

Safety on SH 35

The following is information about safety along SH 35 between IH 610 and SH 288 in Brazoria County (including Business SH 35 within the City of Alvin). There are several caveats to the data and analysis that you should be aware of:

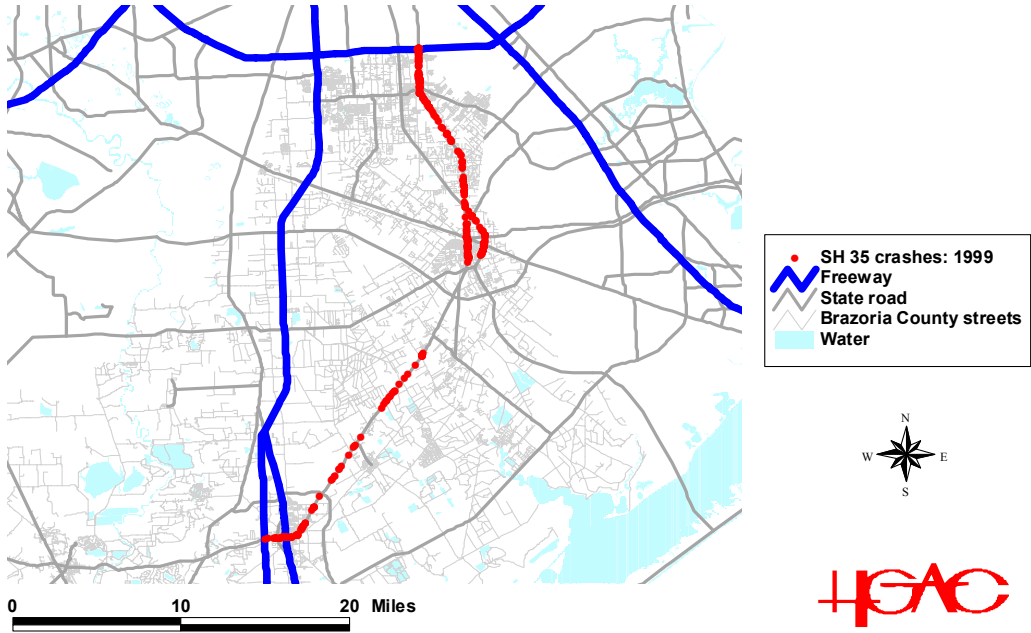
1. The data H-GAC has analyzed is distributed by the Accident Records Bureau of the Department of Public Safety. This is the state agency vested with documenting crashes for the State. Currently, their reporting requirements are that all fatal crashes, all injury crashes, and all property damage only (PDO) crashes in which one or more vehicles were towed be reported. Thus, they do not include the typical 'fender bender' in which no one is injured and all vehicles are driven away from the crash scene. In other words, the data we have represent the more serious crashes.
2. We've geocoded the crashes. However, because the data are kept in a very old information system by DPS in which road names are represented either by five-digit codes, the first five letters of the road name, or control-section numbers (for rural state roads), there is inevitably some geocoding error. We were able to geocode about 82% of all crashes in the DPS data set with about 90% accuracy on average.
3. To date, we have only geocoded crashes for 1999. Thus, any conclusions about location are only tentative.
4. Spatial accuracy is within 50-100 yards. One would need actual crash diagrams to have more accuracy.
5. Please cite the Accident Records Bureau of the Texas Department of Public Safety as the source for the crash data and cite the Houston-Galveston Area Council as the source for the crash analysis.

The conclusions are as follows:

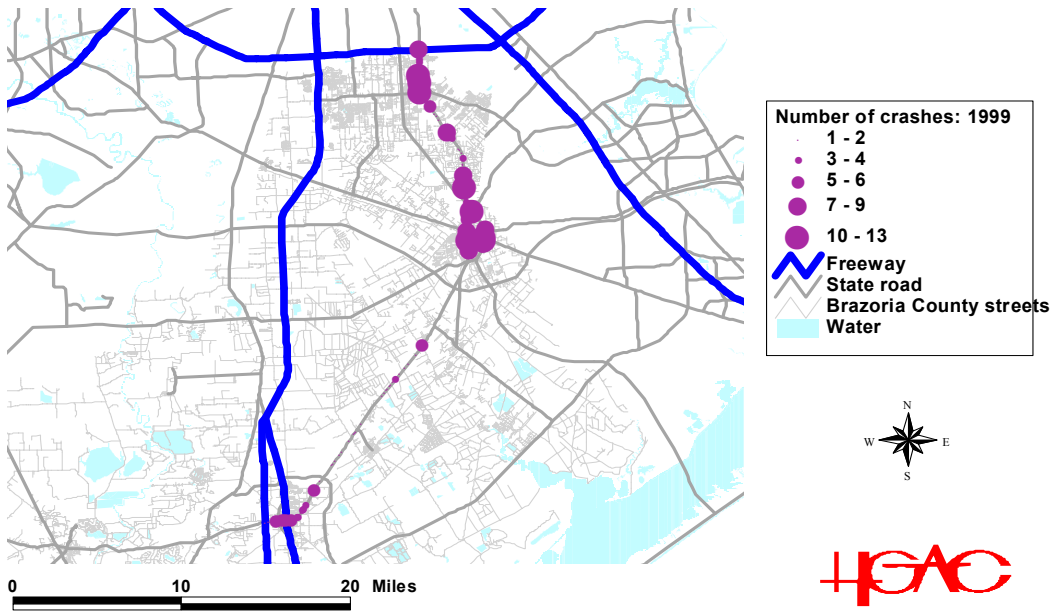
1. In 1999, there were 432 serious crashes that occurred along SH 32 between IH 610 and SH 288 (including Business SH 35 within the City of Alvin). These included 2 fatal crashes, 14 incapacitating injury crashes (Type A), 86 non-incapacitating injury crashes (Type B), 167 possible injury crashes (Type C), and 163 property damage only crashes where one or more vehicles was towed.
2. Of the 432 serious crashes, 386 were with another motor vehicle, 31 were with a fixed object, 2 were with a bicycle, 1 was with an animal, and for 12 the type of object hit was not identified.

3. Figure 1 below shows a map of the distribution of crashes. Each crash location is represented by a red dot. At any one location, there may be more than one crash. However, since the program plots the crashes on top of each other, multiple crashes cannot be identified from this map.
4. Certain gaps in the data are seen. At this moment, it is not clear whether the data we have omitted information about crashes in these areas or whether the crashes were included but allocated to another location along those stretches.
5. The *CrimeStat* program was used to identify the most frequent crash locations. Figure 2 below shows a map of the number of crashes by location. Eight locations had 10 or more crashes in 1999. These were:
 - A. The intersection between FM 528 and SH 35, in which 13 crashes occurred.
 - B. The intersection with Old Galveston Rd (CR 153), in which 12 crashes occurred.
 - C. The intersection between SH 6 and SH 35, in which 11 crashes occurred.
 - D. The intersection with Orange Street, in which 11 crashes occurred.
 - E. A stretch between Halik and Rice Dryer Rd in which 10 crashes occurred.
 - F. A stretch between Walnut St and Pear St. in which 10 crashes occurred.
 - G. The intersection with Cline Lane, in which 10 crashes occurred.
 - H. The intersection with Jephson Road, in which 10 crashes occurred.

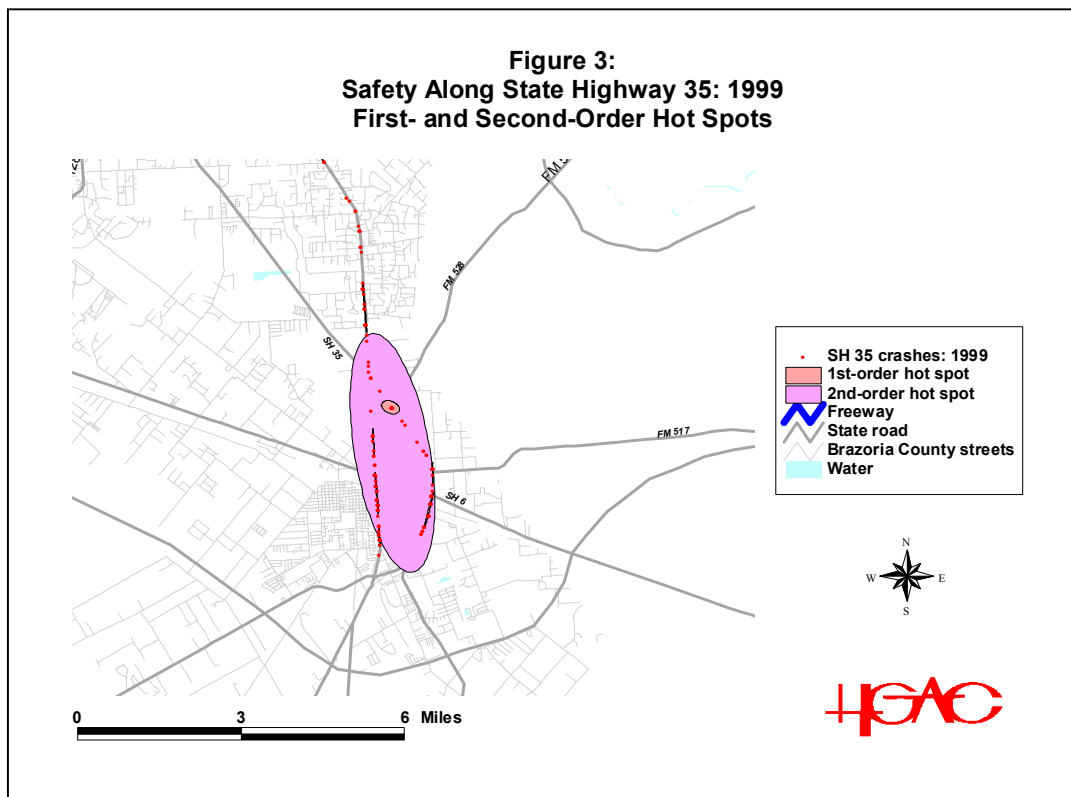
**Figure 1:
Safety Along State Highway 35: 1999
Location of Crashes**



**Figure 2:
Safety Along State Highway 35: 1999
Most Frequent Crash Locations**



6. Crash hot spots are small areas where there is a concentration of crashes. They are a better indicator of hazard than a single location since the number of crashes at a particular location depends on spatial accuracy and precision. Using the *CrimeStat* program, 13 first-order hot spots and one second-order hot spot were identified. A first-order hot spot is a concentration of incidents while a second-order hot spot is a concentration of first-order hot spots. The second-order hot spot shows the sections of SH 35 that had the most collisions (Figure 3). Clearly, the stretch of SH 35 in the vicinity of Alvin has the highest concentration. There are 7 first-order hot spots as well as the second-order hot spot in and around Alvin.



7. Based on the estimate of VMT from our modeling group, *serious crash risk* was calculated. This is the number of serious crashes per 100 million vehicle miles traveled (VMT). In 1999, crash risk on SH 35 was 229.4 crashes per 100 million VMT. This is higher than the regional average of 199 crashes per 100 million VMT. Compared to the region as a whole, crash risk is high. Further, our region is the worst in the State of Texas and is one of the worst in the country. Consequently, the crash risk on SH 35 has to be considered severe by national standards.

8. Finally, using *CrimeStat*, risk hot spots were identified by relating the number of crashes to VMT. A first-order risk hot spot is an area where there are more crashes occurring than would be expected on the basis of VMT. A second-order risk hot spot is a concentration of first-order risk hot spots. Nine first-order risk hot spots and one second-order risk hot spot was identified. Figure 4 below shows these locations. As expected, the area around Alvin has two of the risk hot spots, as well as the second-order risk hot spot. However, additional risk hot spots can be seen at the junction with SH 288 to the southwest and around the intersections with FM 518 and CR 128 to the north. These are the riskiest locations along SH 35.

