DANGEROUS BY DESIGN

PEDESTRIAN SAFETY IN CALIFORNIA

SURFACE TRANSPORTATION POLICY PROJECT

SEPTEMBER 2000

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The Surface Transportation Policy Project is a national coalition of over 200 organizations working to promote transportation policies that protect neighborhoods, provide better travel choices and promote social equity. STPP has offices in Sacramento, Los Angeles, the Bay Area and Washington, DC.
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EXECUTIVE SUMMARY

Pedestrian accidents are a significant public health problem in California and are one of the leading causes of fatal and hospitalized injuries for children statewide. Pedestrian fatalities alone accounted for nearly 20 percent of all traffic-related deaths in the state, even though only eight percent of all trips are made on foot. The number of pedestrians killed as a percentage of total traffic fatalities ranged as high as 26 percent in Sacramento County, 30 percent in Los Angeles County, and 54 percent in San Francisco County (Table 2).

According to an analysis of 1999 data, pedestrian accidents cost California nearly $4 billion in lost economic productivity, medical expenses and pain and suffering (Table 6). Yet California spends less than one percent of its federal transportation funds on pedestrian safety, less than any other state in the nation. Ironically, the most visible effort statewide related to pedestrians has been the highly controversial removal of crosswalks under the guise of improved safety.

THE PROBLEM

An analysis of statewide data collected by the Department of California Highway Patrol shows that in 1999, at least 688 pedestrians died and another 14,346 were injured on California's streets. Los Angeles County experienced by far the greatest number of pedestrian fatalities and injuries – 203 pedestrian deaths and 5,377 injuries represent more than a third of all pedestrian fatalities and injuries in the state. But Los Angeles is also California's most populous county, and if the rankings are adjusted to reflect population, San Francisco ranks as having *per person* the highest incidence of pedestrian fatalities and deaths. However, more people walk in San Francisco than in any other California city because there is a mix of residential, retail and other land uses within walking distance, population and development patterns are dense, and public transit is convenient. Therefore, any real measure of the relative danger facing pedestrians must factor in the amount of walking, or "exposure," that occurs in each location.

These factors are all incorporated in a "pedestrian danger index," arrived at by dividing the number of fatalities and injuries in each county by population, and then dividing that number by the county's "exposure index," or overall levels of pedestrian activity. This number is then adjusted to a relative scale from 1 to 100, with 100 being the most dangerous.

Using the pedestrian danger index, Sacramento County ranks as the most dangerous county for pedestrians in California in 1999, followed by Contra Costa, Los Angeles, Santa Clara and San Mateo (Table 1). This is the first time Sacramento County has ranked most dangerous since our survey began in 1996. Ventura County ranks in the top 10 for the first time since 1996, and San Francisco, San Joaquin and Tulare counties all climbed in the rankings. While Los Angeles County dropped from first to third, the number of fatalities actually increased from 200 to 203, and the drop in the rankings had more to do with the fact that the number of fatalities increased more sharply in other counties. The ranking shows that counties in Southern California, the Silicon Valley and the Central Valley are among the most dangerous in the state.

As alarming as these figures are they may not fully measure the danger to pedestrians because it's been estimated that injuries are underreported by as much as 56 percent. Police often do not report collisions that result in emergency room treatment but not hospitalization, and don't report collisions that occur on private

property, or in alleys or driveways. These are the locations where many accidents involving the youngest children occur. It is important to note that pedestrian injuries account for two-thirds of all severe traffic-related injuries among children, and that the probability of a child dying or becoming severely disabled exceeds that of all other causes of childhood illness. The elderly are also two to four times more likely to die when struck.

As with automobile fatalities, the total number of pedestrian deaths has dropped slightly in the last few years. However, while the amount of driving is increasing, statistics show that the amount of walking is declining. This may mean that while driving is getting safer, walking is getting more dangerous. The sharp decline in walking has coincided with significant increases in obesity and inactivity among the general population. These trends have so alarmed health officials that they have joined with pedestrian advocates in calling for policies and investments that make communities safer and more walkable.

THE VICTIMS

An analysis of the most recent statewide hospitalization data (a smaller but more detailed database that records race and ethnicity information) shows that Latinos and African Americans were more likely to be injured relative to their share of California's overall population. While 30 percent of the population of California is Latino, 37 percent of all hospitalized pedestrian fatalities and injuries in 1998 were Latino. African Americans represented 7 percent of the state's population but accounted for 10 percent of all hospitalized pedestrian fatalities and injuries (Table 3). Race and ethnicity data at the local level in California points to a similar trend, with Latinos and African Americans disproportionately represented as victims of pedestrian-vehicle crashes in nearly every one of the state's most populous counties (Table 4).

Prior research, supported here with a new analysis by the Latino Issues Forum, also shows that low-income populations are more likely to be victims in pedestrian accidents. While 35 percent of all pedestrian victims under the age of 65 were covered by Medi-Cal, just 11 percent of the general population under 65 were covered by Medi-Cal. While the higher risk for low-income populations has been documented in dozens of studies conducted by health professionals here and abroad, this information has largely been absent from the public debate over pedestrian safety in California. Further analysis reveals hospital charges alone topped $200 million for pedestrian victims in 1998, $23 million of which was paid out of pocket. But when factoring in lost economic productivity and pain and suffering, pedestrian fatalities and injuries are estimated to cost California nearly $4 billion a year.

Other studies show that pedestrian injuries and deaths, particularly among children, are correlated to income and several other socioeconomic factors including access to a car. Factors include unemployment, single-parent and especially female-headed households, young mothers, low levels of education, the number of times a family has moved, and the number of children in a household. More than one study found that lack of access to a car was associated with a doubling of the risk of injury as a pedestrian.

Limiting exposure by simply staying inside, however, has grave implications for both health and well-being. The vast majority of children already fall short of the recommended daily dose of activity, which can have a negative effect on both a child's physical and mental development. Concerns have also been raised about the extent to which transportation policy and investments focused on improving travel by automobile have circumscribed the independence and mobility of both children and the elderly.

THE RESPONSE

For decades state and local governments have focused transportation policy and investments on accommodating more traffic by widening streets, increasing speed limits, removing crosswalks and enacting laws that give vehicles the advantage – such as allowing right turns on a red light. Meantime rapid suburbanization has dramatically increased traffic and spread development patterns ever further apart so that stores, homes, schools and other destinations are no longer easily accessible on foot. The result has been deadly for pedestrians. Studies show that traffic speed and traffic volume are two of the environmental factors with the highest correlation to pedestrian injury and death. One of the more disturbing trends in California is the removal of crosswalks at uncontrolled intersections (intersections without a stop sign or traffic signal), a policy that has left pedestrians to largely fend for themselves.

Moreover, in order to provide a safe environment for pedestrians, the basic infrastructure of sidewalks, paths and crosswalks must be provided. Yet an analysis of federal transportation funding shows that while California has the second highest share of pedestrian deaths compared to all traffic-related fatalities, it ranks last among the 50 states in spending on pedestrians. While an average of $40 per person in federal transportation funds was spent on highway projects statewide, an average of just 4 cents per person was spent on improving conditions for pedestrians. Even though statewide roughly 20 percent of all traffic fatalities are pedestrians, less than one percent of all federal traffic safety money was spent on making the streets safer for pedestrians.

Pedestrians, even if they are young children, are often found to be at fault in crashes, obscuring the fact that the real problem may be that laws favor motorists, that speed limits are set too high, or that there are a lack of crosswalks and safe places for children to play. The tendency to blame pedestrians creates the impression among policy makers and the public that nothing that can be done. As a result efforts to improve pedestrian safety are often limited to pedestrian education, even though numerous health studies conclude that education alone has limited effectiveness, especially with children, and that modifications in street design and the lowering and enforcement of speed limits are also needed.

SOLUTIONS

The report also discusses how local and state policies across California that have focused on accommodating more traffic have been deadly for pedestrians, and why a tendency to blame pedestrians for collisions has served to further hamper programs and policies that could potentially prevent thousands of additional injuries. In conclusion, new policies and investments are suggested that can make California's cities, towns and suburbs safe and walkable. The report's recommendations include:

1. Dedicate a fair share of traffic safety funding to pedestrians. Pedestrian accidents cost California nearly $4 billion in 1999 alone, while spending on pedestrian safety measures is a mere fraction of that figure. If 20 percent of all traffic fatalities are pedestrians, it stands to reason that a similar amount of safety funding should be directed toward solving the problem.

2. Suspend California's crosswalk removal policy. The trend toward removing crosswalks due to the belief that they give pedestrians a false sense of security is like removing traffic signals so that motorists will proceed with greater caution. State agencies need to do more for pedestrians, not less. California should develop a new

minimum design standard for crosswalks that includes “zebra” striping and overhead lighting or flashing signals.

3. Consider pedestrians during the design phase of every project. Communities must be designed so that people have a place to walk to, which means that shops, offices, schools, libraries and transit stops are located within reasonable walking distance. All facilities should be designed for the disabled and meet basic standards established in the Americans with Disabilities Act.

4. Collect more information on pedestrians. Existing databases provide little information about the amount of pedestrian activity in different locations, the risks associated with walking, the effectiveness of pedestrian safety measures, or even how much is spent on pedestrian safety. This lack of information makes pinpointing underlying problems and solutions difficult.

5. Develop a statewide blueprint for bicycling and walking. California needs a statewide vision and strategy for maximizing the benefits of bicycling and walking that includes goals and an action plan for all levels of government. This includes targeted strategies like Safe Routes to School programs, as well as an economic analysis of the potential benefits of bicycle tourism, regional trail systems and more pedestrian-oriented developments.

CHAPTER ONE: THE PROBLEM

In 1999 a bill was introduced in the California state legislature that proposed dedicating $20 million a year toward making it safer for children to walk and bike to school. Even though the funding represented less than one-tenth of one percent of all transportation spending in California, the legislation, dubbed the "Safe Routes to School bill," immediately drew fire from transportation officials. Critics said that it was nothing more than a "feel good program," that no need had been demonstrated for these kinds of projects, and that an existing $1million statewide account available for bicycle lanes was more than enough money to fix the problem.

The bill was eventually signed into law due to strong public support. Once unveiled, the program was overwhelmed by more than 700 applications totaling over $130 million competing for the $20 million pot of funding. But for many, the disagreement over the bill illustrated the disconnect between transportation officials and a growing number of citizens, school officials, public health professionals, planners and engineers who have been trying to make the case that much more needs to be done to make California's streets safer for everyone.

They say crossing the street has become far too hazardous an activity, and that fast-moving traffic is diminishing quality of life in neighborhoods. They point to policies that have only exacerbated the problem by widening streets, increasing speed limits, removing crosswalks and enacting laws that give vehicles the advantage – such as allowing right turns on a red light. At the same time, rapid suburbanization has dramatically increased traffic and spread development patterns ever further apart so that stores, homes, schools and other destinations are no longer easily accessible on foot. The result, they say, has been deadly for pedestrians.

Statewide statistics do show cause for concern. An analysis of 1999 pedestrian injury and fatality data reveals that nearly 20 percent of all traffic-related fatalities are pedestrians, even though only eight percent of all trips are made on foot. California now ranks second in the nation in terms of the percentage share of all traffic-related fatalities that are pedestrians, a number that ranges as high as 26 percent in Sacramento County, 30 percent in Los Angeles County, and 54 percent in San Francisco County. In 1999, at least 688 pedestrians were killed and another 14,346 were injured statewide. In Los Angeles County alone, where thousands of low-income residents and their children rely on walking as a primary mode of transportation to the store, to school, and to the bus stop, police recorded 203 fatalities and 5,377 injuries in 1999 – comprising more than a third of all pedestrian injuries and deaths statewide.

Analysis of state and federal databases and medical literature also shows that:

- Even though California ranks second in the nation behind New York in terms of the percent of all traffic deaths that are pedestrians (one measure of the severity of the problem), it ranks 50th in terms of per capita spending of federal traffic safety funds on pedestrian safety projects.

- While government spending to address pedestrian safety problems has lagged, the cost to the public of pedestrian accidents in California reached into the billions in 1999; while hospitalization charges alone exceeded $200 million, direct economic costs totaled $1.3 billion when factoring in additional medical, work loss and property damage, and total costs soared to over $3.9 billion when factoring in

lost quality of life including pain and suffering.

- While local debates often focus the blame for collisions on either the driver or the pedestrian, research is showing that the design of streets and provision of proper pedestrian safety facilities has a tremendous impact on overall safety. Unfortunately, transportation officials in California have been removing marked crosswalks at uncontrolled intersections without replacing them with any other safety measures.

- According to an analysis of the most recent statewide hospitalization records available, Latinos and African Americans, especially children and the elderly, are at the highest risk from pedestrian-vehicle collisions.

- A disproportionate number of pedestrian victims are likely low-income. Analysis of the most recent available data shows 35 percent of all hospitalized pedestrian victims under 65 in California were Medi-Cal recipients, while just 11 percent of the general population under the age of 65 receives Medi-Cal.

- Being hit and killed by a car is now the second leading cause of fatal injury and the fourth leading cause of hospitalized injury for California children aged 5 to 12.

THE TIP OF THE ICEBERG

As alarming as these statistics are, they may not even measure the full extent of the danger to pedestrians. Nationally it has been estimated that injuries may be underreported by as much as 56 percent. A study conducted for the Transportation Research Board in California, New York and North Carolina found that police often do not report collisions that result in emergency room treatment but not hospitalization, and they do not report collisions that occur on private property and in alleys or driveways.[1] These are the locations where many accidents involving the youngest children occur. The California Highway Patrol's statistics on pedestrian collisions – one of the more comprehensive statewide databases on vehicle-related pedestrian injuries and deaths – include only those incidents that occurred on public property.

It should also be noted, in order to put the seriousness of these collisions into context, that pedestrian injuries account for two-thirds of all severe traffic-related injuries among children,[2] and that the probability of a child dying or becoming severely disabled exceeds that of all other causes of childhood illness.[3] Head and spinal injuries are common; studies have shown the incidence rate to range as high as 60 to 80 percent.[4]

The death rate for the elderly, another vulnerable segment of the population, is also very high. National Highway Traffic Safety Administration data shows that 22 percent of all pedestrians killed were over 65, even though only 13 percent of the population is elderly. Studies show the elderly are two to four times more likely to die when struck.[5]

As with automobile fatalities, the total number of pedestrian deaths has dropped slightly in the last few years. The U.S. Department of Transportation says that in five years the number of pedestrians killed or injured has

declined by about 6 percent. However, while the amount of driving is increasing, statistics show that the amount of walking is declining. This may mean that while driving is getting safer, walking is getting more dangerous.

The National Personal Transportation Survey, conducted every 5-7 years by the U.S. Department of Transportation, shows the number of trips taken on foot has dropped 42 percent in the last 20 years. U.S. Census data shows that the number of Americans who walk to work has dropped from 10 percent in 1960 to less than 4 percent three decades later.

MORE TRAFFIC, LESS WALKING

The extent to which travel patterns have changed, and the extent of the problem that this is causing is illustrated by citing the example of schoolchildren. Researchers at the U.S. Centers for Disease Control estimate that while more than two-thirds of all children walked or biked to school 30 years ago, that number has plummeted to less than 10 percent. A recent British study found that whereas in 1971 80 percent of 7- and 8-year-old children in the United Kingdom were allowed to walk to school unaccompanied, in 1990 the figure had dropped to 9 percent.[6] So many parents drive their kids to school it is now estimated that in many areas the home-to-school trip accounts for 20 to 25 percent of rush hour traffic.[7]

The more traffic increases, the more parents decide they'll drive because it's unsafe to walk, adding to the chaos surrounding schools in the morning. Parents who drive exacerbate the danger for those children who must walk, as traffic volume is one of the strongest risk factors for pedestrian collisions. In Santa Ana, a low-income community in Orange County where many children have no choice but to walk, a recent study found that two-thirds of all the traffic accidents involving pedestrians occur within a quarter mile of schools, and half of all the victims are children.[8]

Ironically, the fact that fewer people are walking has increased another kind of danger – the risk of death from diseases associated with physical inactivity and obesity. This has contributed to what both California and U.S. health officials are now calling an obesity "epidemic." These same health officials are prescribing the funding of pedestrian safety programs and the creation of walkable communities as one of the more promising solutions to the problem.

There are some who contend that the deadliness of the pedestrian environment is a natural consequence of modern life. Yet pedestrian fatality rates in the U.S. are far higher than in other industrialized countries. A recent study comparing pedestrian safety in industrialized countries showed that the death rate for pedestrians in the U.S. was 14 times greater than either Germany or the Netherlands.[9] The child pedestrian injury rate in the U.S. is double that in Sweden, despite the fact that Swedish children walk more than their American counterparts.[10] These statistics suggest that much more can be done to make streets safer for pedestrians.

TABLE 1: MOST DANGEROUS CALIFORNIA COUNTIES FOR PEDESTRIANS - 1999
All California Counties Above 100,000 population as of 1/1/2000

RANK 1999	RANK 1998	COUNTY	PEDESTRIAN FATALITIES 1999 (1)	PEDESTRIAN INJURIES 1999 (1)	POPULATION 1999 (2)	INCIDENT RATE	PEDESTRIAN EXPOSURE INDEX (3)	CALIFORNIA PEDESTRIAN DANGER INDEX (3)
1	(4)	SACRAMENTO	30	516	1,202,100	45.4	2.4	100.0
2	(5)	CONTRA COSTA	8	302	932,000	33.3	1.8	97.1
3	(1)	LOS ANGELES	203	5377	9,790,000	57.0	3.3	94.0
4	(2)	SANTA CLARA	22	582	1,717,600	35.2	2.1	91.0
5	(3)	SAN MATEO	7	290	727,300	40.8	2.6	85.7
6	(8)	ORANGE	45	909	2,813,700	33.9	2.2	81.4
7	(14)	SAN JOAQUIN	12	227	562,600	42.5	2.9	77.7
8	(6)	KERN	12	205	651,700	33.3	2.4	75.3
9	(7)	STANISLAUS	9	162	439,800	38.9	2.8	73.3
10	(17)	VENTURA	13	243	751,600	34.1	2.5	72.7
11	(10)	ALAMEDA	20	752	1,448,700	53.3	4.0	72.0
12	(15)	SAN FRANCISCO	26	963	797,200	124.1	9.8	67.7
13	(13)	MARIN	1	90	246,700	36.9	3.0	66.2
14	(12)	SOLANO	3	110	394,300	28.7	2.5	62.3
15	(20)	SAN BERNADINO	49	491	1,674,700	32.2	2.9	60.4
16	(11)	SANTA CRUZ	1	104	253,400	41.4	3.8	58.9
17	(24)	TULARE	6	125	365,400	35.9	3.4	56.8
18	(16)	MADERA	3	35	116,600	32.6	3.2	55.0
19	(22)	SONOMA	7	139	447,300	32.6	3.3	53.7
20	(9)	PLACER	2	54	232,000	24.1	2.4	53.0
21	(23)	SAN DIEGO	81	1205	2,883,500	44.6	4.5	52.8
22	(19)	FRESNO	24	211	794,200	29.6	3.2	49.8
23	(21)	RIVERSIDE	41	302	1,504,100	22.8	2.5	49.6
24	(26)	SANTA BARBARA	6	161	408,600	40.9	4.5	48.8
25	(18)	SHASTA	6	33	165,000	23.6	2.7	47.8
26	(27)	BUTTE	6	56	200,600	30.9	3.8	43.2
27	(25)	IMPERIAL	6	47	145,600	36.4	4.7	41.9
28	(29)	HUMBOLDT	4	54	126,100	46.0	6.0	41.4
29	(30)	EL DORADO	2	37	152,400	25.6	3.4	40.6
30	(31)	NAPA	1	42	124,200	34.6	5.1	36.6
31	(34)	KINGS	1	32	127,300	25.9	4.0	34.4
32	(33)	YOLO	0	41	158,900	25.8	4.2	33.0
33	(28)	MERCED	7	55	207,000	30.0	5.0	32.4
34	(32)	MONTEREY	7	145	390,900	38.9	7.1	29.4
35	(35)	SAN LUIS OBISPO	2	42	240,500	18.3	4.0	24.5

NOTE: 1999 Fatality and Injury Data is provisional. Source: (1) 1999 Provisional Report of Fatal and Injury Motor Vehicle Traffic Collisions, Department of California Highway Patrol; Statewide Integrated Traffice Records System (SWITRS) 1999; (2) 1999 Population Estimates, California Department of Finance; (3) 1990 Census; Journey to Work Statistics.

CALIFORNIA'S MEANEST STREETS

An analysis of statewide data collected by the Department of California Highway Patrol shows that Los Angeles County experienced by far the greatest number of pedestrian fatalities and injuries in 1999 – the 203 pedestrian deaths and 5,377 injuries represent more than a third of the total 688 fatalities and 14,346 injuries in the state. But Los Angeles is also California's most populous county, and if the rankings are adjusted to reflect population, San Francisco ranks as having *per person* the highest incidence of pedestrian fatalities and deaths. However, more people walk in San Francisco than in any other California city because there is a mix of residential, retail and other land uses within walking distance, population and development patterns are dense, and public transit is convenient. Therefore, any real measure of the relative danger facing pedestrians also needs to factor in the amount of walking, or "exposure," that occurs in each place.

TABLE 2: CALIFORNIA COUNTIES WHERE PEDESTRIANS ACCOUNT FOR HIGHEST SHARE OF ALL TRAFFIC-RELATED DEATHS - 1999

RANK	COUNTY	PEDESTRIAN FATALITIES 1999	ALL TRAFFIC FATALITIES 1999	PEDESTRIAN FATALITIES AS PERCENT OF TOTAL
1	SAN FRANCISCO	26	48	54%
2	LOS ANGELES	203	684	30%
3	SAN DIEGO	81	284	29%
4	ORANGE	45	175	26%
5	SACRAMENTO	30	117	26%
6	ALAMEDA	20	90	22%
7	VENTURA	13	59	22%
8	SANTA CLARA	22	103	21%
9	SAN MATEO	7	35	20%
10	HUMBOLDT	4	21	19%

NOTE: 1999 Fatality and Injury Data is provisional. Sour:ce 1999 Provisional Report of Fatal and Injury Motor Vehicle Traffic Collisions, Department of California Highway Patrol; Statewide Integrated Traffice Records System (SWITRS) 1999.

These factors are all incorporated in a “pedestrian danger index,” arrived at by dividing the number of fatalities and injuries in each county by population, and then dividing that number by the county’s “exposure index,” or overall levels of pedestrian activity. This number is then adjusted to a relative scale from 1 to 100, with 100 being the most dangerous.

Using the pedestrian danger index, Sacramento County ranks as the most dangerous place for pedestrians in 1999. Contra Costa County has risen to its highest ranking ever (second), followed by Los Angeles, Santa Clara and San Mateo counties. This is the first time Sacramento County has ranked most dangerous since our statewide survey began in 1996. Ventura County ranks in the top ten for the first time since 1996, and San Francisco, San Joaquin and Tulare all climbed in the rankings. While Los Angeles dropped from first to third, the number of fatalities actually increased from 200 to 203 since 1998, and the drop in the rankings had more to do with the fact that the number of fatalities increased more sharply in other counties.

The ranking shows that counties in Southern California, the Silicon Valley and the Central Valley are among the most dangerous in the state. These counties are characterized by low-density suburban-style development. Many communities in these counties were built after the 1950s and were designed to make it easy to get around by car, with roads designed to facilitate the highest speeds and the greatest amount of traffic – and with little consideration for those on foot. Many studies have linked higher injury and fatality rates with high traffic volumes, high speeds, wider roads and the absence of sidewalks. Walking in these communities is both inconvenient and dangerous.

CHAPTER TWO: THE VICTIMS

The risk of injury and death, however, varies depending not only on where you live but also to a large degree on your race, ethnicity and income. This phenomenon has been widely reported in studies and surveys conducted both in the U.S. and abroad, but has largely been absent from the public discussions and debate surrounding pedestrian safety in California.

An analysis of the most recent statewide hospitalization data (a smaller but more detailed database that records race and ethnicity information) shows that Latinos and African Americans were more likely to be injured relative to their share of California's overall population. While 30 percent of the population of California is Latino, 37 percent of all hospitalized pedestrian fatalities and injuries in 1998 were Latino. African Americans represented 7 percent of the state's population but accounted for 10 percent of all hospitalized pedestrian fatalities and injuries. Race and ethnicity data at the local level in California points to a similar trend, with Latinos and African Americans disproportionately represented as victims of pedestrian-vehicle crashes in nearly every one of the state's most populous counties (see Table 4).

TABLE 3: STATEWIDE RACIAL BREAKDOWN OF PEDESTRIAN INJURIES AND FATALITIES - 1998

RACE/ETHNICITY	PEDESTRIAN FATAL INJURIES 1998	HOSPITALIZED PEDESTRIAN INJURIES 1998	TOTAL HOSPITALIZED INCIDENTS 1998	PERCENT SHARE OF TOTAL INCIDENTS	PEDESTRIAN FATALITIES AS PERCENT OF TOTAL
HISPANIC	246	1859	2105	37.3%	29.7%
WHITE	300	1947	2247	39.8%	51.6%
BLACK	67	615	682	12.1%	7.2%
ASIAN/PACIFIC ISLANDER	43	340	383	6.8%	11.1%
UNKNOWN/OTHER	1	180	181	3.2%	---%
NATIVE AMERICAN	5	31	36	0.6%	0.6%
TOTAL	662	4972	5634	100.0%	100.0%

NOTE: Share of total population is based on California Department of Finance 1998 estimates. Total may not add due to rounding. Data is based on fatal hospitalized and nonfatal hospitalized pedestrian incidents only: SOURCE: Latino Issues Forum; California Department of Health Services, Death Records; California Office of Statewide Health Planning and Development, Hospital Discharge Dataset; California Department of Finance.

Several recent surveys elsewhere in the United States have produced similar findings. The Centers for Disease Control in Atlanta reported recently that Latinos in Atlanta were six times more likely to be hit and killed than whites. A survey conducted by the Washington Post found that Latinos in suburban Washington D.C. were three times more likely to be hit and killed.[11] Another survey conducted by the Los Angeles Times in Orange County showed that while Latinos make up 28 percent of the county's population, they accounted for 40 percent of all pedestrian injuries and 43 percent of all deaths.[12]

PEDESTRIAN PROFILE #1:
NANCY HERNANDEZ, 43
COMMUNITY ORGANIZER
EL SERENO, LOS ANGELES COUNTY,
CALIFORNIA

The predominantly Spanish-speaking El Sereno neighborhood in Los Angeles County where Nancy Hernandez lives is marked by the sights and sounds of busy foot traffic. Child pedestrians and bicyclists from elementary, middle and high schools, elderly pedestrians from the Senior Center, park-goers, patrons from small restaurants and stores, and people getting on and off local buses create a busy, lively street life. All but the high school are located on a half mile strip down Eastern Street.

Hernandez regularly takes transit and walks. But she says there's a mean side to the streets in her neighborhood: residents are fearful of being hit and killed by speeding cars. "There's so much traffic in the morning, it's scary," explains Hernandez. "Cars are on the crosswalk. Instead of walking in front of the cars, you have to squeeze in between to cross the street. You don't know if the cars are going to reverse and squash you."

Over six months ago, Hernandez witnessed a tragic accident in the neighborhood. A boy was hit while crossing the street towards his mother on the other side, he was thrown into the other direction of traffic and struck again and killed by a second car. Both were hit and runs.

"I have three girls," says Hernandez. "When we do have to walk, it's scary. I've taught them to look four ways, not just two, before they cross." Area residents are now circulating petitions to install a crossing signal or warning light to slow down traffic or retrofit Eastern Street with other traffic calming measures

Studies by both UC-Irvine[13] and the Santa Ana Unified School District in Orange County[14] show that Latino children are twice as likely to be injured or killed. Several studies show the risk of injury to be significantly higher among African American children than other children,[15] and in census tracts with higher percentages of non-white residents.[16] In New Mexico, Native American children had a death rate 2.5 times that of other ethnic and racial groups.[17]

"Pedestrian injury death rates for non-white children are consistently found to be higher than the rates for white children," write UC-Irvine researchers in a review of nearly 100 studies on child pedestrian injuries, which was presented at a 1998 Centers for Disease Control-sponsored conference.[18] An analysis of child pedestrian injuries and fatalities conducted by STPP and the Latino Issues Forum in 1999 shows a similar trend statewide, with Latino children comprising 39 percent of California's child population but 48 percent of all pedestrian incidents, and African-American children accounting for 8 percent of the state's child population but 14 percent of all pedestrian incidents.

TABLE 4: RACIAL BREAKDOWN OF HOSPITALIZED PEDESTRIAN INJURIES AND FATALITIES BY COUNTY - 1998

COUNTY	PERCENT SHARE OF	WHITE	BLACK	HISPANIC	NATIVE AMERICAN	ASIAN/PACIFIC ISLANDER	UNKNOWN/ OTHER
ALAMEDA	Ped Incidents	37%	27%	14%	N/A	10%	13%
	Population	46%	18%	17%	N/A	19%	N/A
CONTRA COSTA	Ped Incidents	51%	23%	N/A	N/A	N/A	N/A
	Population	65%	9%	13%	1%	11%	N/A
FRESNO	Ped Incidents	33%	N/A	48%	N/A	N/A	N/A
	Population	45%	5%	38%	1%	11%	N/A
KERN	Ped Incidents	56%	N/A	26%	N/A	N/A	N/A
	Population	58%	6%	32%	1%	3%	N/A
LOS ANGELES	Ped Incidents	27%	16%	48%	N/A	6%	3%
	Population	33%	10%	44%	N/A	13%	N/A
MONTEREY	Ped Incidents	41%	N/A	52%	N/A	N/A	N/A
	Population	47%	6%	39%	1%	8%	N/A
ORANGE	Ped Incidents	39%	N/A	45%	N/A	11%	N/A
	Population	57%	2%	28%	N/A	12%	N/A
RIVERSIDE	Ped Incidents	48%	N/A	42%	N/A	N/A	N/A
	Population	61%	5%	29%	1%	4%	N/A
SACRAMENTO	Ped Incidents	56%	17%	15%	N/A	N/A	N/A
	Population	65%	10%	13%	1%	11%	N/A
SAN BERNADINO	Ped Incidents	46%	15%	34%	N/A	N/A	N/A
	Population	55%	9%	31%	1%	5%	N/A
SAN DIEGO	Ped Incidents	48%	11%	33%	N/A	4%	N/A
	Population	61%	6%	24%	1%	8%	N/A
SAN FRANCISCO	Ped Incidents	37%	16%	18%	N/A	26%	N/A
	Population	40%	10%	16%	N/A	34%	N/A
SAN JOAQUIN	Ped Incidents	44%	N/A	36%	N/A	N/A	N/A
	Population	55%	5%	25%	N/A	14%	N/A
SAN MATEO	Ped Incidents	52%	N/A	27%	N/A	N/A	N/A
	Population	53%	5%	21%	N/A	20%	N/A
SANTA BARBARA	Ped Incidents	44%	N/A	44%	N/A	N/A	N/A
	Population	61%	3%	31%	N/A	5%	N/A
SANTA CLARA	Ped Incidents	37%	N/A	42%	N/A	14%	N/A
	Population	50%	4%	24%	N/A	22%	N/A
VENTURA	Ped Incidents	49%	N/A	42%	N/A	N/A	N/A
	Population	62%	2%	30%	N/A	6%	N/A
CALIFORNIA	Ped Incidents	40%	12%	37%	1%	7%	3%
	Population	52%	7%	30%	1%	11%	N/A

NOTE: N/A unreported due to statistically insignificant data. See Appendix for race and population breakdowns by absolute numbers by county.
SOURCE: Latino Issues Forum; California Department of Health Services, Death Records; California Office of Statewide Health Planning and Development, Hospital Discharge Dataset; California Department of Health Services, Epidemiology and Prevention for Injury Control Branch; California Department of Finance.

IN THEIR OWN WORDS
MIMI SOTO, 24
COMMUNITY ORGANIZER
EAST LOS ANGELES
PART OF AN EXCHANGE WITH TRANSPORTATION OFFICIALS AT A COMMUNITY MEETING

"You didn't even tell us that you were going to remove the crosswalk. When we said we wanted it back you told us we didn't meet the criteria. So we said, that's okay, because what we really need is a stop light. No, you said, we don't meet the criteria. So we said please, at least put in a stop sign because the cars drive too fast. No, you said, we don't meet the criteria. Well I say the problem isn't that we don't meet your criteria. The problem is that your criteria does nothing to address the safety problems in our neighborhood."

California hospitalization statistics also concur with the results of dozens of health studies in the U.S., Canada, Great Britain and New Zealand that correlate the risk of pedestrian injury and death, particularly among children, to income and related socioeconomic factors. These factors include unemployment, single-parent and especially female-headed households, young mothers, low levels of education, the number of times a family has moved, and the number of children in a household. Children in families without a car are twice as likely to be injured as those in car-owning families.[19]

Studies in Quebec[20] and in Scotland[21] found that poor children were four times as likely to be injured as children of wealthy families. A study in Baltimore found that children whose parents own a car and home cross an average of 3.7 streets a day, whereas children whose parents do not own both a car and home cross an average of 5.4 streets a day, a difference that is, say the researchers, "highly significant." [22]

Ian Roberts, who has done extensive research on the socioeconomic and racial determinants of pedestrian injury and death, wrote in the British Medical Journal, "For injuries to child pedestrians the number of roads that children cross is a key determinant of the occurrence of injury. Children in families with the lowest quarter of income cross 50 percent more roads than those in families in the highest quarter." Roberts goes on to add, "The strong association between injury and poverty is the most consistent finding in published epidemiological studies of childhood injury . . . the association between injury and poverty is particularly strong for traffic accidents."[23]

While no exact statistics are collected on socioeconomic status for pedestrian victims in California, both independent research and existing data on health insurance strongly suggest that that the state's pedestrian accident victims are likely to be low-income. Of all hospitalized pedestrian injuries under 65 years of age in 1998, nearly 35 percent were covered by Medi-Cal. Of that same age group in the population at large, only 11 percent were covered by Medi-Cal in the same year (see Table 5). Caps on earnings for Medi-Cal insurance requires that recipients be in the lowest income brackets.

TABLE 5: HOSPITALIZED PEDESTRIAN INJURIES BY INSURANCE COVERAGE AND HOSPITAL COSTS - 1998					
ITEM	MEDI-CAL	OTHER/GOV'T	PRIVATE INSURANCE	SELF-PAY	TOTAL
0-4 yrs	279	22	168	44	513
5-12 yrs	395	69	303	37	804
13-20 yrs	223	33	216	62	534
21-64 yrs	631	576	775	527	2509
65+ yrs	73	575	129	31	808
TOTAL DISCHARGES	1,601	1,275	1,591	701	5,168
PERCENT SHARE OF ADMISSIONS	30.9%	24.7%	30.8%	13.6%	100.0%
HOSPITAL CHARGES	$71,129,648	$52,658,962	$56,338,182	$23,611,692	$203,738,484
PERCENT SHARE OF ADMISSIONS 0-64 yrs	35.0%	16.1%	33.5%	15.4%	100.0%
PERCENT OF POPULATION 0-64 yrs COVERED	11.0%	N/A	N/A	N/A	N/A
NOTE: Hospital charges don't include physician charges or any outpatient costs. *SOURCE: Latino Issues Forum; California Department of Health Services, Death Records; California Office of Statewide Health Planning and Development, Hospital Discharge Dataset; California Department of Health Services, Epidemiology and Prevention for Injury Control Branch.*					

It is speculated that the link between pedestrian collisions and ethnicity is due to the fact that Latinos and African Americans in California are less likely to own a car and more likely to walk, bike and take public transit – resulting in greater exposure to the dangers of the street. The link with socioeconomic status may also have to do with the fact that more affordable housing is located along high-speed, high-volume arterial streets – which are more dangerous for pedestrians.

THE COST OF PEDESTRIAN COLLISIONS

While spending on pedestrian safety measures usually fails to be a priority in local, regional and state transportation funding programs, health providers, private companies and Californians themselves are spending billions as a result of pedestrian injuries and fatalities. As demonstrated in Table 5, hospital charges alone are in excess of $200 million – a cost partly covered by health insurance providers but that also included over $23

million in out of pocket expenses in 1998. Yet these initial costs do not factor in physician charges, physical rehabilitation, work loss or property damages. An independent analysis of pedestrian injury and fatality data performed by the Children's Safety Network Economics and Insurance Resource Center concludes that pedestrian collisions cost California at least $1.3 billion in lost economic productivity in 1999 alone. This cost estimate rises to nearly $4 billion once "quality of life" costs including pain and suffering are accounted for (see Table 6).

TABLE 6: TOTAL COST OF CALIFORNIA PEDESTRIAN FATALITIES AND INJURIES - 1999

TYPE OF COST	FATALITY COST	INJURY COST	TOTAL
MEDICAL	$3,500,000	$228,600,000	$232,100,000
VICTIM WORK LOSS	$683,500,000	$261,200,000	$944,700,000
PUBLIC SERVICES	$900,000	$4,100,000	$5,000,000
PROPERTY DAMAGE	$8,700,000	$67,100,000	$75,800,000
(SUBTOTAL ECONOMIC COSTS)	($696,600,000)	($561,000,000)	($1,257,600,000)
LOST QUALITY OF LIFE COSTS	$1,324,500,000	$1,355,600,000	$2,680,100,000
TOTAL COSTS	$2,021,100,000	$1,916,600,000	$3,937,700,000

NOTE: Based on provisional data from Statewide Integrated Traffic Records System (SWITRS) August 1999; SOURCE: Children's Safety Network Economics and Insurance Resource Center; Pacific Institute for Research and Evaluation; Cost per Injury and Fatality based on research by Miller, Romano and Spicer.

RESTRICTING ACTIVITY INCREASES OTHER HEALTH RISKS

Unfortunately, the initial response to increasing traffic dangers is often to limit pedestrian activity, and children in particular are often the first to be discouraged from walking or bicycling. But the fact that so many children are kept inside or are chauffeured to destinations in order to guarantee their safety has increased their exposure to another kind of danger – the health risks associated with inactivity and obesity. Seventy-eight percent of U.S. children already do not get the recommended daily dose of 30 minutes of exercise, including 20 minutes of vigorous activity.[24] This can have a negative impact on a child's cardiovascular health[25] and also contributes to obesity. Physical activity not only stimulates muscles and joints but also improves concentration, memory and learning, and enhances creativity and problem-solving abilities.[26] Studies have shown that physical activity also improves the mood of children.[27]

Advocates working in low-income communities note that fear of both traffic and crime often cause parents to keep their children home from after-school programs. This loss of mobility and independence prevents them from becoming familiar with and exploring their neighborhoods, and prevents them from acquiring the traffic

PEDESTRIAN PROFILE #2:
PIO PICO ELEMENTARY SCHOOL
SANTA ANA, ORANGE COUNTY,
CALIFORNIA

Two years ago, 12 students and teachers at Pio Pico Elementary School in Santa Ana formed a "Research Club" to identify hazards to pedestrians in their neighborhood. The student researchers took community walks, interviewed parents and neighborhood leaders, and canvassed neighborhoods to identify problems. They found that excessive speeding, drivers failing to yield to pedestrians, and the amount of traffic in the school zone posed major problems for walkers. They also found a vast difference between the amount of traffic in their lower income neighborhood compared to the amount of traffic going through the nicer part of town to the north.

Emily Wolk, a fourth grade teacher at Pio Pico and one of the researchers, highlights some of the traffic concerns in their neighborhood. "Many of the Researchers wouldn't cross the street without crossing guards. Moms run across the street with their babies. Four kids have been run over. We're not used to taking on these issues." Pio Pico students chime in: "In the north end of town, they had everything. There was police enforcement all the time in the nicer part of town…The houses are very nice. There's a lot more rich people, and a lot less traffic."

Student researchers presented their findings to the public and garnered community support for their pedestrian safety effort. They asked that Santa Ana city officials install a four way stop sign at the intersection of Highland and Flower. The city initially concluded that there wasn't enough money for a stop sign or signal, but the research team continued to stay committed to building their case by generating media coverage and teaming with other groups like the newly-created Santa Ana Pedestrian Safety (SAPS) Project and the Santa Ana Police Department. The researchers worked with police to use a radar gun to track speeding motorists, conduct a traffic count, implement 'crosswalk stings' and enforce speed limits in school zones. At a meeting with the SAPS Project Task Force , the Director of the California Office of Traffic Safety, and the city's traffic engineering staff, student researchers presented their case for a litany of new pedestrian safety measures.

The Santa Ana Department of Public Works finally responded by installing a four way stop sign. The police department also provided new training to crossing guards and gave guards brighter uniforms with bigger stop signs. Through the efforts of the Research Team working with other partner agencies, they've produced a pedestrian safety video, organized a pedestrian safety parade, created incentives to have other teachers to talk about the issue, and generated public awareness. They will soon participate in the painting of a mural, begin mass distribution of the video, and hold community meetings to reinforce the program.

skills they need in order to stay safe. In addition, researchers also believe that the loss of independence and mobility has even more significant impacts on their cognitive skills. Children who are driven everywhere and who aren't allowed to venture outside are often unable to draw basic maps of their communities and develop an understanding of spatial relationships.[28]

"Independent play and mobility by school-aged children in their neighborhoods have been found to contribute to their social and spatial development," write UC-Irvine health researchers in a recent article published in the Journal of the Institute of Traffic Engineers. "If children play only under strict adult supervision, they miss the opportunity to develop skills such as negotiation and leadership. Residential neighborhoods without a safe and healthy environment do not accommodate the developmental needs of children."[29]

PEDESTRIANS AND ALCOHOL

Those who are critical of efforts to improve pedestrian safety are often heard to cite studies showing that many pedestrians who are hit by cars are drunk. According to a 1997 study for the National Highway Traffic Safety Administration, one third of all adult pedestrians who are injured or killed were intoxicated.[30] But two thirds of the adults were not drunk, and many pedestrian victims are children. Moreover other examinations of local data, including a recent story in the Los Angeles Times, suggest that these results may be exaggerated. The Times analysis of accident reports in Santa Ana found that alcohol or drug use was cited in just six percent of the crashes that were blamed on pedestrians.[31]

IN THEIR OWN WORDS
ADRIAN MENDOZA RUIZ, 10
STUDENT
NORTHEAST LOS ANGELES, CALIFORNIA

"I live on a high traffic street. It avoids the crowded 110 freeway and connects Pasadena to the downtown area. Commuters drive as if it were actually a freeway. In the past year there has been very good enforcement against speeders in certain patches of the street. But, where I live there is a huge hill, so people tend to accelerate while going downhill on Monterey Road to gain momentum to drive up the other street.

There is a crosswalk at this intersection which all the neighborhood kids and families use on their way to school. There has been several occasions where people have had to run to avoid getting hit, or jump back on the curb, including my mother and brother. At one point I approached a traffic cop waiting for a speeder on the next block of my street, and informed him of the situation. He told me he could not do anything about it unless there was a report. I proceeded to call the Police Department which kindly stated, 'We will look into it, thank you.' I have yet to see a police officer stationed at that intersection."

CHAPTER THREE: THE RESPONSE

Despite the clear public health and safety problems that have been documented, as well as the social equity issues that are raised by the statistics showing non-white and low-income residents to be at greatest risk, pedestrian safety is still largely neglected by state, regional and local transportation officials. Roughly 20 percent of all traffic-related fatalities in California are pedestrians, even though only eight percent of all trips are made on foot. Yet California spends less than one percent of its federal traffic safety money on pedestrians. In 1997, $739 million in federal funding was spent on traffic safety projects statewide, but only $6 million was spent on pedestrians.

TABLE 7: STATES WHERE PEDESTRIANS ACCOUNT FOR HIGHEST SHARE OF ALL TRAFFIC RELATED DEATHS - 1997-98

RANK	STATE	AVERAGE SPENDING ON PEDESTRIAN PROJECTS PER CAPITA (1997-1998)	AVERAGE PERCENT OF SPENDING ON PEDESTRIAN SAFETY (1997-1998)	PERCENT OF TRAFFIC DEATHS THAT WERE PEDESTRIANS
1	NEW YORK	$1.22	1.2%	24%
2	CALIFORNIA	$0.04	0.1%	21%
3	MASSACHUSETTS	$2.05	2.1%	20%
4	NEW JERSEY	$0.08	0.2%	20%
5	FLORIDA	$0.71	1.0%	19%
6	HAWAII	$0.14	0.3%	18%
7	MARYLAND	$0.29	0.3%	18%
8	ARIZONA	$0.34	0.5%	16%
9	CONNECTICUT	$1.91	1.8%	15%
10	NEVADA	$0.75	0.9%	15%

NOTE: Spendingis based on federal funds on.ly
SOURCE: Federal Highway Administration; Surface Transportation Policy Project

Providing basic facilities is the first step toward improved pedestrian safety. Building sidewalks, crosswalks, trails and other accommodations is fundamental to providing a safe walking environment. Unfortunately, an examination of federal transportation funding shows that California ranks last among the 50 states in spending on pedestrians. While an average of $40 per person in federal transportation funding was spent on highway projects, an average of just 4 cents was spent improving conditions for pedestrians. Although data for state and local spending on pedestrian safety measures isn't collected, rough estimates place expenditures at all level of government in the one to three percent range.

A STEP BACKWARDS: REMOVING CROSSWALKS

Exacerbating the lack of funding is the fact that transportation officials throughout California have been removing marked crosswalks at uncontrolled intersections (i.e. intersections with no stop sign or traffic light) due to studies that suggest they provide pedestrians with a "false sense of security." This crosswalk removal policy – now widespread across California – has caused a great deal of controversy among a growing number of citizens, researchers and traffic engineers, who note that once crosswalks are removed other protective measures are rarely put in place, leaving pedestrians to fend for themselves. Many critics compare the policy to that of removing traffic lights at busy intersections so motorists will pay more attention.

PEDESTRIAN PROFILE #3:
ADRIENNE LEIGH, 43
PRODUCER/ACTRESS
HILLSBOROUGH,
SAN MATEO COUNTY, CALIFORNIA

When Adrienne Leigh first moved into suburban Hillsborough in 1997, she was expecting all the benefits of a small town nestled in the hills halfway between San Francisco and San Jose: open space, friendly neighbors and quiet streets. After a few weeks, however, Adrienne, her husband and two small children soon realized that life in Hillsborough was going to be more difficult than they thought. Even though the public elementary school that Adrienne's children attended was a mere two and a half blocks away, she began driving them because walking to school without sidewalks was far more difficult than she expected.

"I live in a beautiful community but everyone drives everywhere. Kids are completely dependent on parents to get where they need to go," explains Leigh. "People speed through the streets, the same streets that kids have to walk in because we have no usable bike paths or sidewalks." After finding that she wasn't alone in her dilemma, Leigh decided to join her school's safety committee. But after local officials and city engineers repeatedly denied requests from committee members to undertake a proactive pedestrian safety effort, she and another mom soon went on to form their own organization. "Safe Paths of Hillsborough" is stumping for safer places for kids to walk and bike, especially around schools and parks. "We went and bought books on traffic engineering, street design, and pedestrian safety because we needed to learn what could be done within traffic engineering standards," says Leigh. "We found that there was indeed lots you could do to improve pedestrian safety. But nothing seemed to be happening, There was a lot of sentiment to just preserve the status quo."

Leigh notes that after more than a year of meetings, rallies and city council hearings, the group is growing and winning support. "At first we thought the effort would just attract parents, but we've appealed to a lot of seniors and empty nesters too. They used to be able to walk around the community but now it's too dangerous so they want to get involved."

And in recent months, local officials have begun to respond. Hillsborough recently hired a new city

engineer, launched a comprehensive pedestrian safety study around schools, approved its first bike lane, and increased enforcement efforts evidenced by a 400 percent increase in moving violations issued within the last twelve months. "I walk my kids to school now. There still aren't any dedicated sidewalks, but hopefully that'll change soon," says Leigh. "More kids walking means fewer parents driving and less traffic, hopefully that's reason enough for the city and school district to start paying attention."

The debate began when in 1970 when a study in San Diego found that placing crosswalks at mid-block and unsignalized locations could cause pedestrians to drop their guard and step into the path of an oncoming vehicle. This has prompted local officials to express concern about whether they are liable for creating legal crossings that don't guarantee protection.

According to the California vehicle code there is a legal crosswalk at every intersection whether it is marked or not. However, very few motorists or pedestrians know this. As a result, motorists often don't expect pedestrians to cross at an intersection that isn't marked with a crosswalk, and assume they're jaywalking if they do. And the absence of any visible markings is likely to lead to uncertainty on the part of the pedestrian, who may – not knowing there is a legal crosswalk – decide to jaywalk mid-block instead.

Pedestrian advocates also contend that the standard California crosswalk – which typically consists of two thin white or yellow lines – offers little protection compared to techniques employed elsewhere in the U.S. and other countries and that are designed to draw more attention to both the pedestrian and the crossing. These include zebra striping, textured surfaces or raised surfaces in the road at pedestrian crossings, flashing lights embedded in the pavement, yellow flashing lights or florescent signs overhead, and limit lines placed in advance of the crosswalk to alert motorists.

There have been so many questions raised about the crosswalk removal policy that the Federal Highway Administration has commissioned a comprehensive study to help settle the issue. Preliminary results seem to indicate that crosswalks at mid-block or unsignalized intersections are indeed an adequate safety measure on two lane streets or multi lane arterials with low traffic volumes. A crosswalk alone may not be enough to adequately protect pedestrians where streets are wide, speeds are high, and traffic is heavy. Yet researchers make a critical distinction that local transportation officials are failing to make. Researchers say that on wide, high-speed, high-volume arterials more – not less – protection needs to be provided for pedestrians than just a simple crosswalk. These safety enhancements could include additional markings, flashing lights or a traffic signal, raising the crosswalk and incorporating it into a speed hump to slow traffic, or the addition of raised medians where the pedestrian can seek refuge.

As will be discussed below, these principles are critical to the discussion of assigning fault in pedestrian fatalities and injuries. If pedestrians have fewer and fewer places to cross safely, they will begin jaywalking by necessity rather than by choice. Indeed, a cursory glance at state and national statistics reveals a substantial number of pedestrian fatalities occur outside a crosswalk. Yet a closer look at national data shows that 59 percent of pedestrian deaths for which location information was recorded happened in places where pedestrians had no convenient access to a crosswalk. While jaywalking is often cited as a cause of pedestrian accidents, less than 20 percent of fatalities occurred where a pedestrian was crossing outside an easily available crosswalk.

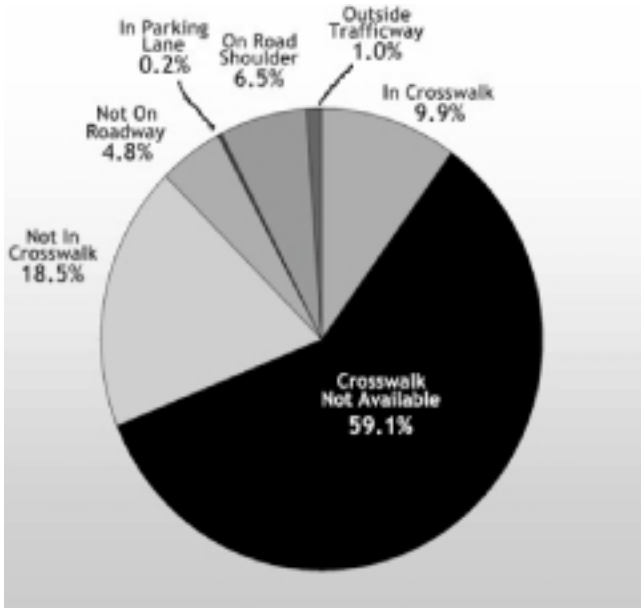

Figure 1: A majority of pedestrian fatalities occur in locations where no crosswalk is available

DANGEROUS BY DESIGN

A significant part of the problem is that the highest priority of traffic engineers is to improve "levels of service" on streets so that the greatest numbers of vehicles can be accommodated at the greatest speeds. That typically means designing roads with wide lanes, large turning radii at intersections, and ample passing and turning lanes. Unfortunately, this makes streets more dangerous for pedestrians. Until recently, the national design manual for streets and highways officially defined pedestrians as "traffic flow interruptions."

Traffic speed and traffic volume are two of the environmental factors with the highest correlation to pedestrian injury and death. According to a study by the National Highway Traffic Safety Administration, higher vehicle speeds are strongly associated with both a greater likelihood of pedestrian collisions and more serious injuries. While only 5 percent of pedestrians die when struck by a vehicle traveling at 20 mph or less, according to the study, the fatality rate increases to 40 percent at a speed of 30 mph, 80 percent at a speed of 40 mph, and nearly 100 percent at a speed of 50 mph.[32]

A little known California law makes it difficult to enforce speed limits that are not set at or near the speed traveled by 85 percent of drivers on a particular street. This law has resulted in the boosting of speed limits in cities across California, despite the protests of residents who complain it compromises safety. According to a recent Los Angeles Times survey, the City of Orange raised the speed limits on more than 80 percent of its streets in 1994, and subsequently saw the number of serious accidents increase 21 percent over the next four years. The City of Santa Ana revised 70 of its 177 speed limits upwards, according to the Times. During the next three years about a third of all fatal pedestrian accidents occurred on streets where speed limits were raised.[33]

PEDESTRIAN PROFILE #4:
SHACKELFORD ELEMENTARY SCHOOL
MODESTO, STANISLAUS COUNTY,
CALIFORNIA

Since 1971, Merle Olinghouse, a teacher at Shackelford Elementary School in Modesto, has powerlessly watched his students dodge cars while crossing Crow's Landing Road, the busy five lane highway adjacent to the school. "I've watched three of my students get hit by cars," he says. "One developed serious brain injury. With increased traffic, it's just getting worse every year."

Without any sidewalks or bike lanes, schoolchildren are walking and cycling in streets alongside speeding traffic that empties off nearby Highway 99. Most students live too close to school to be bused, but many parents on the other side of Crow's Landing drive their children to school even if they live only a block away. Children who don't get rides brave the streets alone on busy Crow's Landing Road and through neighborhoods without sidewalks.

"My friends and I were crossing Crow's Landing Road so fast that we dropped a backpack," explains Erica, a student at Shackelford. "I came back to get the backpack on the road, but my friends were all scared I would get hit. We were all so out of breath and scared that we couldn't talk." Without a traffic signal or overpass in front of the school, students are expected to cross the street at a lighted intersection three blocks away at Hatch Rd. to get to the school, but to many students that's simply not a logical option.

John and Diana Wiegand, whose son was hit by a car while walking to school, wrote a letter to the Modesto Bee in response to recent media publicity over the Crow's Landing crossing, "We noticed that the schools pulled out the same excuse they used in 1988—that there is a traffic signal at Hatch Road. They still don't understand that a poor kid, without a coat, when it is cold, is not going to walk the several extra blocks to cross at the light."

Years ago, when Shackelford parents and teachers asked the police to assist students across Crow's Landing Road, they determined that the street was too unsafe for a crossing guard. Judy Andrews, the school's community aide recalls that time: "the Police Department came and had three officers come for three days to walk the kids across the street. After three days, they said it was a suicide mission and they removed the crosswalk on Crow's Landing altogether."

More than 800 people recently signed a petition to construct a pedestrian overpass over Crow's Landing Road. In August 2000, Stanislaus County officials said that they would look for a solution, whether that involves installing a traffic signal or a pedestrian overpass. Most recently, County officials are said to be in negotiation with the school to install a traffic signal. Meanwhile, for most students, help can't come fast enough. As one Shackelford third-grader wrote: "Please build us a bridge so no one will get killed. I don't want to lose any of my friends."

The preoccupation with making traffic move faster has resulted in many other anti-pedestrian laws and policies as well. Motorists are allowed to make right and left turns across the crosswalk during the walk sequence, and traffic signals are timed so as to improve the flow of traffic but making it difficult for parents with children and the elderly to cross the street. A 1994 UCLA study found that 27 percent of the elderly pedestrians observed crossing an intersection in a busy shopping area were unable to reach the opposite curb before the light changed. One quarter of this group was stranded in the middle of the street.[34]

The problem with the adoption of "right turn on red" laws was found in another study to result in a 57 percent overall increase in pedestrian-motor vehicle collisions. In urban areas, these collisions increased by 79 percent, with elderly pedestrians found to be the most at risk.[35]

Moreover, many measures taken to improve pedestrian safety actually penalize pedestrians. Many cities have responded to complaints about pedestrian safety by cracking down on jaywalkers. The Santa Ana City Council responded to concerns about pedestrian safety by making it illegal for pedestrians to take refuge on medians in the roadway,[36] despite the fact that many studies recommend providing raised medians for pedestrians as a way to increase safety. Other communities have removed crosswalks or put up signs or barriers prohibiting pedestrians from crossing.

BLAMING THE VICTIM

Pedestrians, even if they are very young children, are often found to be at fault in crashes, obscuring the fact that the real problem may be that speed limits are set too high, or that there are a lack of crosswalks, general pedestrian safety measures and safe places for children to play. Police reports are often designed to describe vehicle-pedestrian collisions in terms of what the pedestrian did wrong, and seldom note the actions of the driver or record the speed of the vehicle.

According to a recent Los Angeles Times story, California law — unlike the law in 34 other states — does not have a provision requiring motorists to be especially careful around children, the disabled or other impaired individuals, even though it does contain a provision requiring drivers to reduce speeds to avoid frightening livestock that may be on the road.[37]

The result of this tendency to hold pedestrians responsible also translates into difficulties for injured pedestrians attempting to get their medical bills paid, as insurance companies are less likely to provide compensation when pedestrians are faulted. And if the pedestrian or their family decides to bring a civil lawsuit against the motorist, attorneys are less likely to accept the case. Even when police do cite motorists in pedestrian accidents, the punishments are far from harsh. The most common type of pedestrian accident blamed on drivers – when a car strikes someone in a crosswalk – carries a maximum fine of $103 in California regardless of the severity of the injury. That's far less than the $271 fine for driving alone in a carpool lane or the $270 fine for littering.

Statewide, police blamed pedestrians for 59 percent of all serious pedestrian accidents between 1994 and 1998, according to the Los Angeles Times story. In deciding culpability for the most common pedestrian collision – outside of a crosswalk – police must weigh the pedestrian's obligation to yield versus the motorist's obligation to exercise due care. The Times analysis of

PEDESTRIAN PROFILE #5:
BERNICE KRING
RETIREE

SACRAMENTO, CALIFORNIA

"Many drivers think that it's my responsibility to get the heck out of the way, but at my age that's difficult." So says Bernice Kring, a retired grandmother who recently moved up to Sacramento from southern California. "In the state capital, you'd think people know the law, but they don't stop for pedestrians. In Orange County, even the low-riders stop for you and know the laws."

Just five years ago, Bernice was an active adult in more ways than one. When she used to work for Grandmothers for Peace, it wasn't unusual for her to walk 20 to 30 blocks a day. But now Bernice is legally blind in one eye and has poor hearing. She doesn't walk as much as she used to because of asthma and poor air quality. Bernice jokingly says that she may one day have to tell the police she suffers from "Spastic Ambulatory Syndrome," to explain the loss of control of her movements in order to avoid being arrested for public drunkenness. "At my age, I don't walk too straight," she says.

As an elderly pedestrian, she encounters many more challenges on her routes than a typical person. Due to lack of maintenance, sidewalks are broken up and she often trips and falls. Traffic lights aren't timed long enough even for younger pedestrians to safely cross. Kring often needs an extra light in order to navigate the larger intersections. Sacramento County suburbs, she explains, aren't built for pedestrians. If there are any sidewalks, they're usually too narrow. And drivers are often startled to find her in the middle of a long crosswalk or alongside a busy road, something she's convinced they'll understand when they get to be her age. "How do they get to their cars anyway?" she wonders out loud. "Do they flap their wings? Maybe they just blink their eyes?"

In addition to contending with traffic, she puts up with taunting by youths. Because of the street design, cars filled with kids have sped by close enough to the sidewalk to reach out and grab her groceries. Nowadays Bernice always carries her grocery bags on the inside. "I notice that I'm not out as much as I once was. But when I do go out, they don't argue with me as much as they used to. Now I have a cane."

333 such collisions in Santa Ana showed police decided in favor of the motorist 97 percent of the time, even though more than half of the accidents involved children under 9 years of age who were almost invariably hit in residential areas. According to the Times, police in Santa Ana also blamed hundreds of accidents over the last decade on children as young as 2 years old, and assigned fault to pedestrians in dozens of hit-and-run accidents, even when the pedestrian was killed.

Serious questions have also been raised about whether police are ignoring illegal driver behavior. The degree to which drivers have been found responsible ranges from 21 percent to 46 percent in different studies.[38] A very recent study of police reports from deadly pedestrian crashes in New York City found that in 74 percent of the cases drivers were speeding, had illegally turned into a crosswalk, had run a stop light or were otherwise culpable. Only 16 percent of the drivers were cited.[39]

IN THEIR OWN WORDS
RICK ANDERSON
TEACHER, MOBILITY FOR THE DISABLED
SACRAMENTO, CALIFORNIA

"When I see tire tracks over the sidewalks at curbless corners that you can drive a car onto, I point that out to my students—watch out, I say, you could get hit here.

The infrastructure is 20 years behind. Many of the corners don't have wheelchair ramps. Sidewalks are really narrow. Why are all the light rail tracks at the level of the street? Why weren't they installed so that there's pedestrian bridges? There hasn't been any planning for the separation of pedestrians, bicycles and cars. Our tax dollars should go to pedestrian bridges and bicycle tunnels.

The infrastructure in Sacramento, especially downtown, is 20 years behind. Many of the corners don't have wheelchair ramps. Sidewalks are really narrow. The pavement is so old and potholed in downtown residential areas that it's dangerous to walk across.

Pedestrian walk/don't walk lights everywhere just don't last long enough. You step out, and three steps later, the light starts blinking. Whether or not you have a disability, you could be caught in the middle of traffic. You're lucky if there's an island, but they're only a foot wide and not big enough to use safely if they exist at all.

These high speed one-way streets through the downtown residential areas are very anti-pedestrian and anti-disabled. There's no accommodation for the handicapped in the one-way residential zone except for some wheelchair ramps that are only now being installed. The message seems to be that there's not enough money to go around. There must be a way to make the big guys give the poor people and people with disabilities our fair share."

A 1997 UCLA study found that 25 percent of pediatric pedestrian injuries involved hit and run drivers.[40] Other studies found that drivers take minimal evasive action to avoid striking pedestrians.[41] A 1999 UCLA study investigated the compliance rate of drivers at three stop signs on the university campus, and found that only 22.8 of every 100 drivers stopped at the crosswalk. The rate of compliance improved to just 53 percent when pedestrians were present in the crosswalk.[42]

The tendency to blame either pedestrians or motorists for collisions has obscured the fact that the physical design of the street or intersection is often a significant contributing factor: it can actually serve to encourage dangerous vehicle movements, speeding or jaywalking.

THE THREE E'S: EDUCATION, ENFORCEMENT AND ENGINEERING

Assigning fault to pedestrians creates the impression among policy makers and the public that there's nothing that can be done to improve pedestrian safety. As a result, pedestrian safety efforts are typically targeted at educating the pedestrian to use additional caution, even though numerous health studies conclude that

education alone has limited effectiveness, especially with children, and that modifications in street design and the lowering of speed limits are also needed.[43]

A recent article in the Institute of Traffic Engineers Journal by researchers in Orange County points out that while children as young as 9 can learn the skills required to cross the street, they are unlikely to use them because of developmental limitations in their cognitive, perceptual and behavioral abilities – especially if they are engrossed in play.[44] The article concludes that because children are small and have a narrower field of vision they are less visible to drivers and less able to see approaching cars. Children are disadvantaged because the task of negotiating traffic requires complex assessments of speed, distance and time that are beyond their experience. Children are also unable to understand the driver's point of view and typically assume they are safe, especially if they are in a crosswalk.

For these reasons, the researchers conclude, traffic safety education must be expanded to target motorists as well as incorporate both speed enforcement and street engineering strategies in order to reduce child pedestrian accidents. "Modifications in street design and operation by traffic engineers also are required to prevent child pedestrian injuries . . . neighborhood streets need to be designed to reduce traffic speeds," write the authors. "Society cannot adapt children to traffic; society has to adapt traffic to children."

CHAPTER FOUR: SOLUTIONS

Improving pedestrian safety while simultaneously making communities more walkable and meeting traffic flow needs indeed presents a difficult challenge to engineers and local officials. But the need is clear, and many cities throughout California – including Santa Monica, Santa Rosa, Oakland, West Hollywood, Pasadena and Long Beach – have initiated aggressive programs to improve both safety and walkability. These cities recognize that not only is it of paramount importance to improve the safety of pedestrians, but that encouraging walking has many other benefits. Pedestrians can enhance the liveliness of urban environments, making both business districts and residential neighborhoods interesting and safer because pedestrians provide "eyes on the street."

In many ways walking as well as bicycling could be ideal ways to get around in California's cities and suburbs where a bulk of all trips still cover rather short distances despite sprawling development patterns. "These non-motorized travel modes cause virtually no noise or pollution," write authors John Pucher and Lewis Dijkstra in a paper entitled "Making Walking and Bicycling Safer: Lessons from Europe." "The only energy they require is provided directly by the traveler, and the very generation of that energy offers valuable cardiovascular exercise. Neither walking or cycling requires much space. Moreover they are quite economical, costing much less than the auto and public transport, both in direct user costs and public infrastructure costs."[45]

RETROFITTING STREETS: MORE THAN CROSSWALKS

Since so many of our streets are being designed exclusively to accommodate increasing traffic, it will indeed take more than a crosswalk and walk signal to make them safe and inviting for pedestrians. Local officials will have to revisit land use and housing policies that encourage sprawl, which make walking both inconvenient and dangerous. But there are also many things that transportation engineers and local officials can do to retrofit city streets.

Modifications include the addition of clearly marked crosswalks with zebra striping; provision of wide sidewalks on both sides of the street; pedestrian-activated crossing signals; intersection modifications including the re-timing of traffic signals; the addition of medians or pedestrian refuge islands in the middle of wide streets; and traffic calming measures that reduce the speed of motorists and give more space and priority to pedestrians.

Traffic calming is one of the techniques that has been proven effective and which is advocated by many researchers studying pedestrian injuries and deaths. Though traffic calming has been widely implemented in Europe, it has not been in the U.S., where some see this as conflicting with the need to maintain or improve levels of service for roadways. Traffic calming includes a variety of changes that slow or divert vehicle traffic, separate pedestrian pathways from vehicle traffic, and make the road corridor more pleasant.

Common traffic calming measures include physical design measures that draw attention to the presence of pedestrians, such as raised intersections and crosswalks, and "bulb-outs" that extend the corners of the sidewalk into the street so as to shorten the crossing distance and make pedestrians more visible. Other measures include road narrowing, and the creation of zigzag routes and curves. Traffic circles and roundabouts are also used to slow traffic.

Area-wide traffic calming in neighborhoods in the Netherlands has reduced traffic accidents by 20-70 percent.[46] Traffic calming in German neighborhoods has reduced traffic injuries by 20-70 percent and serious traffic inuries by 35-56 percent.[47] A comprehensive review of traffic calming impacts in Denmark, Great Britain, Germany and the Netherlands found that traffic injuries fell by an average of 53 percent in traffic-calmed neighborhoods.[48]

IN THEIR OWN WORDS
CECELIA GARCIA, MOTHER OF THREE
CITY TERRACE, EAST LOS ANGELES

LOS ANGELES COUNTY, CALIFORNIA

"I know I get a bit hot-headed about this issue but it¹s because of what I¹ve seen and because no one will do anything about it. My grandmother was hit while I stood on the other side of the street waiting for her. I watched her die. She only weighed 98 pounds. The car was going 55 mph, and she was thrown 150 feet. My friend was just hit in the same neighborhood, crossing to the school and the shops where she sold burritos that she made. She was in a coma for weeks. Now she has amnesia -- she doesn¹t remember either her husband or her children. I have another friend at my son¹s school who lost her 6-year-old child. He was dragged down the block by the car. And this happened after we had complained and complained to the principal about how dangerous it is to cross the street there.

I know about the dangers because I walk everywhere with my three little ones. Cars don¹t pay any attention. Not even when there are people in the crosswalk. Sometimes they don¹t even slow down. And I watch when parents let their children cross the street alone while they wait on the other side and I am so afraid for the children.

I¹ve taken my concerns to the Board of Supervisors, to the Board of Education, to the California Highway Patrol. I collected petitions. I sent letters. I even wrote to Governor Gray Davis. Everyone says there¹s nothing they can do. And I wonder -- what is it going to take to make somebody do something?"

RECOMMENDATIONS

(1) Dedicate a fair share of funding to pedestrian safety.

Pedestrian accidents in 1999 alone cost California nearly $4 billion, yet spending on the pedestrian safety measures is a mere fraction of that figure. Caltrans and California's cities, counties and regional transportation agencies should dedicate funding to traffic safety programs in proportion to traffic deaths. If 20 percent of traffic fatalities are pedestrians, it stands to reason that a similar amount of safety funds should be devoted to pedestrian safety. Caltrans now devotes less than one percent of its federal traffic safety funding to projects that improve the safety of pedestrians.

Regional and county transportation agencies should set aside 10 percent of their Regional Transportation Improvement Program (RTIP) and Surface Transportation Improvement Program (STIP) funds for community enhancement activities including pedestrian and bicycle-oriented projects and facilities.

(2) Suspend California's crosswalk removal policy.

The trend toward removing crosswalks under the guise of enhanced pedestrian safety makes no more sense than removing traffic signals at intersections in order to make motorists more cautious. We need to be doing more for pedestrians statewide, not less. The California Department of Transportation should do everything in its power to revisit its crosswalk removal policies and encourage other local agencies to suspend the current practice until further review is possible. Issues of safety and liability should be addressed head on and changes made to the California Vehicle Code to ensure that liability concerns don't prevent agencies from providing the most basic facilities for pedestrians.

California develop a new state standard for a basic crosswalk, requiring a more visible design (such as ladder crosswalks with zebra stripes) as well as overhead signs and lights for all crossings that occur on major streets with heavy traffic.

(3) Consider pedestrians in the design of every project.

Traffic calming is but one part of a broader effort to fundamentally refocus the design of both streets and communities so that walking is safe and convenient. Encouraging pedestrian travel means designing communities so that people have somewhere to walk to. That means developing neighborhoods where residents are within a reasonable walking distance of shops, offices, schools, libraries and transit stops. According to the American Planning Association's "Best Development Practices," the best neighborhoods for walking are developed in small clusters. The street network in these neighborhoods should include multiple connections and direct routes that allow pedestrians to choose the shortest distance to a destination. Schools should also be placed so children can walk and bike without having to cross wide, high-speed streets.

When it comes to designing roads engineers traditionally begin at the centerline and by the time they reach the road edge they have run out of room for "amenities" for pedestrians. New design policy guidelines issued by the Federal Highway Administration recommend that state and local planners and road builders drop that approach and design all facilities from the start with pedestrians and bicyclists in mind. A Caltrans Pedestrian Safety Task Force last year issued a similar recommendation: "Project planning processes should encourage the early integration of pedestrian access and safety issues in all highway improvement projects," write the authors of the task force's final report. "Proposed transportation improvements should consider and include where appropriate the needs and safety concerns of pedestrians in every phase of the project from planning to project completion." All facilities should be designed for the disabled and meet basic standards established in the Americans with Disabilities Act.

(4) Collect better data on pedestrians.

Another fundamental step in improving pedestrian safety is to collect more information about pedestrian fatalities and injuries, the amount of walking and the risks associated with walking, the effectiveness of pedestrian safety measures, and how much is spent on pedestrian facilities. More data should also be collected on the ethnicity of pedestrians who are hit in order to better understand who is getting hurt and which segments of the population should be targeted for pedestrian safety initiatives.

Most agencies collect only information about vehicle traffic, which facilitates and encourages discussions around levels of service for automobiles. No agency collects data on levels of service for pedestrians. The little data that is collected on pedestrians is incomplete and often inaccurate, making it hard to document safety problems and making it easy for officials to overlook pedestrians entirely. As one official said, "What gets counted counts."

(5) Develop a "bicycle and pedestrian blueprint" for the State of California.

California needs a statewide vision and strategy for maximizing the benefits of bicycling and walking that includes goals and an action plan for all levels of government. This includes targeted strategies like Safe Routes to School programs, as well as an economic analysis of the potential benefits of bicycle tourism, regional trail systems and more pedestrian-oriented developments.

TABLE 1A: PER CAPITA SPENDING OF FEDERAL TRANSPORTATION FUNDS ON PEDESTRIAN SAFETY - 1997-98

RANK	STATE	AVERAGE SPENDING ON PEDESTRIAN PROJECTS PER CAPITA	SPENDING ON HIGHWAY PROJECTS PER CAPITA	AVERAGE PERCENT OF ALL SPENDING TO PEDESTRIANS	PEDESTRIANS AS PERCENT OF TRAFFIC DEATHS
1	ALASKA	$10.73	$242	3.6%	12 %
2	DELAWARE	$2.86	$142	1.8%	11 %
3	VERMONT	$2.61	$122	1.4%	12 %
4	MONTANA	$2.14	$177	1.0%	4 %
5	NEW HAMPSHIRE	$2.09	$72	2.6%	9 %
6	MASSACHUSETTS	$2.05	$61	2.1%	20 %
7	CONNECTICUT	$1.91	$66	1.8%	15 %
8	NORTH DAKOTA	$1.88	$228	0.8%	5 %
9	IDAHO	$1.74	$90	1.6 %	5 %
10	OREGON	$1.63	$68	1.3 %	12 %
11	NEBRASKA	$1.43	$106	1.2 %	6 %
12	SOUTH DAKOTA	$1.23	$189	0.6 %	4 %
13	NEW YORK	$1.22	$47	1.2 %	24 %
14	WASHINGTON	$1.05	$52	1.2 %	11 %
15	KANSAS	$0.98	$73	1.2 %	7 %
16	OKLAHOMA	$0.95	$91	0.9 %	7 %
17	COLORADO	$0.90	$45	1.4 %	11 %
18	MAINE	$0.88	$71	0.9 %	9 %
19	GEORGIA	$0.79	$67	0.9 %	11 %
20	WYOMING	$0.79	$214	0.6 %	5 %
21	NEW MEXICO	$0.78	$88	0.7 %	14 %
22	NEVADA	$0.75	$70	0.9 %	15 %
23	FLORIDA	$0.71	$52	1.0 %	19 %
24	TENNESSEE	$0.67	$75	0.8 %	8 %
25	ILLINOIS	$0.59	$46	0.8 %	14 %
26	MISSISSIPPI	$0.53	$83	0.6 %	6 %
27	ALABAMA	$0.52	$65	0.7 %	8 %
28	OHIO	$0.49	$52	0.7 %	9 %
29	VIRGINIA	$0.43	$54	0.6 %	10 %
30	MISSOURI	$0.42	$82	0.4 %	9 %
31	ARIZONA	$0.34	$52	0.5 %	16 %
32	UTAH	$0.30	$34	0.4 %	12 %
33	MARYLAND	$0.29	$57	0.3 %	18 %
34	NORTH CAROLINA	$0.28	$74	0.3 %	12 %
35	SOUTH CAROLINA	$0.27	$87	0.3 %	12 %
36	WISCONSIN	$0.23	$60	0.3 %	9 %
37	PENNSYLVANIA	$0.22	$58	0.3 %	11 %
38	IOWA	$0.21	$83	0.2 %	6 %
39	LOUISIANA	$0.21	$66	0.3 %	14 %
40	WEST VIRGINIA	$0.19	$161	0.1 %	8 %
41	MINNESOTA	$0.18	$48	0.3 %	9 %
42	KENTUCKY	$0.16	$97	0.1 %	8 %
43	MICHIGAN	$0.16	$58	0.2 %	12 %
44	INDIANA	$0.15	$75	0.3 %	8 %
45	RHODE ISLAND	$0.15	$86	0.1 %	12 %
46	HAWAII	$0.14	$95	0.3 %	18 %
47	ARKANSAS	$0.12	$91	0.1 %	8 %
48	NEW JERSEY	$0.08	$52	0.2 %	20 %
49	TEXAS	$0.07	$57	0.1 %	13 %
50	CALIFORNIA	$0.04	$40	0.1 %	21 %

SOURCE: Federal Highway Administration; Surface Transportation Policy Project

TABLE 2A: HIGHEST PEDESTRIAN INCIDENT RATES BY COUNTY - 1999
ALL CALIFORNIA COUNTIES ABOVE 100,000 POPULATION AS OF 1/1/2000

RANK	COUNTY	PEDESTRIAN FATALITIES 1999 (1)	PEDESTRIAN INJURIES 1999 (1)	POPULATION 1999 (2)	INCIDENT RATE
1	SAN FRANCISCO	26	963	797,200	124.1
2	LOS ANGELES	203	5377	9,790,000	57.0
3	ALAMEDA	20	752	1,448,700	53.3
4	HUMBOLDT	4	54	126,100	46.0
5	SACRAMENTO	30	516	1,202,100	45.4
6	SAN DIEGO	81	1205	2,883,500	44.6
7	SAN JOAQUIN	12	227	562,600	42.5
8	SANTA CRUZ	1	104	253,400	41.4
9	SANTA BARBARA	6	161	408,600	40.9
10	SAN MATEO	7	290	727,300	40.8

NOTE: 1999 Fatality and Injury Data is Provisional. Incident rates include both fatalities and injuries.
SOURCE: 1999 Provisional Report of Fatal and Injury Motor Vehicle Traffic Collisions, Department of California Highway Patrol; 1999 Population Estimates, California Department of Finance.

TABLE 3A: RACIAL BREAKDOWN OF HOSPITALIZED PEDESTRIAN INJURIES AND FATALITIES BY COUNTY - 1998

COUNTY	ITEM	WHITE	BLACK	HISPANIC	NATIVE AMERICAN	ASIAN/PACIFIC ISLANDER	OTHER/UNKNOWN
ALAMEDA	Ped Incidents	92	66	34	1	25	31
	Population	661,887	253,327	235,748	6,888	270,483	n/a
CONTRA COSTA	Ped Incidents	55	25	15	0	8	4
	Population	599,575	85,113	123,136	4,910	104,165	n/a
FRESNO	Ped Incidents	46	11	67	0	15	2
	Population	355,957	37,598	302,246	6,657	82,684	n/a
IMPERIAL	Ped Incidents	1	1	19	0	0	0
	Population	33,541	5,203	101,260	1,222	2,125	n/a
KERN	Ped Incidents	64	15	30	0	3	3
	Population	373,943	37,038	202,345	6,583	20,148	n/a
KINGS	Ped Incidents	7	1	8	1	0	0
	Population	62,125	9,624	46,590	1,077	4,796	n/a
LOS ANGELES	Ped Incidents	554	330	969	7	112	52
	Population	3,201,507	979,724	4,223,905	27,407	1,207,227	n/a
MADERA	Ped Incidents	7	0	15	0	0	0
	Population	64,185	4,327	43,462	1,220	1,533	n/a
MARIN	Ped Incidents	22	1	2	0	0	2
	Population	199,268	8,365	24,787	611	11,966	n/a
MERCED	Ped Incidents	9	1	14	1	2	1
	Population	99,470	8,512	74,273	1,281	20,862	n/a
MONTEREY	Ped Incidents	28	1	36	0	2	2
	Population	179,251	23,023	149,864	2,488	29,522	n/a
NAPA	Ped Incidents	8	0	5	0	0	1
	Population	93,342	1,577	22,155	845	4,681	n/a
ORANGE	Ped Incidents	147	5	169	0	41	12
	Population	1,585,710	45,418	781,758	8,183	342,799	n/a
RIVERSIDE	Ped Incidents	111	16	97	1	3	4
	Population	890,340	78,510	421,350	11,289	56,989	n/a
SACRAMENTO	Ped Incidents	104	32	28	2	11	8
	Population	764,628	117,632	153,505	12,252	128,181	n/a
SAN BERNARDINO	Ped Incidents	122	41	92	1	5	6
	Population	910,223	143,148	503,430	10,475	78,513	n/a
SAN DIEGO	Ped Incidents	246	56	170	9	22	14
	Population	1,718,586	177,205	677,209	15,893	239,439	n/a
SAN FRANCISCO	Ped Incidents	91	40	44	1	63	6
	Population	319,192	77,602	124,855	2,775	265,043	n/a

TABLE 3A: RACIAL BREAKDOWN OF HOSPITALIZED PEDESTRIAN INJURIES AND FATALITIES BY COUNTY - 1998 (PAGE 2)

COUNTY	ITEM	WHITE	BLACK	HISPANIC	NATIVE AMERICAN	ASIAN/PACIFI-C ISLANDER	OTHER/UNKNOWN
SAN JOAQUIN	Ped Incidents	37	4	31	0	10	3
	Population	300,604	29,332	140,076	4,001	77,531	n/a
SAN MATEO	Ped Incidents	61	6	32	0	16	2
	Population	385,872	33,931	154,753	2,770	144,062	n/a
SANTA BARBARA	Ped Incidents	24	2	24	3	0	1
	Population	247,242	10,143	126,259	2,578	18,821	n/a
SANTA CLARA	Ped Incidents	81	5	92	1	30	12
	Population	853,466	60,744	402,454	5,552	379,210	n/a
SANTA CRUZ	Ped Incidents	15	0	10	0	0	3
	Population	176,746	2,760	59,900	1,363	10,020	n/a
SOLANO	Ped Incidents	19	9	9	0	3	3
	Population	217,026	53,627	57,844	2,590	54,390	n/a
SONOMA	Ped Incidents	51	2	9	2	0	0
	Population	358,456	6,745	57,058	4,098	14,162	n/a
STANISLAUS	Ped Incidents	41	4	13	0	3	1
	Population	284,329	8,251	107,576	4,158	26,783	n/a
TULARE	Ped Incidents	16	3	17	0	0	0
	Population	177,632	5,033	157,470	3,233	18,076	n/a
VENTURA	Ped Incidents	42	2	36	1	1	3
	Population	455,793	16,567	219,339	3,556	42,901	n/a
CALIFORNIA	Ped Incidents	2,247	682	2,105	36	383	181
	Population	17,275,835	2,357,377	9,938,776	197,521	3,724,845	n/a

SOURCE: Latino Issues Forum; California Department of Health Services, Death Records; California Office of Statewide Health Planning and Development, Hospital Discharge Dataset; California Department of Health Services, Epidemiology and Prevention for Injury Control Branch; California Department of Finance.

METHODOLOGY

TABLE 1: All pedestrian injury and fatality data are from the 1998 and 1999 Statewide Integrated Traffic Records System (SWITRS) managed by the California Department of Highway Patrol. Population estimates are from the California Department of Finance and have been updated to reflect the most recent revisions to county population totals. Pedestrian incident rates are calculated by dividing all pedestrian injuries and fatalities by population and then multiplying by 100,000. The pedestrian exposure rate is taken from the 1990 U.S. Census journey to work data, and reflects the approximate percentage of people walking to work multiplied by 100. This is widely seen as the best available surrogate for overall levels of pedestrian activity. What is important about the journey to work data is that it establishes an indication of basic exposure for pedestrians. It is most important in establishing a measure of relative exposure between counties, and for this purpose it is likely a conservative estimate. The California Pedestrian Danger Index is calculated by dividing the pedestrian incident rate by the pedestrian exposure rate and then adjusting the number to a 0-100 scale where the highest ranking county scores 100 and all other counties are adjusted accordingly to the same scale.

TABLE 2: Pedestrian fatality and total traffic fatality data are from the Statewide Integrated Traffic Records System (SWITRS) managed by the California Department of Highway Patrol. Percent of all traffic fatalities that are pedestrians is a simple ratio of pedestrian fatalities to all traffic fatalities.

TABLES 3,4, 5 & 3A: Hospitalized pedestrian fatality and injury data by race was produced by the Latino Issues Forum and is derived from the California Department of Health Services 1998 Death Records and 1998 Hospital Discharge Dataset from the Office of Statewide Health Planning and Development. Population estimates are from the California Department of Finance. Shares of both incidents and population are basic percentages. It should be noted that the Department of Health Services Injury Tables capture only hospitalized injuries and are thus a subset of total traffic-related injuries.

TABLE 6: Definitions of Cost Categories: Medical includes spending on hospital and professional services, rehabilitation, prescriptions, home health care, medical equipment, and funeral expenses. Victim Work Loss includes wages, fringe benefits and household work for adults. It is the present value of a lifetime's worth of wage and household work that children will be unable to do as adults if they are killed or permanently disabled, these earnings include fringe benefits. Public Services includes police, fire, ambulance, and helicopter services. Property Damageis the cost to repair or replace damaged vehicles or property. Quality of Life places a dollar value on the pain, suffering, and lost quality of life that children and their families experience due to death ands injury.

ENDNOTES

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