

## **Overview**

Pedestrian and bicycle fatalities and injuries are a serious problem in the Washington region. Nearly a quarter of all traffic fatalities in the region are pedestrian or cyclist. Every jurisdiction has a significant pedestrian safety problem. Pedestrian and bicyclist fatalities account at least 10% of total traffic fatalities in every major jurisdiction.

While are areas and demographic groups are affected, some groups are more affected than others. Urban areas and inner suburban areas are more heavily affected than the outer suburbs, Hispanics and African-Americans more than Whites and Asians.

This section will describe the scope of the pedestrian and bicycle safety problem, its distribution across the region by jurisdiction and ethnicity, and the legal rights and responsibilities of drivers, pedestrians, and bicyclists. It will also discuss the region's efforts to deal with the problem through the "Street Smart" pedestrian and bicycle safety campaign.

## **The Scope of the Problem**

Pedestrian safety is a major problem nationally and in the Metropolitan Washington region. Of 42,643 traffic fatalities in the United States in 2003, 4,749, or about 11%, were pedestrians.<sup>1</sup> Urban areas have higher pedestrian fatality rates than rural areas. The Washington-Baltimore region ranks 22nd out of the 50 largest metropolitan areas in terms of pedestrian deaths per capita.

Pedestrians and bicyclists account for nearly a quarter of those killed on the roads in the Washington region. Over 2600 pedestrians and bicyclists are injured every year, and 89 are killed. On average, there are 368 traffic fatalities per year in the Washington region.<sup>2</sup> Chart 3-1 shows average annual pedestrian and bicycle fatalities in the Washington Region, as a proportion of total traffic fatalities.

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<sup>1</sup> [www.nhtsa.dot.gov](http://www.nhtsa.dot.gov)

<sup>2</sup> Regional totals compiled from data provided by the District Department of Transportation, the Maryland Office of Highway Safety, and the Virginia Department of Motor Vehicles.

**Chart 3-1: Average Annual Pedestrian and Bicycle Traffic Fatalities in the Washington Region, 1994-2003**

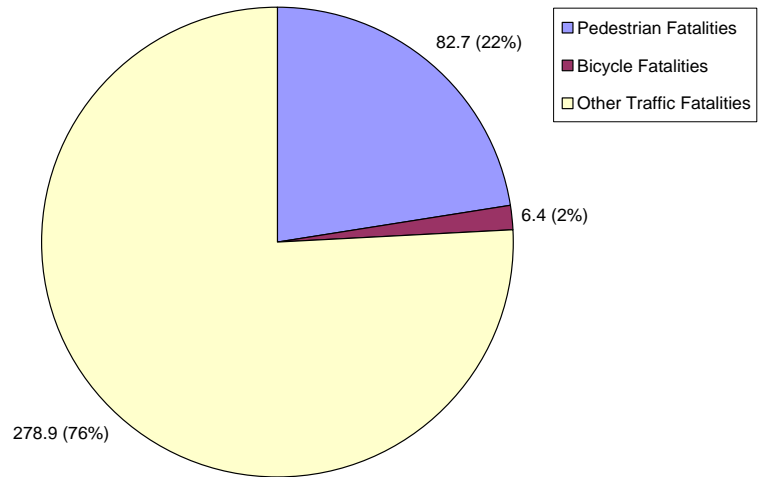
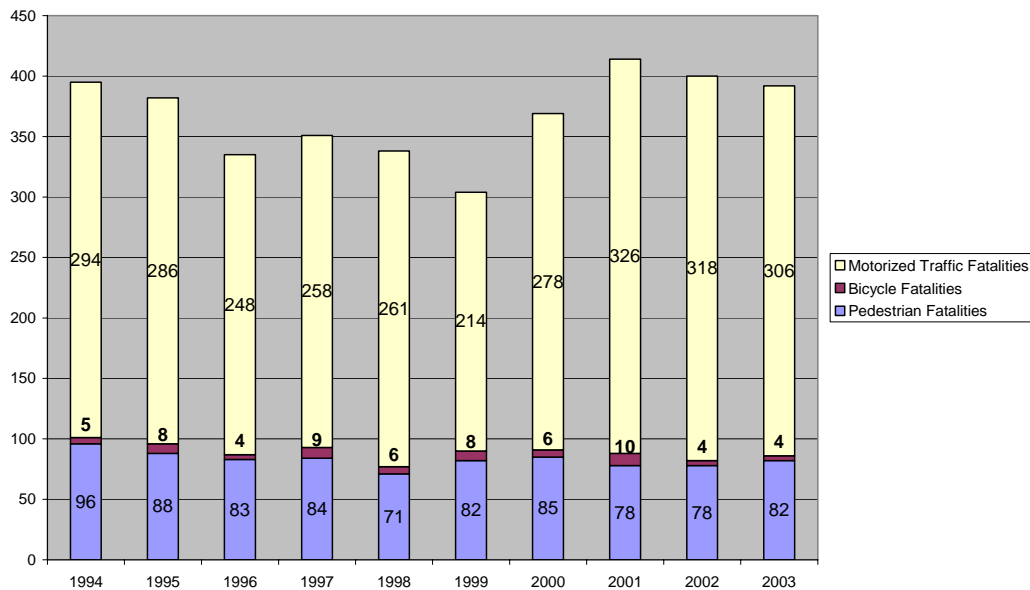


Chart 3-2 shows the yearly variations in traffic fatalities from 1994-2003. Overall traffic fatalities were stable, and pedestrian and bicycle fatalities showed a slight downward trend. However, population and vehicle-miles traveled rose significantly during the period, while the mode share of walking fell.

**Chart 3-2:  
Pedestrian, Bicycle and Motorized Fatalities in the Washington Region**



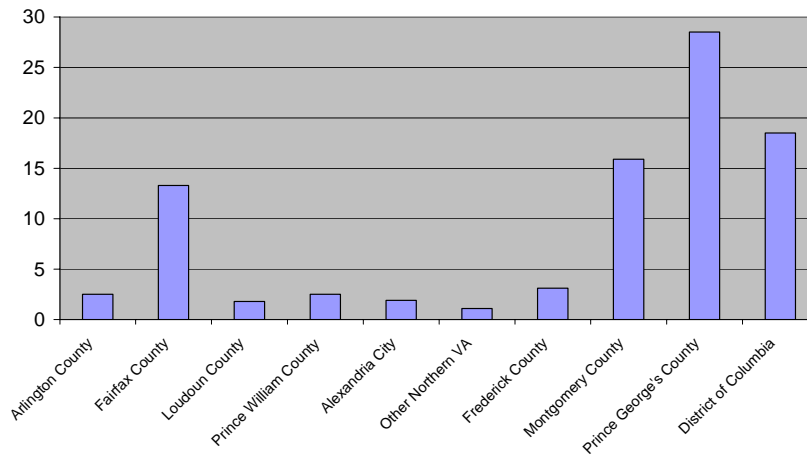
Pedestrian injuries exact a steep toll as well. Of the approximately 3000 persons hit by motor vehicles every year in the region, 90% suffer some sort of injury. Approximately 500 injured pedestrians every year require more than 24 hours of hospitalization, which at

an average cost of about \$25,000 leads to more that \$12 million in hospitalization charges alone.<sup>3</sup> This is probably only a fraction of the total financial costs, which would include costs for those hospitalized for less than 24 hours, further medical care, disability, and lost time at work. Many of the people being hit can ill afford such a setback.

### **Distribution of Pedestrian and Bicycle Fatalities by Jurisdiction**

The region is often divided into an urban core, consisting of Arlington, Alexandria and the District of Columbia, the inner suburbs of Fairfax, Montgomery, and Prince George’s Counties, and the outer suburbs, such as Frederick, Loudoun, and Prince William Counties. Manassas, Manassas Park, the City of Falls Church, and the City of Fairfax are shown as “Other Northern Virginia”.<sup>4</sup> Outer suburban jurisdictions had fewer pedestrian fatalities than inner jurisdictions, as seen in Chart 3-3.

**Chart 3-3:  
Average Annual Pedestrian and Bicyclist Fatalities, 1994-2003**



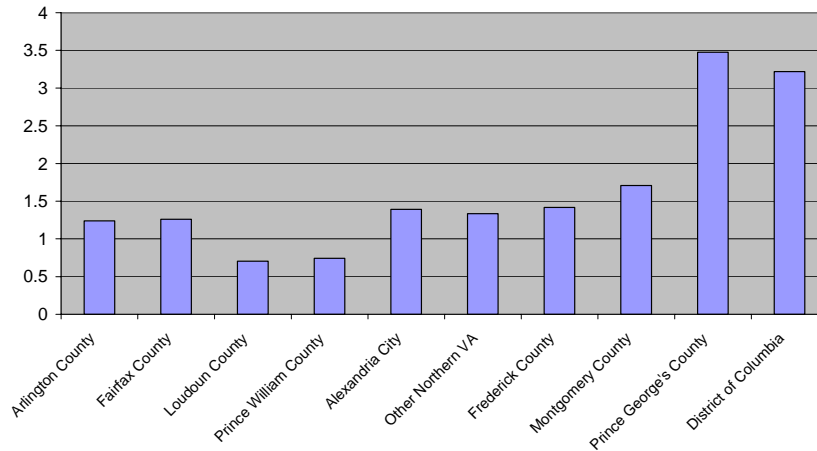
Even when calculated as a rate per 100,000 population, outer suburban jurisdictions had lower fatality rates than inner jurisdictions, a difference that probably reflects the lower pedestrian and bicycle mode share of the outer jurisdictions, as well as a daytime population in the District of Columbia nearly twice as high as its resident population. Pedestrian and bicycle fatality rates in each jurisdiction are shown in Chart 3-4.

<sup>3</sup> Northern Virginia Injury Prevention Prevention Center, INOVA Regional Trauma Center (2005). *Pedestrian Injury in the Washington, D.C. Metropolitan Region*. Page 37.

<sup>4</sup> Towns in Northern Virginia are not included in the surrounding Counties; their traffic fatalities are tallied separately.

However, even the outer suburban jurisdictions have a serious pedestrian safety problem. In no major jurisdiction were pedestrian and bicyclist fatalities less than 10% of total traffic fatalities.

**Chart 3-4:  
Average Annual Pedestrian and Bicyclist Fatalities Per 100,000 people, 1994-2003**



Walking and bicycling appear to be safer in the urban core than in the inner or outer suburbs. The rate of pedestrian fatalities does not directly correspond to the number of people walking. Urban core residents are four to six times as likely to walk to work as outer jurisdiction residents, but are only twice as likely to be killed in a pedestrian or bicycle crash. And as previously noted, the urban core's fatality numbers probably include many non-resident workers and tourists. The urban core has good pedestrian facilities, low traffic speeds, and drivers expect to see pedestrians and bicyclists.

There are large differences in the rates of hospitalization for pedestrian injury by ethnicity. The rate of hospitalization/100,000 population for pedestrian injuries for Hispanics is nearly three times as high as that for Whites, and twice that for African-Americans.<sup>5</sup>

***Pedestrians  
Find Safety  
in Numbers***

Geographically, the highest rates of hospitalization are found in the area east of the Anacostia river in the District of Columbia, most of Prince George's County inside the beltway, the Columbia Pike corridor in Arlington, the area between Fairfax City and Falls Church in Fairfax County, and Dumfries in Prince William County.<sup>6</sup>

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<sup>5</sup> Northern Virginia Injury Prevention Prevention Center, INOVA Regional Trauma Center (2005). *Pedestrian Injury in the Washington, D.C. Metropolitan Region*. Page 35.

<sup>6</sup> *Ibid*, pp. 40-42.

Other things equal the pedestrian crash rate tends to fall as the number of pedestrians at a location increases. There is safety in numbers. Doubling the number of pedestrians at an intersection already crowded with pedestrians will usually result in little, if any increase in pedestrian crashes.<sup>7</sup> Similar effects have been noted for cyclists, with cities having the highest rates of bicycling also having the lowest crash rate per bicycle trip.<sup>8</sup> If more people walk and bike it will become safer, especially if facilities are improved and other measures are taken to improve pedestrian and bicycle safety. High levels of walking and bicycling are associated, in advanced industrialized nations, with very low auto-involved crash rates.<sup>9</sup> Holland has half the overall traffic fatality rate of the United States, despite a very high walk and bike mode share.

Experience of other nations shows that it is possible to reduce pedestrian and bicycle fatalities while increasing walking and bicycling. It is not possible to eliminate pedestrian fatalities by eliminating pedestrian facilities and discouraging walking – even our least pedestrian-oriented jurisdictions have a substantial number of pedestrian fatalities. There will always be people without cars, and there will always be some trips that will be made on foot. Our most dangerous areas for walking have high-speed roads and poor pedestrian facilities, together with a poor and immigrant population that lacks automobiles.

### **Factors contributing to Pedestrian and Bicycle Crashes**

Data from the Washington region indicate that drivers are about as likely as pedestrians to be at fault in a crash. Drivers were cited for a violation in about half the crashes.<sup>10</sup> Males aged 25 to 34 are most likely to hit pedestrians, while pedestrians who are hit are most likely to be males aged 25 to 44. Pedestrian crashes are most likely to occur at the evening rush hour, 5-7 p.m., with 6-9 a.m. the second most likely.<sup>11</sup> Alcohol is a serious problem for both pedestrians and motorists, affecting approximately one third of crashes.

### **Legal Status of Bicyclists and Pedestrians**

Bicyclists are considered drivers of vehicles under most circumstances, and have the same rights and responsibilities as operators of motor vehicles. Bicyclists must ride in the same direction as traffic, use lights after dark, and yield to pedestrians. Like operators of other slow-moving vehicles, cyclists should generally ride as far to the right

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<sup>7</sup> Raford, Noah. *Space Syntax: An Innovative Pedestrian Volume Modeling Tool for Pedestrian Safety*. Presented at the 2004 TRB Conference, January, 2004. (TRB2004-000977) p. 8.

<sup>8</sup> Denmark Ministry of Transport (1994) *Safety of Cyclists in Urban Areas: Danish Experiences*.

<sup>9</sup> Pucher, John. "Making Walking and Bicycling Safer: Lessons from Europe," *Transportation Quarterly*, Summer 2000.

<sup>10</sup> INOVA study, page 23.

<sup>11</sup> *Ibid*, page 12.

as is practicable, except when preparing to turn left, passing, or when obstacles or pavement conditions make riding on the right unsafe or impractical. Cyclists may use the full travel lane if the lane is too narrow to allow them to ride to the right of motor vehicles safely. Cyclists may usually ride on paths and sidewalks, except where prohibited. Cyclists have the rights and duties of pedestrians when traveling on paths and sidewalks, however, they must yield to pedestrians in those locations. Rules relating to bicycles are summarized on page E-4 of the Council of Government’ Bike to Work Guide.<sup>12</sup>

Pedestrians are not vehicle operators and are not subject to the same rules. Persons on rollerblades, skateboards, etc. operating on the street are considered pedestrians, but bicyclists are not. Motorists must yield to pedestrians when making turns across adjacent crosswalks. “Jaywalking” is legal in most locations, but pedestrians must yield to motorists if they are crossing at a location other than a crosswalk. Pedestrians may not cross at mid-block if they are between two signal-controlled intersections; they must use the crosswalk. Tables 3-1 and 3-2 summarize the rules in each state regarding pedestrians.

**Table 3-1:  
Pedestrian Traffic Law—Motor Vehicles Drivers**

| RULE                 | MARYLAND  | DISTRICT OF COLUMBIA   | VIRGINIA <sup>13</sup>                            |
|----------------------|---|--|---|
| Crosswalk Definition | Any intersection of two roadways is a legal crosswalk, whether marked or not. Pedestrians have the same rights in marked crosswalks as in unmarked crosswalks | Same as Maryland   | Same as Maryland                                  |
| Blocking a Crosswalk | A motorist may not park or stop in a crosswalk  | Same as Maryland   | Same as Maryland                                  |
| Sidewalk             | Pedestrians have the right of way in the sidewalk   | Pedestrians have the right of way in the sidewalk. Parking on the sidewalk prohibited. | Pedestrians have the right of way in the sidewalk |
| Right Turn on Red    | Vehicles turning right on red must yield to pedestrians in the crosswalk  | Same as Maryland   | Same  |

<sup>12</sup> <http://www.mwcog.org/commuter/Bdy-bike2.html>.

<sup>13</sup> <http://virginiadot.org/infoservice/bk-laws.asp>

|  |   |  |   |
|--|---|--|---|
| Turn on Green                                | Vehicles turning either right or left on a green light must yield to pedestrians in the adjacent crosswalk  | Same   | Same  |
| Red Light                                    | Motorist should stop before the crosswalk, or if no crosswalk is striped, before the intersection   | A pedestrian who has begun crossing on the walk signal shall be given the right-of-way by the driver of any vehicle to continue to the opposite sidewalk or safety island, whichever is nearest. | Same as Maryland  |
| Stop-Controlled or Uncontrolled Intersection | Motorist must stop for any pedestrian in the same half of the roadway as the motorist, or who is approaching from the adjacent lane in the other half of the roadway. No motorist may pass another vehicle which has stopped for a pedestrian | The driver of a vehicle shall <b>STOP</b> and give right of way to a pedestrian crossing the roadway within any marked crosswalk or unmarked crosswalk at an intersection.                       | Same as Maryland, unless the road has a speed limit of 35 mph or more, in which case the motorist has the right of way. |

**Table 3-2:  
Pedestrian Traffic Law—Pedestrians**

| RULE   | MARYLAND  | DISTRICT OF COLUMBIA | VIRGINIA  |
|--|---|----------------------|---|
| Green light                                  | A pedestrian facing a green light (other than a turn arrow) may cross the roadway, within a marked or an unmarked crosswalk | Same as Maryland     | Same as Maryland  |
| Red light                                    | Pedestrians shall not enter the roadway on a steady red light   | Same as Maryland     | Same as Maryland  |
| Pedestrian Control Signal                    | Pedestrians shall not enter the roadway when there is a flashing “Don’t Walk” or “Wait” indicator                           | Same as Maryland     | Same as Maryland  |
| Stop-controlled or uncontrolled intersection | Pedestrians may cross the roadway within a marked or unmarked crosswalk   | Same as Maryland     | Same as Maryland, except the pedestrian must yield to motor vehicle traffic if the speed limit is 35 mph or more. Pedestrians may not disregard approaching |

|                                   |  |  |   |
|-----------------------------------|--|--|---|
|                                   |  |  | traffic when entering or crossing an intersection |
| Crossing at Other Than Crosswalks | <p>(a) If a pedestrian crosses a roadway at any point other than in a marked crosswalk or in an unmarked crosswalk at an intersection, the pedestrian shall yield the right-of-way to any vehicle.</p> <p>(b) If a pedestrian crosses a roadway at a point where a pedestrian tunnel or overhead pedestrian crossing is provided, the pedestrian shall yield right of way to any vehicle.</p> <p>(c) Between adjacent intersections at which a traffic control signal is in operation, a pedestrian may cross a roadway only in a marked crosswalk.</p> <p>(d) A pedestrian may not cross a roadway intersection diagonally.</p> | <p>Essentially the same as Maryland, but with a specific prohibition on walking suddenly into the path of a vehicle:</p> <p>(a) No pedestrian shall suddenly leave a curb, safety platform, safety zone, loading platform or other designated place of safety and walk or turn into the path of a vehicle which is so close that it is impossible for the driver to yield.</p> |   |
| Pedestrians on Roadways           | <p>(a) A pedestrian may not walk on a roadway where sidewalks are provided.</p> <p>(b) Where no sidewalk is provided, a pedestrian may walk only on the left side of the roadway, facing traffic.</p>  | Same as Maryland   | Same as Maryland                                  |

**Pedestrian and Bicyclist Enforcement and Education: The “Street Smart” Campaign**

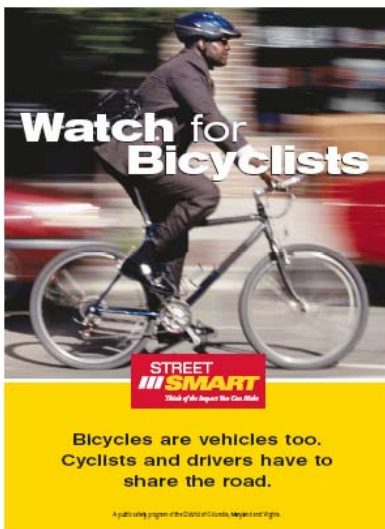
Pedestrian and bicycle safety efforts generally fall into three broad categories of actions, the three E’s: Engineering, Education, and Enforcement. Engineering deals with the design of safer roads, streets, and pedestrian and bicycle facilities. Education includes both classroom-based training and behavioral modification campaigns. Enforcement consists of enforcement of the traffic laws with respect to pedestrians and bicyclists. The regional pedestrian and bicycle safety campaign, Street Smart, deals primarily with education through mass media.

Street Smart was created in 2002 by the region’s governments in response to an ongoing regional pedestrian and bicycle safety problem. Since the region is a single media



market, a unified regional campaign is the most cost-effective approach. The program is supported by federal funds made available through state governments, with local funds matching the federal funds, and is administered by the National Capital Region Transportation Planning Board.

The Street Smart campaign is a one-month blitz of radio, transit, and print advertising. The goal of the campaign is to change driver and pedestrian behavior in order to reduce deaths and injuries. Motorists are urged to “Stop for Pedestrians” and “Watch for Bicyclists,” pedestrians are urged to “Take the time to cross safely”. All materials, including radio spots, are translated into Spanish. One-month campaigns were held in October, 2002, and annually since 2004.



Efforts to enforce pedestrian laws have also been stepped up in conjunction with the “Street Smart” pedestrian and bicycle safety campaign. Law enforcement has helped reinforce the campaign message, just as it has been used effectively as part of anti-drunk driving and seatbelt advertising campaigns. Public awareness of these heightened enforcement activities has been a key aspect of this campaign. Research shows that fear of fines and legal consequences is more effective at changing behavior than fear of death or injury. Also the TV and press media often covers enforcement stings, increasing the public’s perception that they are likely to be ticketed for breaking the law.

### **Evaluation Results**

Evaluation results show that the prime target audience, male drivers aged 18 to 34, is hearing the message. For example, surveys taken before and after the campaign April, 2004 show that awareness of the Street Smart messages rose by 22 percentage points among male drivers aged 18 to 34. There is some evidence that drivers are more likely to yield to pedestrians, and that pedestrians are becoming more careful. Specifically, in May 2005:

- 17% of respondents reported that they “had to swerve to avoid a pedestrian in the last 7 days”, down from 32% in 2002
- 60% reported frequently observing motorists failing to yield to pedestrians, down from 76% in 2002



- Pedestrian and Bicyclist fatalities in the Washington region fell from 2001-2004. The average fatality rate for 1994-2004 was 87. Table 3-3 shows the pedestrian and bicyclist fatalities for the region from 2001-2004.<sup>14</sup>

Table 3-3

| Year       | 2001 | 2002 | 2003 | 2004 |
|------------|------|------|------|------|
| Fatalities | 88   | 82   | 86   | 71   |

### **Outlook**

Pedestrian and bicycle safety has drawn increasing attention in the Washington region and at all levels of government. The Street Smart campaign is yielding positive results. Better vehicle-pedestrian crash-compatibility, safer street design, retro-reflective clothing, and safer pedestrian and driver behavior will help reduce pedestrian and bicycle fatalities and injuries.

On the other hand, as the region's population and density increase, including growing numbers of immigrants and others for whom walking and bicycling are a primary mode of transportation, preventing pedestrian and bicyclist fatalities and injuries will remain a major challenge for the Washington metropolitan area.

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<sup>14</sup> DDOT, MHSO, VDMV