

Safety on Kirby Drive

The following is information about safety on Kirby Drive between Allen Parkway on the north and Holmes Road on the south.

Data Source

There are some caveats about the data:

1. The data are obtained from 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 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 geocoded crashes for 1998-2000. Thus, any conclusions about location are only applicable for those years.
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.

Results

Given these caveats, the results of the analysis are as follows:

1. Between 1998 and 2000, there were 927 serious crashes that occurred on Kirby Drive from its intersection with Allen Parkway in the north to its intersection with Holmes Road (below IH 610 South), an average of 309 a year over the period. These did not include crashes on the US 59 W or IH 610 S freeways at the Kirby exit ramps. In other words, these are crashes that occurred strictly on Kirby Drive.

2. Of the 927 serious crashes between 1998 and 2000, there were 3 fatal, 21 incapacitating injury (Type A), 115 non-incapacitating injury (Type B) and 482 possible injury crashes (Type C). There were also 306 serious property damage only (PDO) crashes. As mentioned above, this is only a sub-set of all PDO crashes.
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. Of the 927 crashes, 831 were with other motor vehicles, 11 were with pedestrians, 6 were with bicyclists, 6 were with parked cars, and 63 were with fixed objects (e.g., telephone polls, stop signs, buildings).
5. According to the police report, of the 927 crashes, 315 involved speeding, 270 involved failure to yield (e.g., making a left turn against traffic; pulling out of a driveway without letting traffic pass), 128 involved failure to stop at a stop sign, 108 involved running a red light, 45 involved driving under the influence, and 27 involved making an improper turn.
6. Grouping the crashes into general crash types, 32% involved a rear-end crash, 31% involved a left turn crash, 19% involved vehicles going straight, and 12% involved a right turn crash, with the rest being undefined.
7. Compared to the regional average, there is a higher percentage of crashes on Kirby that involved a failure to yield (29% on Kirby v. 20% for all regional crashes), running a red light (12% v. 8% for all regional crashes), and making an improper turn (3% v. 2% for all regional crashes). Of the failure to yield crashes, 70% involved at least one vehicle making a left turn. Of these left turn failure to yield crashes, 48% were not at an intersection.
8. There are differences in the location of the crash types. Of the 927 crashes, 35% occurred north of the US 59 West (Southwest) freeway, 59% occurred between US 59 West and IH 610 South, and 6% occurred south of IH 610 South. Figure 2-4 show these three sections.
9. There are differences in the types of crashes for the different sections of Kirby Drive.
 - A. North of US 59 W, there were proportionately more failure to stop crashes (15%), red light running crashes (13%), and DUI crashes (7%) than either between US 59 W and IH 610 S (13%, 10%, and 3% respectively) or south of IH 610 S (4%, 4%, and 4% respectively).

- B. Between US 59 W and IH 610 S, there were proportionately more left turn crashes (34%) than either north of US 59 W (26%) or south of IH 610 S (17%).
 - C. South of IH 610 S, there were proportionately more speeding crashes (40%) and improper turn crashes (8%) than either north of US 59 W (31% and 2% respectively) or between US 59 W and IH 610 S (35% and 3% respectively).
10. The *CrimeStat* program was used to identify the most frequent crash locations.¹ Figure 5 below shows a map of the seven locations that had 20 or more crashes between 1998 and 2000. These were at:
- A. The access ramp to IH 610 South (59 crashes)
 - B. The access ramp to US 59 West (41 crashes)
 - C. The intersection with North Blvd (34 crashes);
 - D. The intersection with Bissonet (31 crashes);
 - E. On the block between South Blvd and Bartlett (25 crashes);
 - F. The intersection with Holcombe Blvd/Bellaire Blvd (24 crashes); and
 - G. The intersection with W. Alabama St. (22 crashes).
11. Based on the estimate of VMT from our modeling group, *serious crash risk* was calculated. This is the number of crashes per 100 million vehicle miles traveled (VMT). Between 1998 and 2000, crash risk on Kirby was 437 serious crashes per 100 million VMT.
- A. This is much higher than the crash risk for urban principal arterials in the rest of Harris County (247 per 100 million VMT for 1998-2000) and for the State of Texas (233 per 100 million VMT for 1998-2000).²
 - B. This is also much higher than the regional average for all roads of 196 serious crashes per 100 million VMT and the State of Texas average of 150 serious crashes per 100 million VMT.
 - C. Compared to the region as a whole and to the State of Texas, crash risk on Kirby Drive is very severe.
12. Comparisons were made of the serious crash risk on different sections of Kirby Drive. North of US 59 W, serious crash risk was 336 per 100 million VMT. Between US 59 W and IH 610 S, serious crash risk was 972. South of IH 610 S, serious crash risk was 854. While safety is very severe along the whole of Kirby

¹ See Ned Levine, "CrimeStat: A Spatial Statistics Program for the Analysis of Metropolitan Crime Distributions (version 2.0)". National Institute of Justice: Washington, DC. 2002.
<http://www.icpsr.umich.edu/nacjd/crimestat.html>

² Calculations on urban principal arterials is from the Texas Transportation Institute in their report on safety in the East End of Houston. H-GAC Safety page (<http://www.h-gac.com/safety>).

Drive, it is particularly severe south of US 59 W. Figure 6 maps the high crash risk locations (in red). As seen, the approaches to the two freeways have the highest crash risk though there are high crash risk locations at Westheimer Road and near N. Braeswood.

Figure 1:

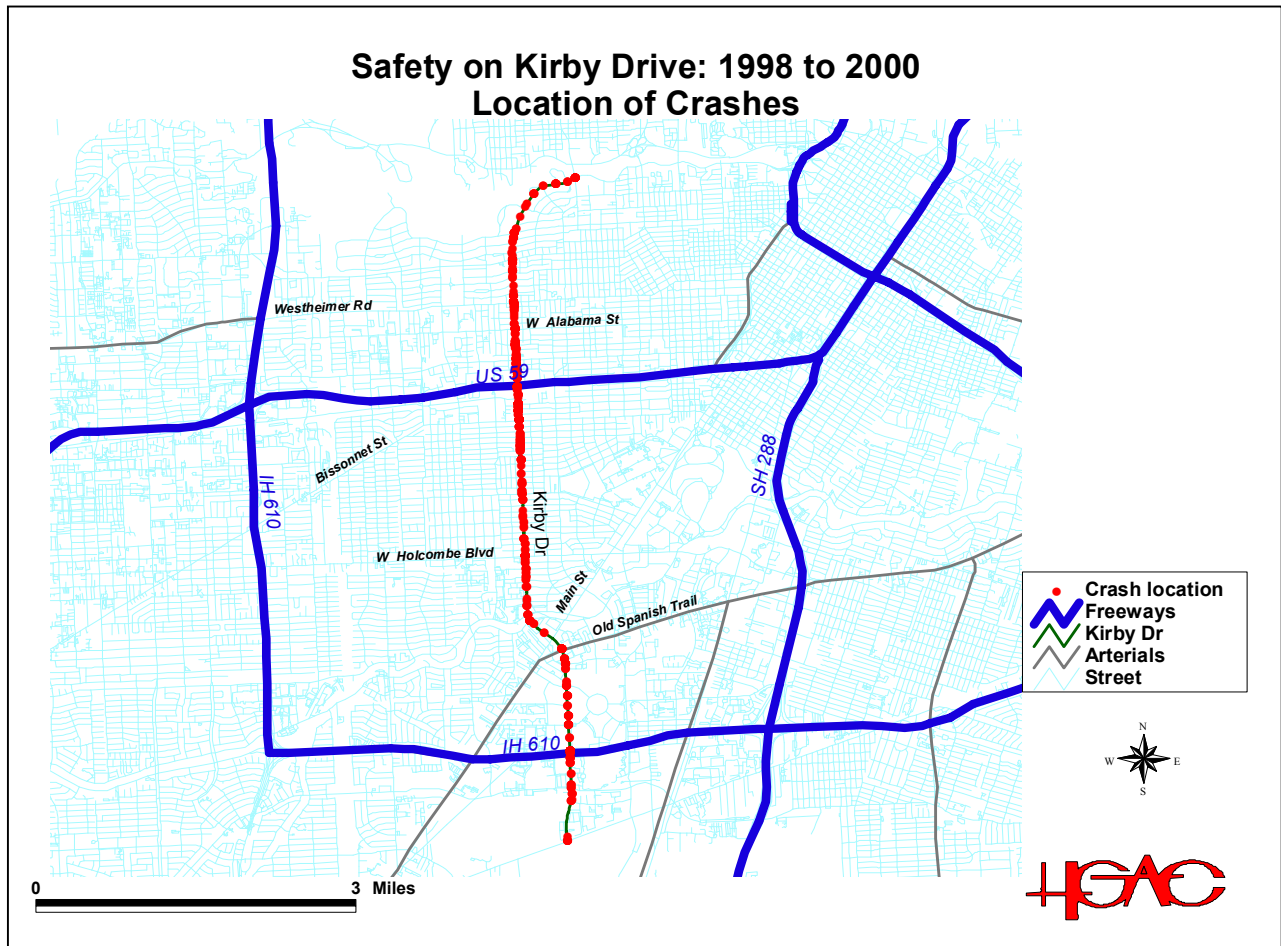


Figure 2:

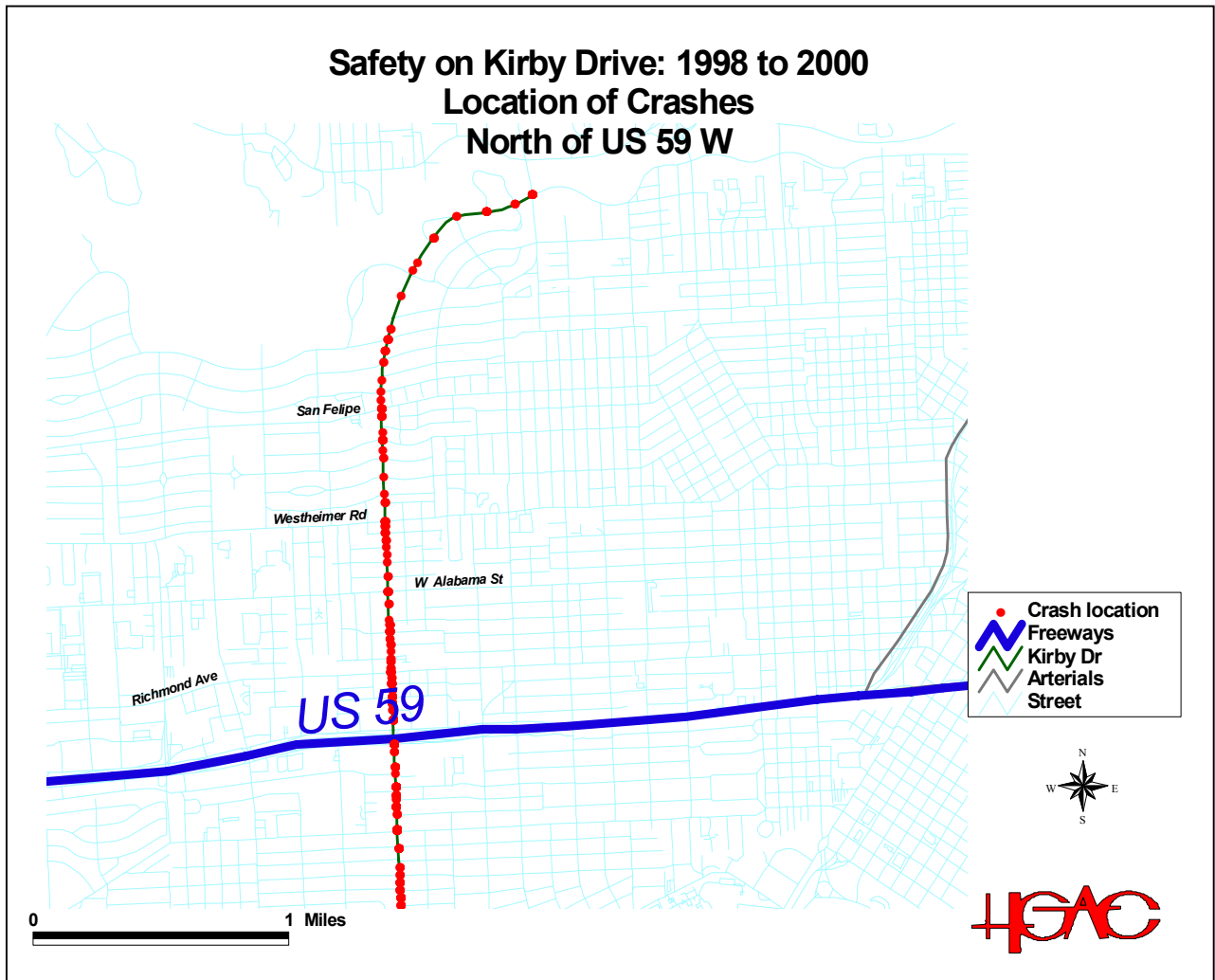


Figure 3:

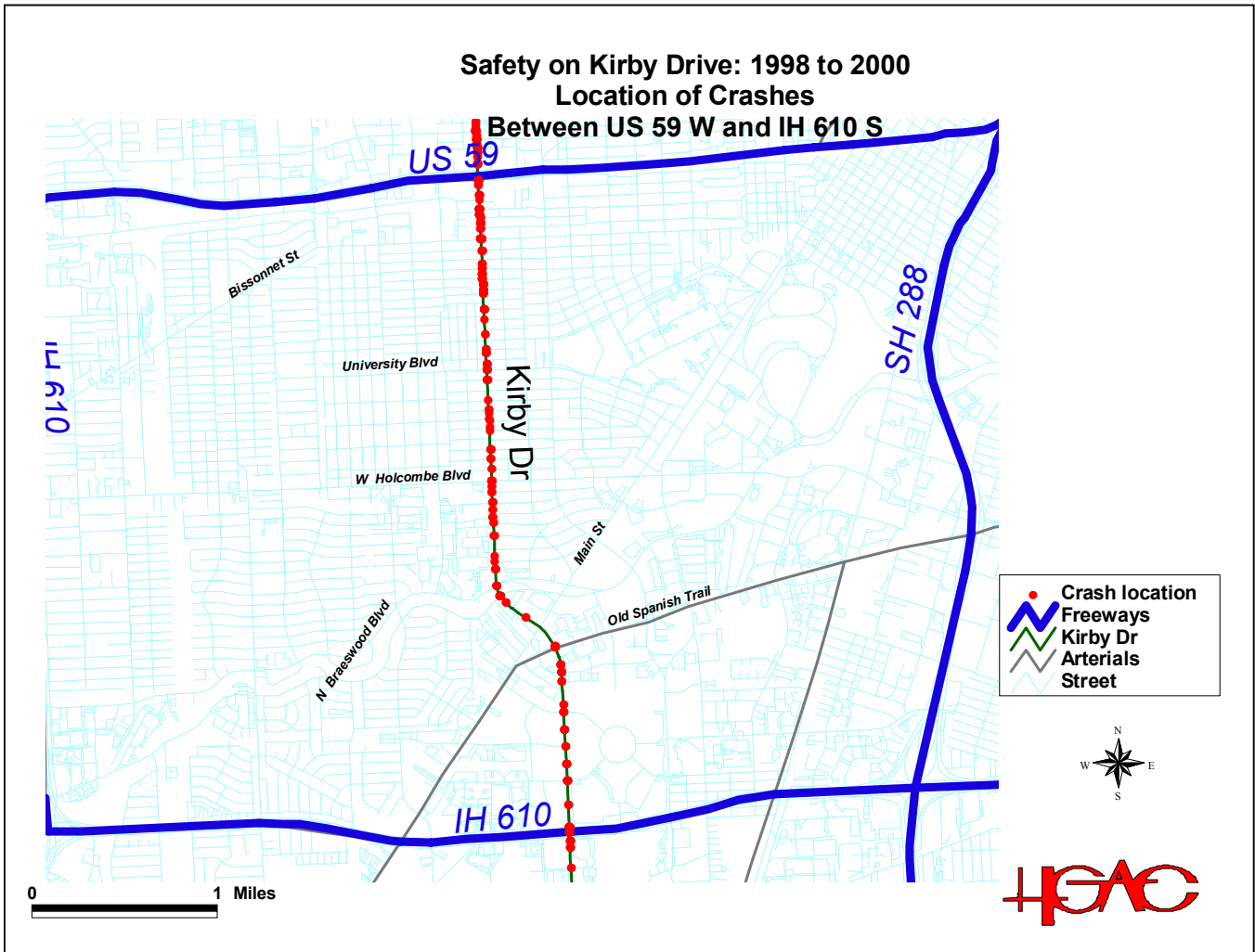


Figure 4:

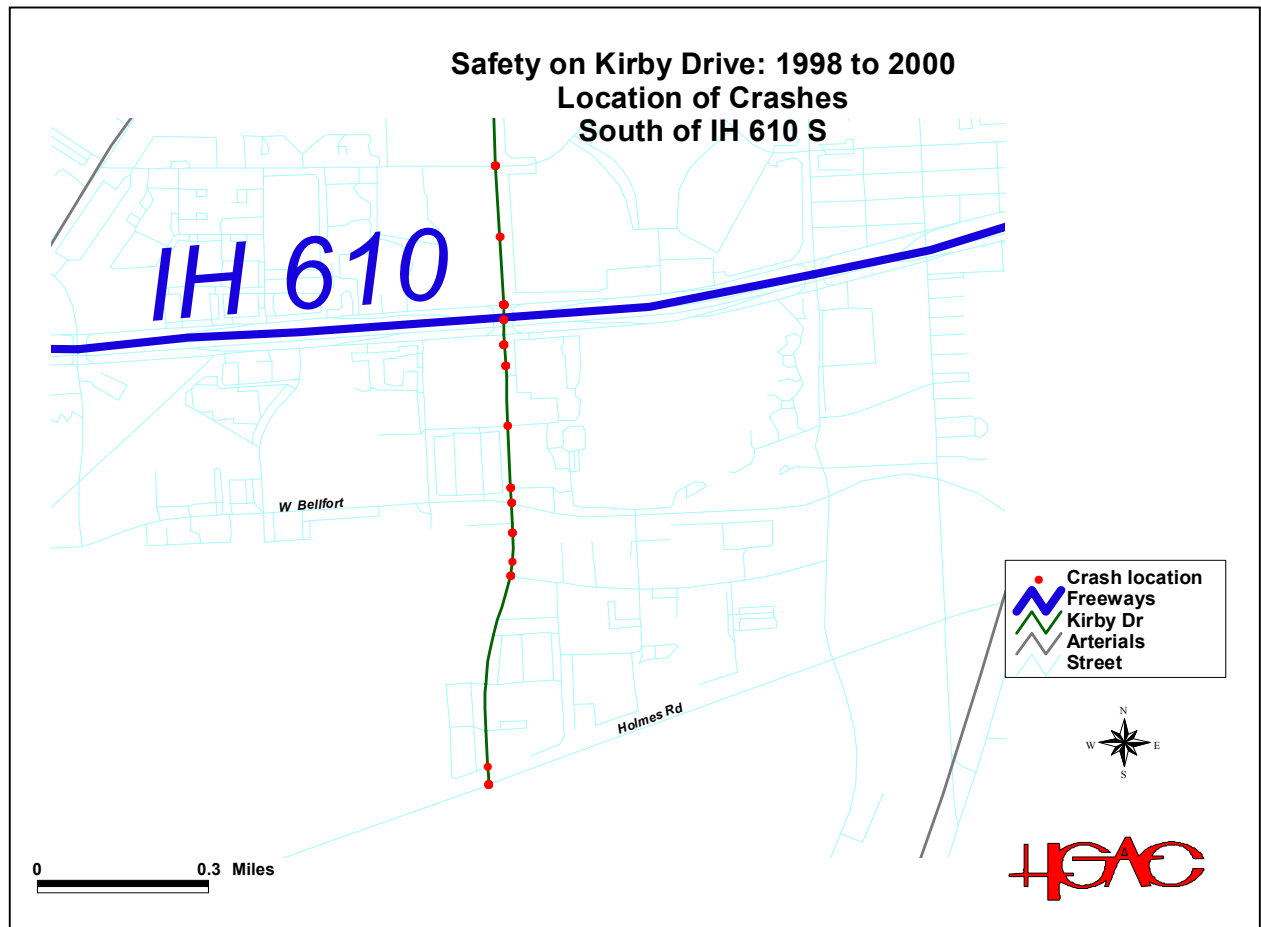
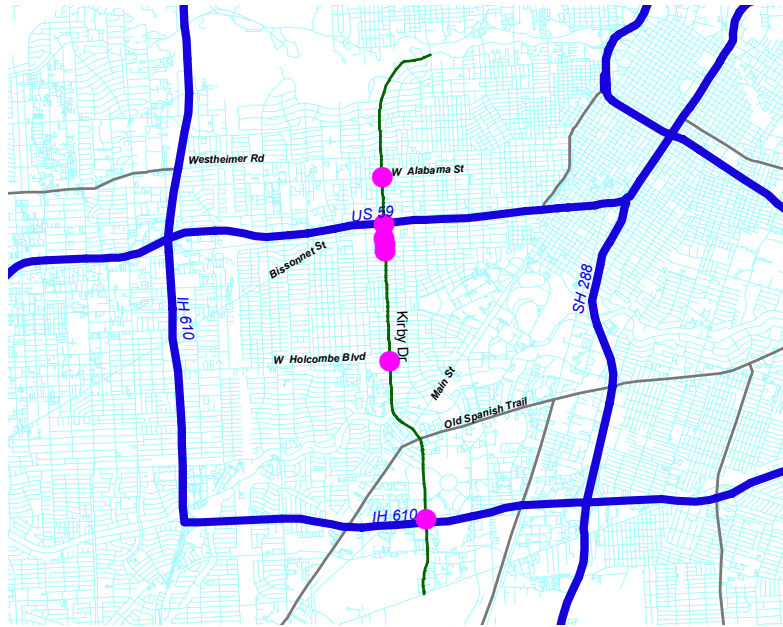


Figure 5:

Kirby Drive 'Hot Spots': 1998 to 2000 Number of Crashes at Locations



- High crash locations
- ▬ Freeways
- ▬ Kirby Dr
- ▬ Arterials
- ▬ Street

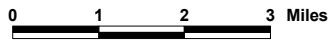


Figure 6

