Tech Note #26

Speeding Counts...On All Roads!

Almost one of every three traffic fatalities is related to speeding, and speeding is a safety concern on all roads, regardless of their speed limits. However, much of the public concern about speeding has been focused on high-speed Interstates. The Interstate System actually has the best safety record of all roads and the lowest fatality rate per mile traveled. As Figure 1 below illustrates, almost 50% of speeding-related fatalities occur on lower speed collector and local roads, which carry only 28.1% of the total vehicle miles traveled in the United States. Collectors usually have legal speed limits of 55 mi/h or less. Speed limits on local roads are often 35 mi/h or lower.

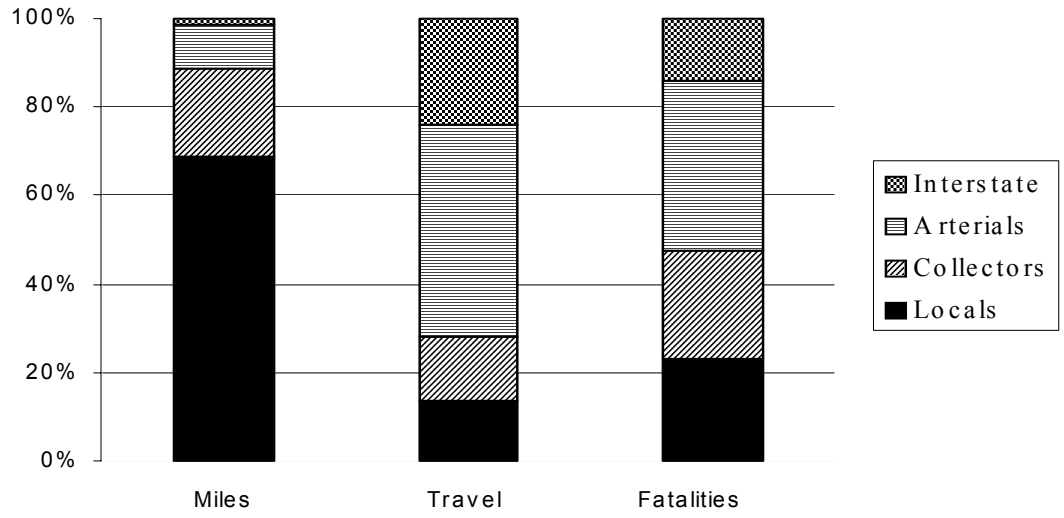
Collecting the Numbers

The U.S. Department of Transportation's (DOT's) National Highway Traffic Safety Administration (NHTSA) maintains the Fatality Analysis Reporting System (FARS), a database of all fatal crashes on public roads in the U.S. In 1999, the last year for which we have complete data, more than 41,600 people--family members, friends, and colleagues--died in motor vehicle crashes. Speeding was reported to be a factor in 32 percent of these fatalities, claiming the lives of 13,357 motorists, pedestrians, highway workers, and other road users.

To be designated as a speeding-related crash by the Federal Highway Administration (FHWA), the FARS analyst had to indicate that at least one of the following three criteria was met:

* Driver-related factor of driving too fast for conditions or exceeding the legal speed limit, or
* Driver charged with a speeding-related violation (other than driving too slowly), or
* Vehicle speed was at least 10 mi/h over the legal speed limit.

Figure 1: Total Road Miles, Travel, and Speeding-Related Fatalities by Road Function



When we look at the rates of speeding-related fatalities (calculated as fatalities per 100 million vehicle miles traveled-100 M VMT), the deadly consequences of speeding on local and collector roads becomes even more dramatic. The speeding fatality rate for local roads is 3 times that for Interstates. (see Figure 2)

The U.S. DOT's FHWA and the Federal Motor Carrier Safety Administration use this definition of speeding-related in statistical analysis. It is tied to information on the police accident report form.

Speeding Statistics Vary By Road Class

A relatively low percent of speeding-related fatalities-about 14% occurs on Interstate highways. The lower speed roads--collectors and locals--account for almost half of all speed-related fatalities. Yet, numbers of fatalities are only a part of the picture.

Road Functional Classification System

The DOT's FHWA classifies our Nation's roadways by *road function*. Each function is based on the type of service the road provides to the motoring public, and the designation is used for data and transportation planning purposes. The following information illustrates the four major road function classifications.

The Interstate System is the highest classification of roadways in the United States. These arterial roads provide the highest level of mobility and the highest speeds over the longest uninterrupted distance. Interstates nationwide usually have posted speeds between 55 and 75 mi/h. Interstate highways represent:

* 46,084 miles of public road.
*1.2% of total public road mileage.
*23.9% of the annual vehicle-miles traveled.
*13.9% of speeding-related fatalities.
*0.28 persons killed in speeding-related crashes per 100 M VMT.

Other Arterials include freeways, multilane highways, and other important roadways that supplement the Interstate System. Posted speed limits on arterials usually range between 50 and 70 mi/h. Arterial highways, not including the Interstate, represent:

*387,957 miles of public road.
*9.9% of total public road mileage.
*47.9% of the annual vehicle-miles traveled.
*38.7% of speeding-related fatalities.
*0.39 persons killed in speeding-related crashes per 100 M VMT.

Collectors are major and minor roads that connect local roads and streets with arterials. Collectors provide less mobility than arterials at lower speeds and for shorter distances. The posted speed limit on collectors is usually between 35 and 55 mi/h. Collector roads represent:

*792,619 miles of public road.
*20.3% of total public road mileage.
*14.7% of the annual vehicle-miles traveled.
*24.3% of speeding-related fatalities.
*0.80 persons killed in speeding-related crashes per 100 M VMT.

Local roads provide limited mobility and are the primary access to residential areas, businesses, farms, and other local areas. Local roads, with posted speed limits usually between 20 and 45 mi/h, constitute the majority of roads in the U.S. Local roads represent:

*2,679,632 miles of public roads.
*68.6% of total public road mileage.
*13.4% of the annual vehicle-miles traveled.
*23.1% of speeding-related fatalities.
*0.84 persons killed in speeding-related crashes per 100 M VMT.

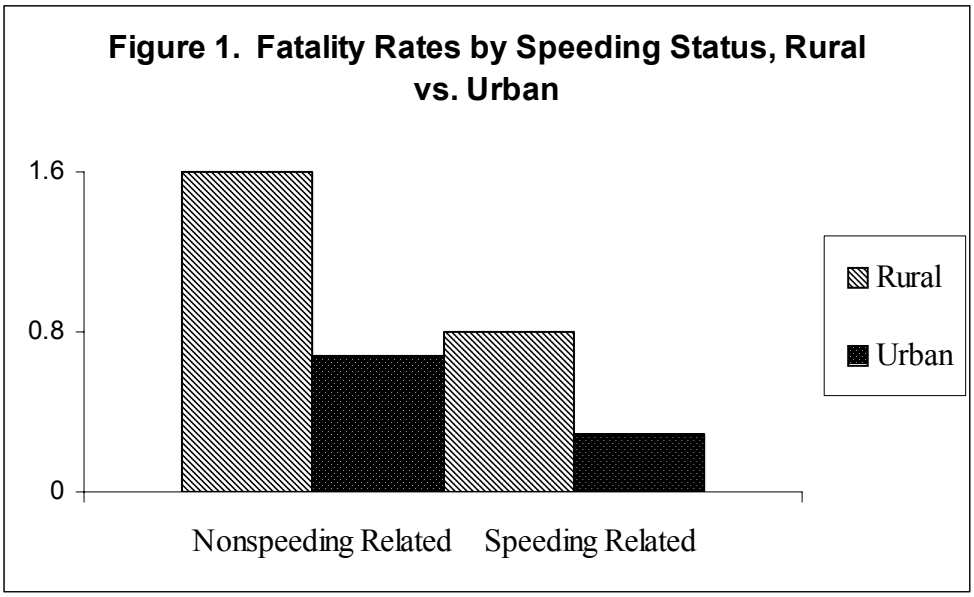
Speeding in Rural Areas

Census data continue to show America is an increasingly urban society. More of us now live in cities, planned communities, and suburban areas than in rural areas. Not suprisingly, we travel more on urban roads than on rural roads (1,627,705 million vehicle miles [M VMT] are driven annually in urban areas, compared with 1,063,630 M VMT in rural areas). However, in 1999, 60% of all U.S. motor vehicle fatalities and 64% of all speeding-related fatalities occurred on rural roads. Speeding--driving too fast for conditions or exceeding the legal speed limit--is a problem on all roadways nationwide. But, on the less-forgiving rural roadways, speeding takes a deadly toll.

Fatal Consequences of Speed on Rural Roads

As seen in Figure 1., fatality rates on rural roads are much higher than fatality rates on urban roads. The difference is more pronounced for speeding-related rates than for non-speeding-related rates. The reasons for the dramatic difference in fatality rates on rural and urban roadways reflect several factors related to crashes on rural roads. First, rural roads have a higher incidence of severe crashes, including run-off-road and rollover crashes. Second, rough terrain, less vehicle traffic, longer intervals between a crash and time of discovery, and lower level of available trauma care tend to make the injury outcomes for rural travelers more severe.

Figure 1. Fatality Rates by Speeding Status, Rural vs. Urban



Fatality Statistics Vary According to Roadway Type

Across both rural and urban areas of the U.S., very few speeding-related fatalities occur on the Interstates--the roadways with the highest posted speed limits. Rural Interstates, in particular, usually have the highest speed limits of any roadway in a State. Almost 1 in 4 speeding-related fatalities occurs on local roads, in both urban and rural areas. Yet rural areas differ from urban areas in speed-related statistics.

Frequency

Figures 2 and 3 show the distributions of speed-related fatalities by road class for rural versus urban areas. For example, in urban areas, crashes on arterials account for more than half of all speed-related fatalities. In rural areas, fatalities on arterials account for less than a third of all speed-related fatalities. This finding undoubtedly reflects differences in the number of miles of arterial roads in urban areas versus rural areas. We can normalize or adjust for these differences by comparing fatality rates per 100M VMT as shown in Figures 4 and 5.

Figure 2. Rural Distribution of Speeding-Related Fatalities by Highway Class.

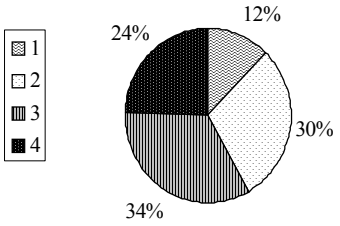
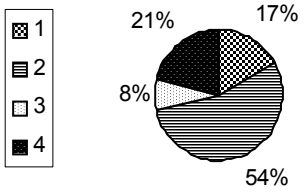


Figure 3. Urban Distribution of Speeding-Related Fatalities by Highway Class.

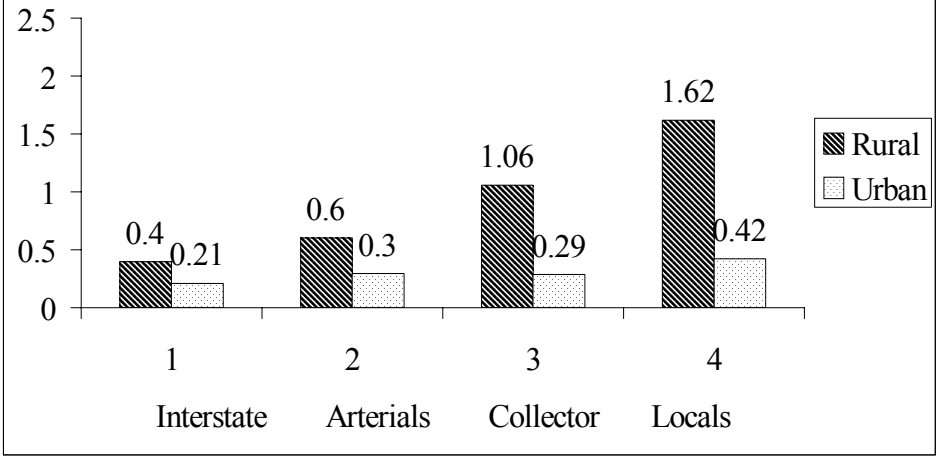


Rates

Collectors and locals have the highest rates and show the greatest differences between rural and urban rates. In rural areas, crashes on collectors account for one-third of speeding-related fatalities and have a speeding-related fatality rate of 1.06. By contrast, urban-area collectors account for only 8% of speed-related fatalities and have a speeding-related fatality rate of 0.29.

The fatality rates for speeding-related crashes in rural areas increase progressively as the road function class lowers(see Figure 4). This is in contrast to the nonspeeding-related fatality rates in rural areas--rural rates rise sharply off the Interstates (more than double) and remain relatively high (see Figure 5).

Figure 4. Speeding-Related Fatality Rates by Highway Class, Rural vs. Urban



Where We Drive Makes a Difference

Many rural roads evolved from farm roads upgraded to accommodate increased traffic volumes and vehicle size. In many areas, farmers, commuters, school buses, trucks, and tourists share roads with narrow lanes, limited sight distance, less enforcement, and lack of clear roadsides. In rural areas, legal speeds on collector and local roads are often higher than their urban counterparts. On rural roads, unlike urban roads, traffic is not often slowed by frequent traffic signals, stop signs, and traffic congestion.