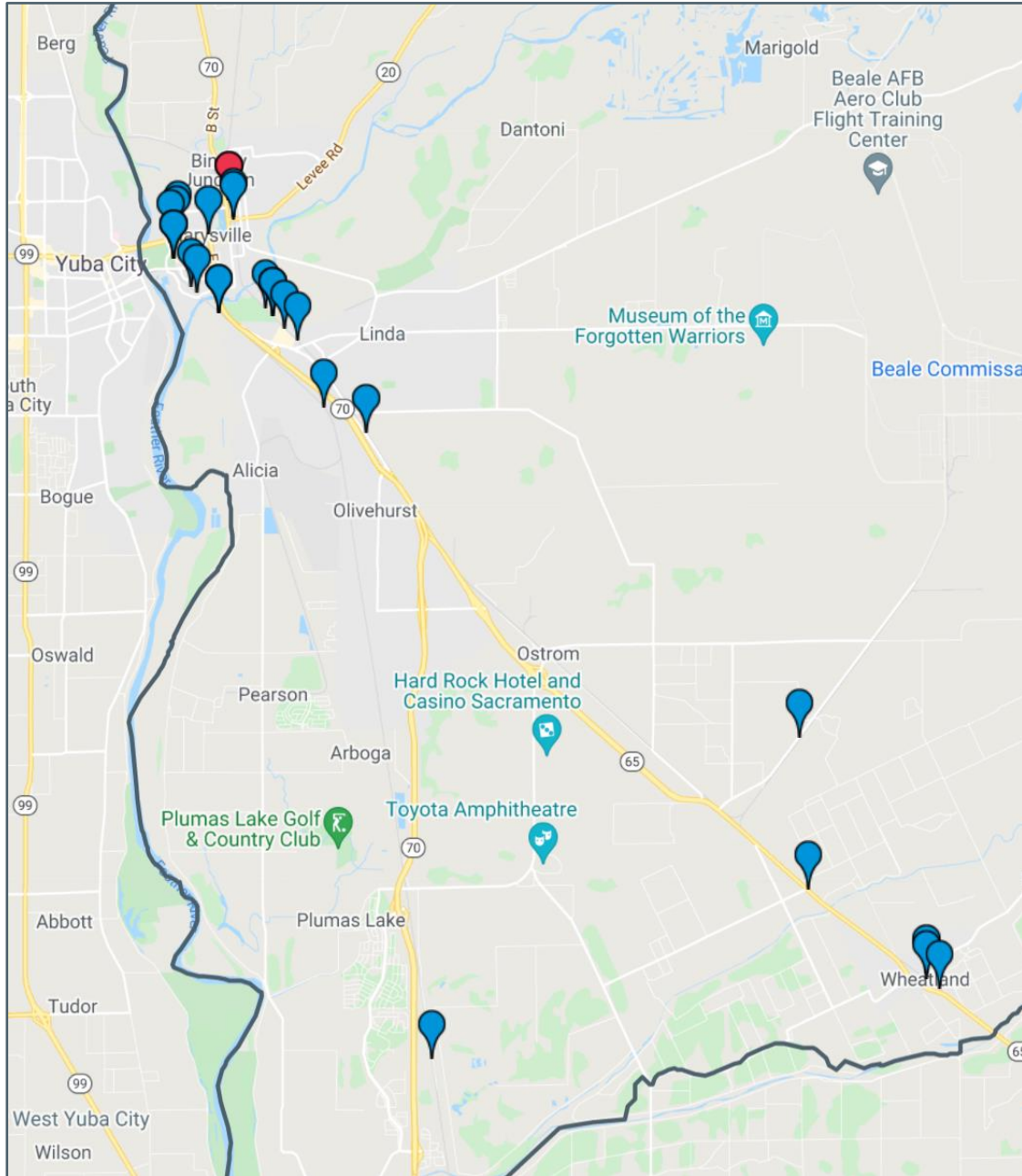
Map 5. Sacramento County – Injuries by Incident Type – North Side



● Railroad crossing injury ● Trespassing injury



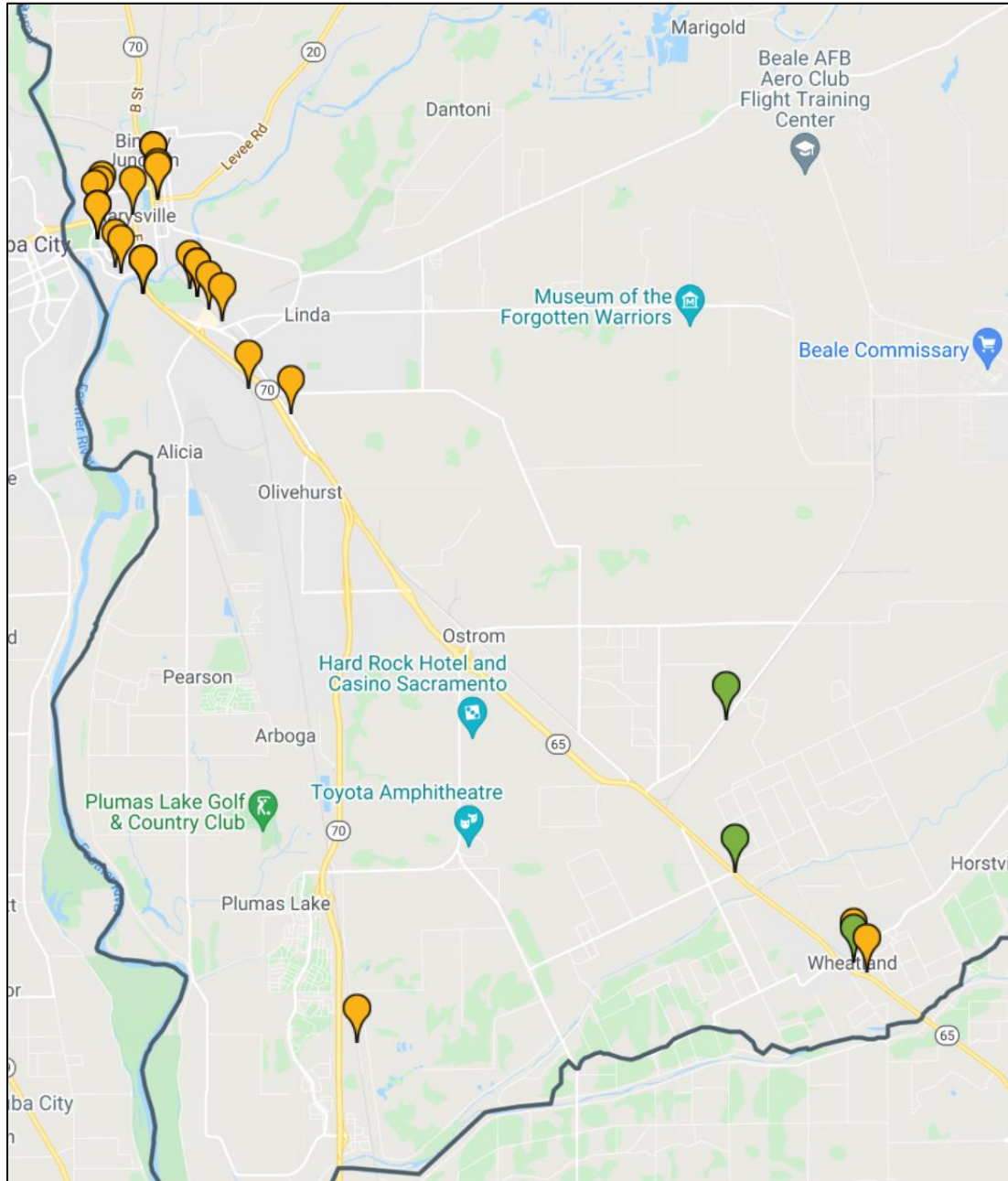
Map 6. Yuba County – Injuries by Age Group



● Adult injury ● Child injury (ages 0-19 years)



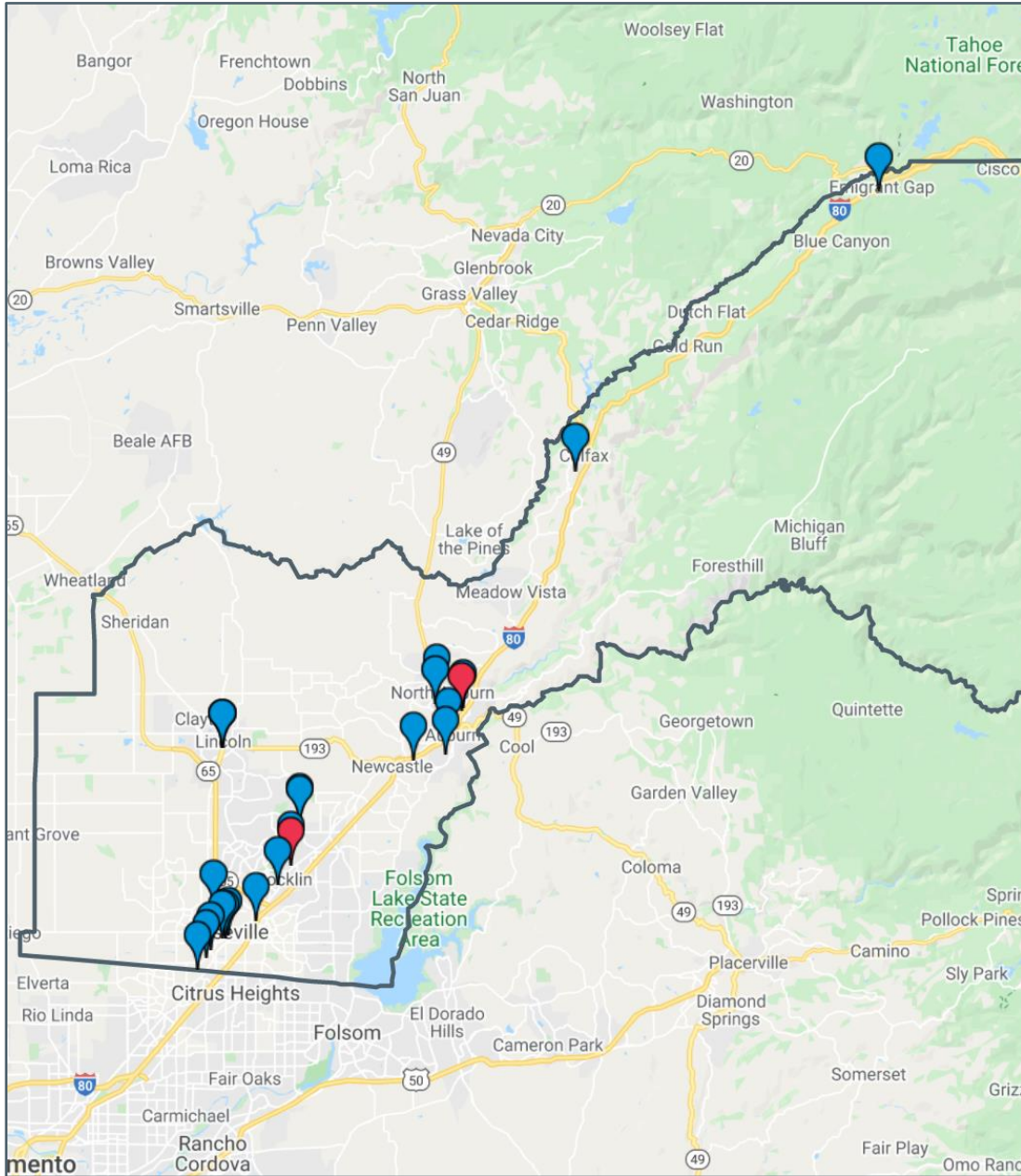
Map 7. Yuba County – Injuries by Incident Type



● Railroad crossing injury ● Trespassing injury



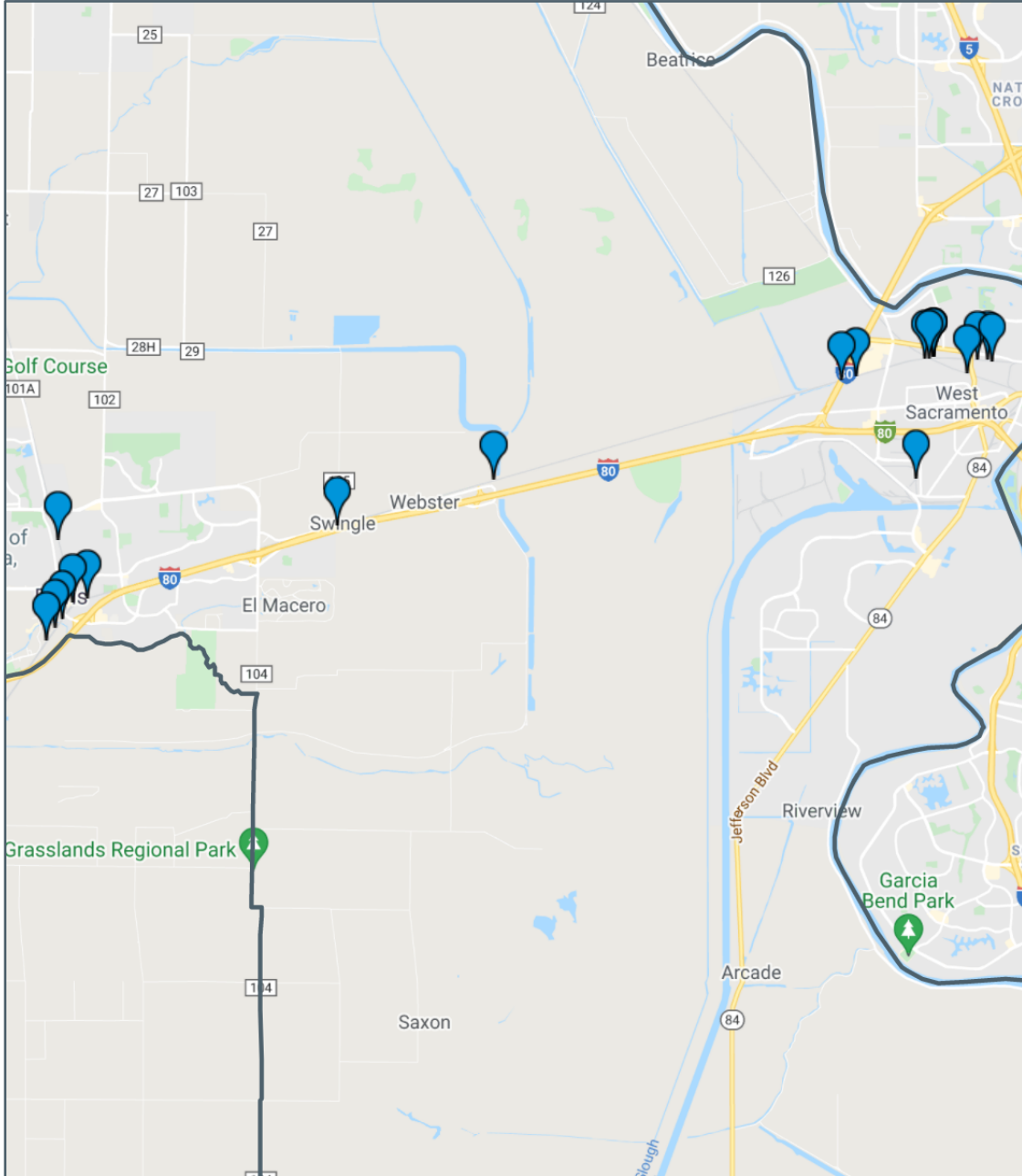
Map 8. Placer County – Injuries by Age Group



● Adult injury ● Child injury (ages 0-19 years)



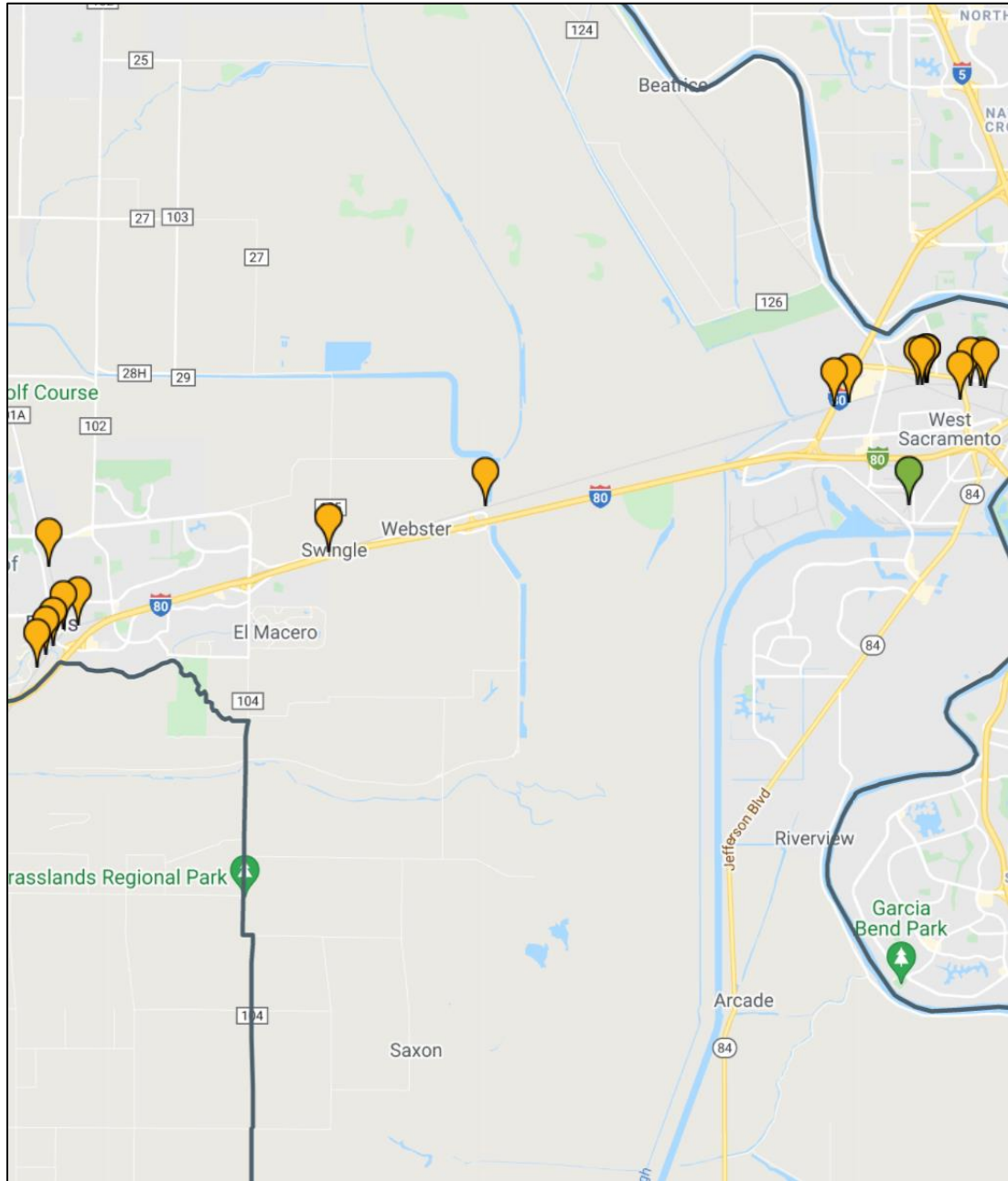
Map 10. Yolo County – Injuries by Age Group



● Adult injury ● Child injury (ages 0-19 years)



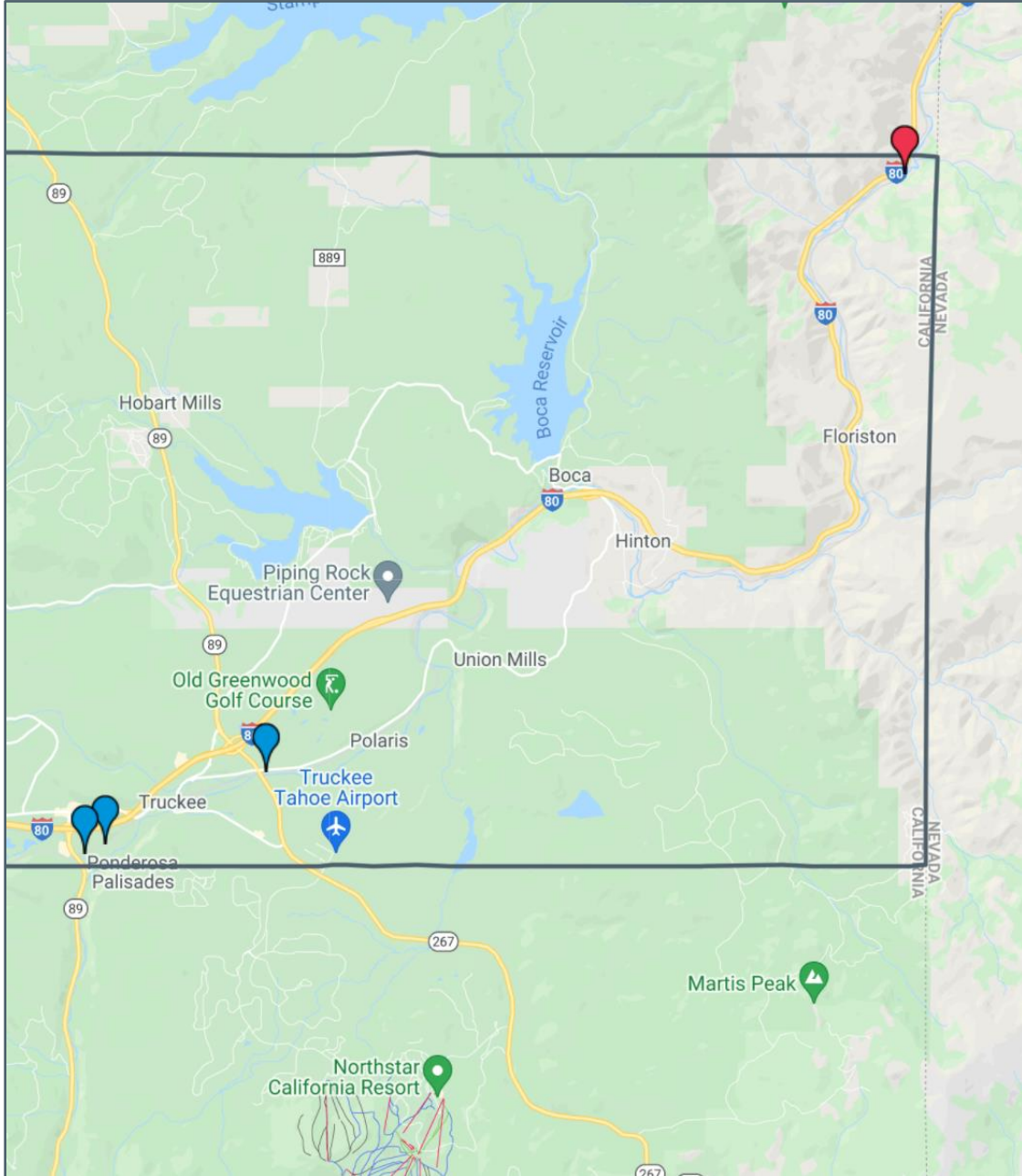
Map 11. Yolo County – Injuries by Incident Type



● Railroad crossing injury ● Trespassing injury



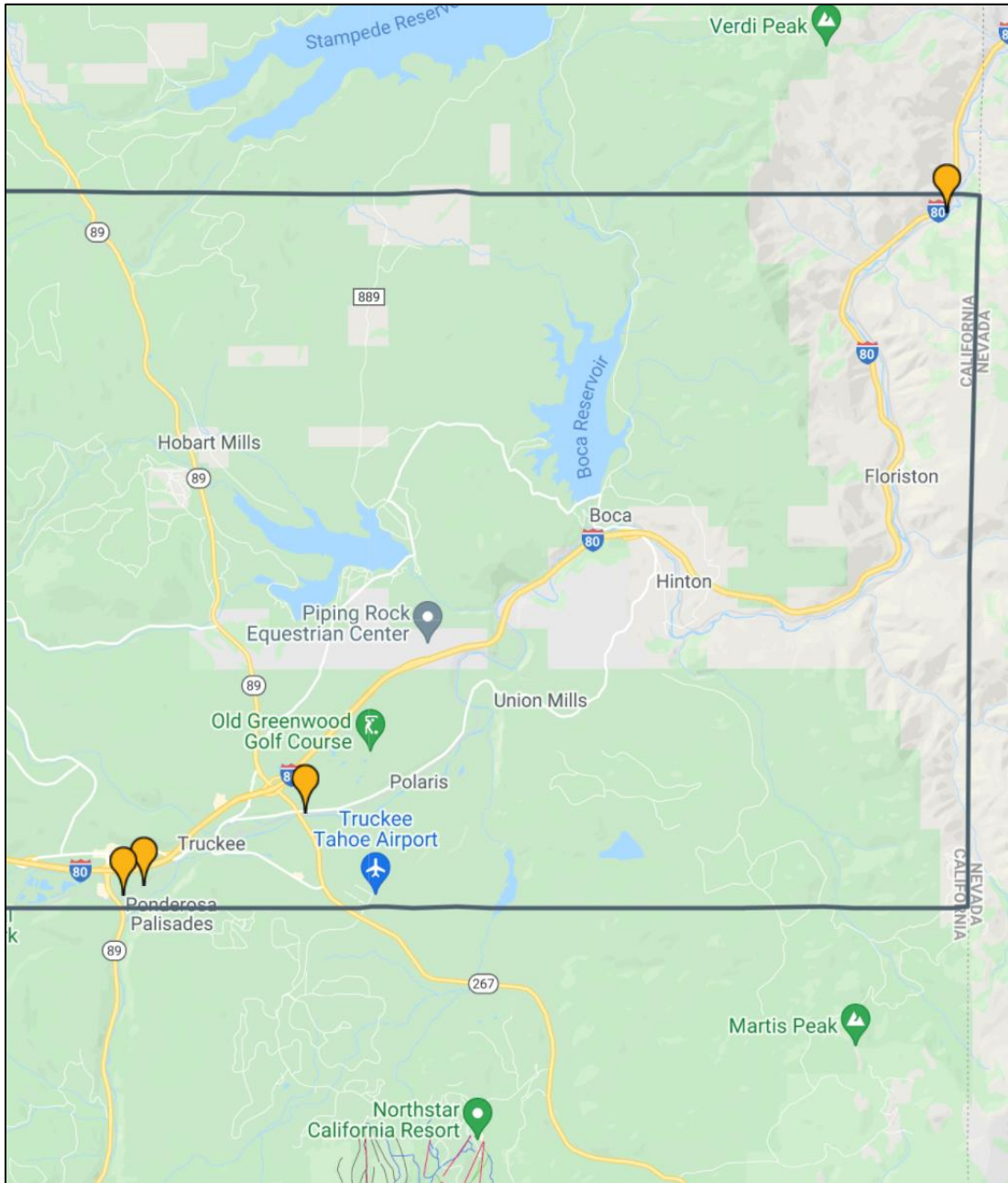
Map 12. Nevada County – Injuries by Age Group



● Adult injury ● Child injury (ages 0-19 years)



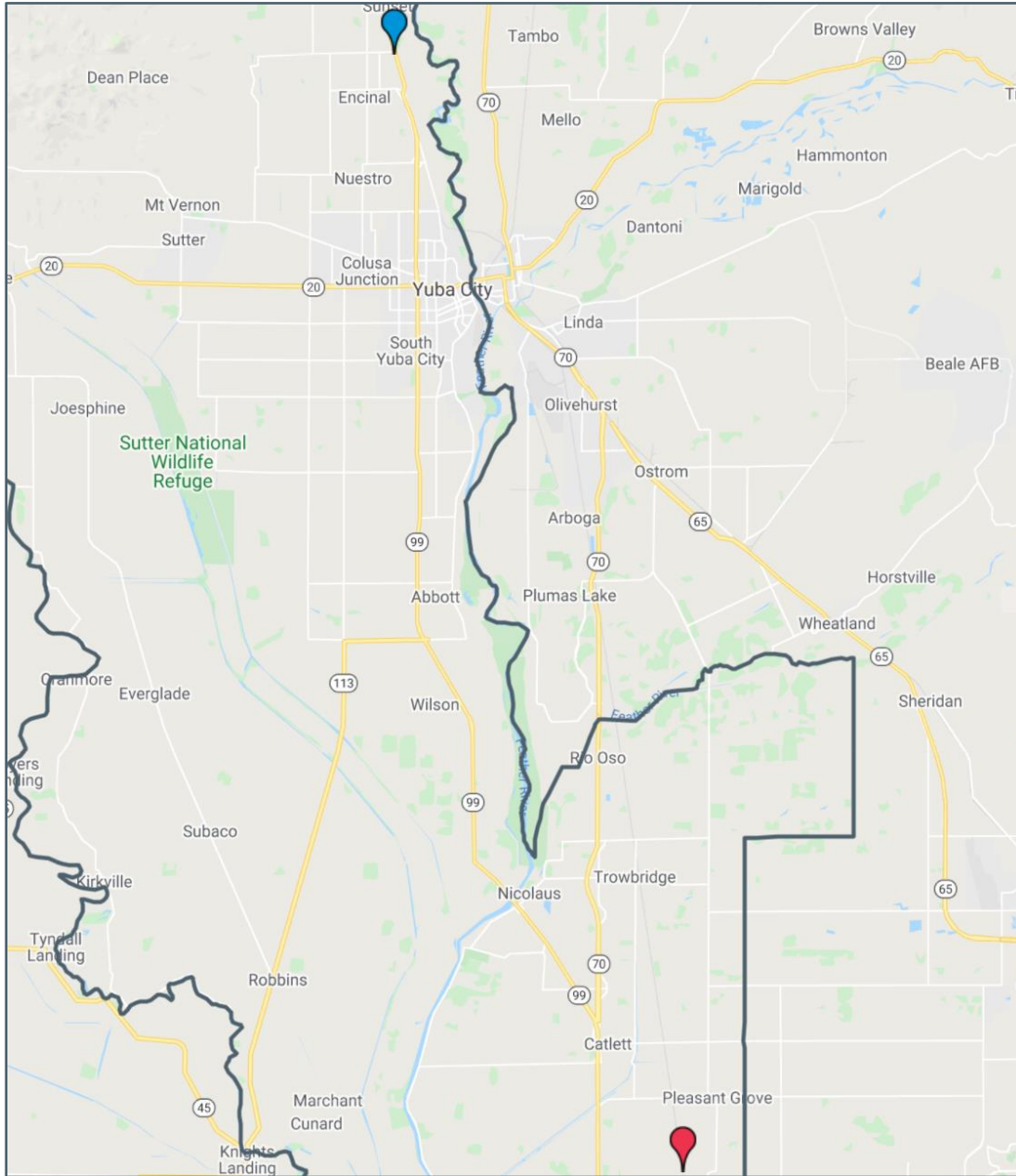
Map 13. Nevada County – Injuries by Incident Type



● Railroad crossing injury ● Trespassing injury



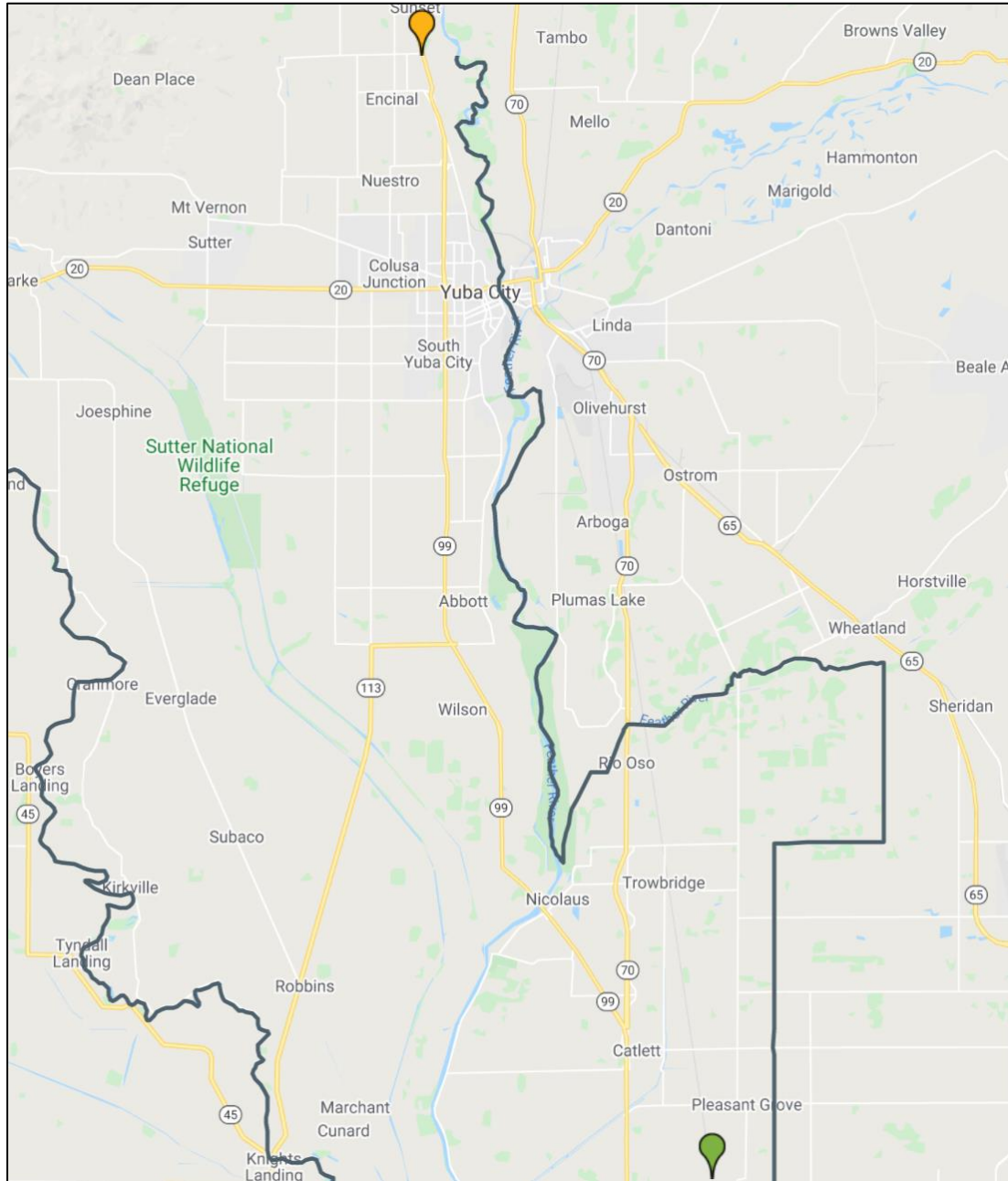
Map 14. Sutter County – Injuries by Age Group



● Adult injury ● Child injury (ages 0-19 years)



Map 15. Sutter County – Injuries by Incident Type



● Railroad crossing injury ● Trespassing injury



Notes

Data source

Data on rail-related injuries presented in this profile were obtained from the Federal Railroad Administration's (FRA) Safety Railroad Casualties (form 6180.55A) and Highway Rail Accidents (form 6180.57) databases for years 2011–2020. Excluded were rail workers and rail passengers as well as cases of suicide or attempted suicide. Maps reflect locations of injuries where longitude and latitude data are provided in each case file.

References

1. Federal Railroad Association. Fact Sheet - Highway Rail Crossing & Trespassing. 2016. Available from: <https://railroads.dot.gov/sites/fra.dot.gov/files/2019-10/rrx-fact-sheet-final12716.pdf>. Accessed August 26, 2021.
2. Federal Railroad Association. Accident Data as Reported by Railroads 2009-2018. Available from: https://safetydata.fra.dot.gov/OfficeofSafety/publicsite/on_the_fly_download.aspx. Accessed August 26, 2021.
3. U.S. Census Bureau. Quick Facts. Available from: <https://www.census.gov/quickfacts>. Accessed August 26, 2021.
4. Current Crossing Data for State of California. 2021. Available from: <https://safetydata.fra.dot.gov/OfficeofSafety/publicsite/DownloadCrossingInventoryData.aspx>. Accessed August 31, 2021.

This profile and other rail safety resources can be downloaded via the **Safe Kids Rail Safety Station** at <https://www.safekids.org/RailSafetyStation>.

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