# Pedestrian Safety in the Region: 1999-2001

The following information applies to pedestrian safety in the eight county region for 1999 through 2001. First, there are some caveats about the data:

1. The data H-GAC has analyzed is distributed by the Crash 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. H-GAC has 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. H-GAC was able to geocode about 82% of all crashes in the DPS data set with about 90% accuracy.

3. In this report, only crashes for 1999-2001 are considered. 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 Crash 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 of the Analysis**

1. Between 1999 and 2001, there 3,579 crashes involving pedestrians, an average of 1,193 a year or about 3.3 a day.

2. The 3,579 pedestrian crashes resulted in 3,720 pedestrians being hit.

3. Of the 3,720 pedestrians struck, 278 were killed and 3,413 were injured at the time of the crash. Seven were uninjured at the time of the crash and there is no information for 22. We have no information about injuries that occurred in the crash but were detected later or about patients who were alive after the crash but died later.

4. Of the 3,720 pedestrians hit, 1,171 (or 31.5%) were children under age 16 and approximately 62% were males. For the population as a whole, 25.9% are children under age 16 and 49.8% are males. Thus, children and males are disproportionately involved in pedestrian motor vehicle crashes.

5. On the police report, the officer described contributing factors to the crash. The leading factor listed was failure by the driver to yield the right of way to the pedestrian (644 cases) followed by speeding (225 cases), DUI (108 cases), failure to stop (42 cases), and running a red light (27) cases. There were a handful of other factors described. However, the majority of pedestrian crashes had no factors listed. From the distribution of answers, a failure to yield or stop was the major cause followed by speeding and DUI.

6. Information was provided about the pedestrian actions in 638 of the crashes. The most common action described was not crossing at an intersection or crosswalk (347 cases), actually crossing at an intersection or crosswalk (151 cases; in this case, the pedestrian has the legal right of way in Texas), standing or working or playing in the roadway (70 cases), walking with traffic (56 cases), and walking against traffic (12 cases). Again, the majority of pedestrian crashes had no actions listed. From the distribution of answers, it appears that far more pedestrians are struck while crossing a road than by standing or walking along a road.

7. The Federal Highway Administration has sponsored several studies showing that a raised median offers protection for pedestrians who are crossing the road. On a high volume arterial, as would be seen in Houston, raised medians offer more protection than crosswalks. See the following:

   http://safety.fhwa.dot.gov/ped_bike/univcourse/swless16.htm
   http://safety.fhwa.dot.gov/geometric/accessmgmtbrochure/median.htm
   http://www.walkinginfo.org/rd/devices.htm#cros1
   (report entitled "Safety Effects of Marked vs Unmarked Crosswalks at Uncontrolled Locations: Executive Summary and Recommended Guidelines")

8. For 1,477 of the crashes, the police officer indicated whether the pedestrian had violated the law or not. For these, 1085 (or 73.5%), a violation was indicated. Again, the majority of pedestrian crashes were not specified as to the violation status so that it is unclear whether these violations represent the majority of all pedestrian crashes or not. Nevertheless, at least 30% of pedestrian crashes involve the pedestrian being at fault.

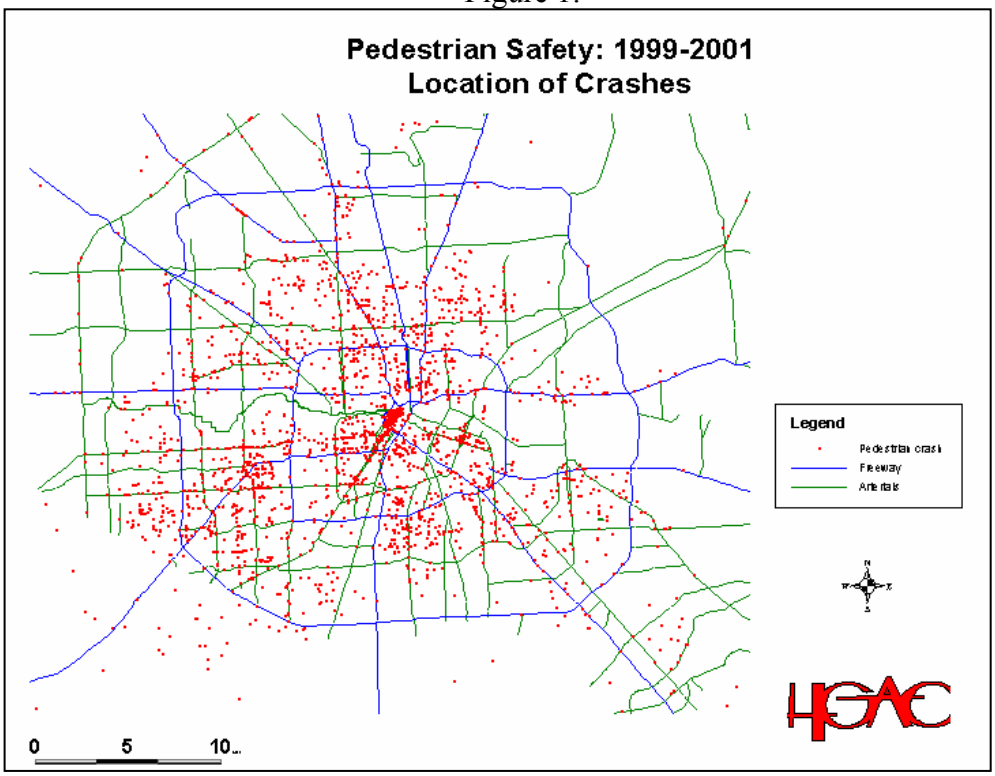
9. For the 1,171 children who were hit, there were 25 fatalities and 1,142 injuries; there were 4 listed as uninjured.

   A. Approximately 62% were males and 38% were females.

   B. According to the police report, 130 did not cross the road at an intersection, 37 did cross the road at an intersection, while 14 were walking, standing or playing the roadway.

10. Spatially, pedestrian crashes tend to occur in areas with many pedestrians. Typically these are in the central city (figure 1).

Figure 1:




11. Hot spots are small areas where many incidents are concentrated. Twenty-eight pedestrian crash hot spots were identified with the *CrimeStat* program.[1] Figure 2 shows the location of these hot spots. Again, most are centrally located as these are the locations where more pedestrians are liable to be found. Of particular note are hot spots in the downtown area, in midtown and the Montrose area, in the Texas Medical Center, in the Gulfton area along the Southwest Freeway (US 59 W), and in the East End of Houston. For the latter hot spot, H-GAC sponsored a study of safety in that areas which included pedestrian and bicycle safety; that study is found under the safety studies section of the H-GAC safety web page (http://www.h-gac.com/safety).

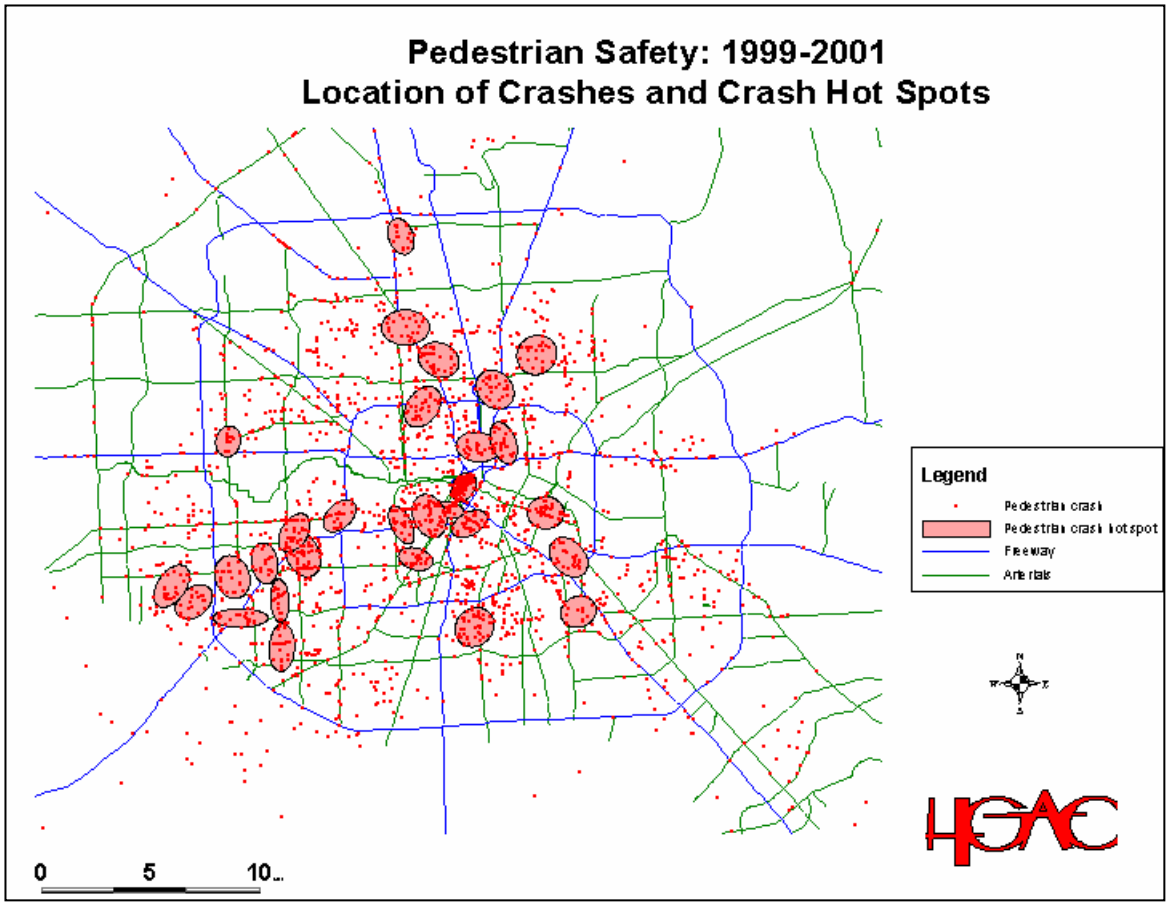
12. Comparing pedestrian safety for our region with other regions is difficult. Normally, crash risk is measured as the number of crashes per 100 million VMT (see other safety studies on the H-GAC safety web page). In the case of pedestrian crashes, however, the correct baseline population would need to be the number of pedestrians in an area. Unfortunately, that information is not known and an accurate estimate of pedestrian safety risk cannot be obtained. However, a rough estimate of the relative severity of pedestrian crashes can be seen by comparing the total numbers of crashes.

[1] Ned Levine, "*CrimeStat*: A Spatial Statistics Program for the Analysis of Crime Incident Locations". National Institute of Justice: Washington, DC. 2004. http://www.icpsr.umich.edu/crimestat

A. The 3,579 pedestrian crashes represented 26.4% of the total for the State of Texas, 23.3% of all statewide pedestrian fatal crashes and 26.7% of all statewide pedestrian injury crashes between 1999 and 2001. The region's share of the State's population is 22%.

B. The region has more pedestrian crashes than the greater Dallas-Fort Worth metropolitan area even though the latter area is about 10% larger in terms of population.

Figure 2:




In short, the Houston metropolitan area has a serious pedestrian safety problem.