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## ROAD SAFETY FOR ALL: LESSONS FROM WESTERN EUROPE



March 11, 2010, was a watershed day in the history of United States transportation policy. On this day, Secretary of Transportation Ray LaHood outlined the department's support for the full inclusion of pedestrians and bicyclists in transportation projects, with particular attention to people of all ages and abilities. As a matter of US policy, he encouraged all levels of government, community organizations, and public transportation agencies to consider walking and bicycling as equals with other transportation modes. While this was considered a radical policy leap in the United States, placing the needs of pedestrians and bicyclists on par with those of motorized users has been the policy position of many Western European cities for several decades. Europe's road safety record reflects the broad benefits of a balanced transportation system; the United States should look closely at the European experience for implementation lessons.

### TRAVEL PATTERNS

Europeans make far more of their trips by foot or bicycle than Americans—in most European countries, at least a fourth of urban trips are by walking or cycling. A few countries—notably the Netherlands and Denmark—report a nonmotorized travel rate of over 40 percent in urban areas. In contrast, urban Americans make less than 10 percent of their trips on foot and less than 1 percent on a bike, despite the fact that more than 40 percent of all trips in urban areas are shorter than two miles. Age does not deter Europeans from active transportation. Dutch and German people who are 75 years and older make roughly half of their trips by foot or bike, compared with only 6 percent of Americans age 65 and older (Pucher and Dijkstra 2003). Germans age 65 and older

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are four times more likely to walk, eight times more likely to board a bus or train, and 25 times more likely to ride their bikes than older Americans (Buehler and Nobis forthcoming).

### HEALTH AND QUALITY OF LIFE BENEFITS

Numerous benefits are associated with higher rates of walking and bicycling, including reduced traffic congestion, a reduced carbon footprint, and convenient access to public transportation and other mobility options that enable older nondrivers to travel independently in their communities. Furthermore, nonmotorized travel offers public health benefits. Building exercise into everyday life can have a positive effect on overall health and longevity. American states where walking and bicycling levels

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are highest have the lowest rates of obesity (Alliance for Bicycling and Walking 2010). Similarly, Western European countries with high proportions of active transportation have much lower obesity rates than the United States. Active transportation may be a contributing factor to a two-year-longer life expectancy in Germany and the Netherlands compared with the United States (Pucher and Dijkstra 2003). Transportation policy should be a key component in the U.S. debate on how to reduce health care costs and address the obesity epidemic.

## **SAFETY**

Another public health benefit of a multimodal transportation policy is safer roads. Europe leads the world in road safety. Per kilometer and trip walked, a pedestrian is three times

more likely to die in a motor vehicle crash in the United States than in Germany, and six times more likely to die than in the Netherlands (Pucher and Dijkstra 2003). An American bicyclist is three times more likely to be killed than a German cyclist and seven times more likely than a Dutch cyclist (Pucher and Buehler 2008). Several European countries have improved pedestrian and bicycle safety while increasing the amount of travel by these modes. An analysis of 14 European Union countries revealed a decline in pedestrian fatalities of more than 36 percent between 1997 and 2006. The United States witnessed a more modest decline of around 13 percent between 1997 and 2007 (Rousseau, 2010).

How does Europe achieve these high rates of walking and bicycling while simultaneously improving safety? Factors that contribute to Europe's success with road safety and livability include transportation and land use policy, taxation and investment choices, public education, and enforcement of traffic laws. European countries and their cities have made conscious policy and investment decisions to promote walking and biking. Following World War II, Europe, like the United States, embraced a policy of moving cars over moving people. However, the oil embargoes of the 1970s and various economic and industrial crises in the 1980s led Western Europe to reconsider autocentric policies and adopt a Complete Streets approach.<sup>1</sup> While the United States continued to focus on moving drivers safely, many European countries investigated how they could keep growing numbers of pedestrians and bicyclists out of hospitals and morgues. Several strategies were employed, from speed enforcement

cameras and cycling education courses for youth to road design changes. Higher taxation on automobile travel was a factor as well.

Among the most effective policy responses has been a conscious decision to slow traffic in urban areas through traffic-calming techniques, prohibition of right-turn-on-red, and redesigned intersections. For example, more than 70 percent of the streets in Berlin (a city of 3.5 million people) are “calmed,” with speeds reduced to 30 kilometers/hour (18.6 miles/hour) or less.<sup>2</sup> A common European approach to slow traffic at intersections (which is slowly catching on in the United States) is the roundabout. Roundabouts have been shown to reduce fatal crashes by 90 percent and injury crashes by 76 percent compared with conventional intersections.<sup>3</sup> They are particularly beneficial for older drivers, who are more prone to errors in making lefthand turns. A more radical traffic-calming approach, which has yet to take hold in the United States, is the concept of “shared space” or *woonerf* in Dutch, translated roughly as “living yard.” In the *woonerf*, the traditional segregation of motor vehicles, pedestrians, and other road users is eliminated. Cars are treated as guests and are expected to move at speeds compatible with walking (roughly 8–16 kilometers/hour or 5–10 miles/hour) and to read the road environment to determine the safe speed—not signs or pavement paint but the landscaping, street furniture, and activities taking place in the street. According to the philosophy of the Dutch traffic engineer Hans Monderman, signs blur a driver’s ability to take cues from the social life of the community, to pay attention, and to gauge a safe speed. Given the fact that the Netherlands holds the world’s

road safety record, all countries might benefit from a closer look at the *woonerf* concept.

Where higher motor vehicle speeds are necessary, road users are clearly separated. Separate bike routes on trails or cycle tracks are frequently employed. These may be particularly beneficial for older bicyclists, who may feel especially vulnerable in traffic.

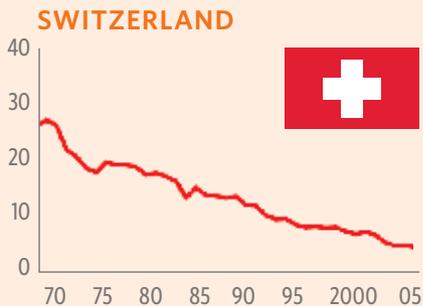
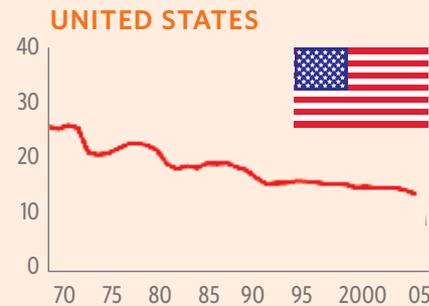
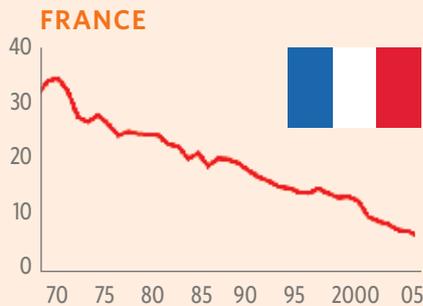
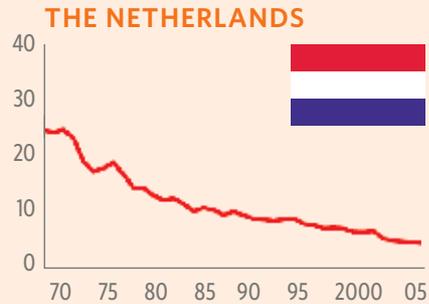
Transport policy that slows traffic on urban streets and reduces overall auto dependency also reduces motor vehicle collisions and the severity of those that do occur. The overall road fatality rate in the United States is double that of several European nations. This can be partly explained by the fact that more travel in the United States occurs on rural highways, the most dangerous roads in all countries. But a look at urban crash statistics reveals that Europe’s cities are far safer than American cities for motorists, pedestrians, and bicyclists alike.

### LAND USE POLICY

European planners have supported their transportation policies with land use planning—embracing an urban development model rather than a suburban one. New communities are built at higher densities with a mix of offices, shops, and services located close to residences. Buildings (and their associated parking) are situated to be inviting to the person arriving on foot or by bicycle. Trip distances are shorter and thus more conducive to nonmotorized travel.

Since the end of World War II, sprawl development has been the norm in the United States. This decentralized development pattern has separated homes from offices, stores, and services, and has made travel by

## Traffic Deaths Per 100,000 population since 1970



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*Graph source: International Road Traffic and Accident Database (IRTAD), OECD, 2009*

car imperative in most metropolitan regions. The recent bust of the housing and banking sectors, coupled with concerns over climate change and rising fuel costs, may mark a new era in US housing and transportation policy. Many cities have already embraced a Complete Streets approach to road planning and design—New York City; Portland, Oregon; and Charlotte, North Carolina, to

name a few. America's suburbs will face the greatest challenges in balancing the needs of all road users. Many of the road networks in suburban areas lack connectivity. Vehicles are forced onto high-speed urban arterials that are inhospitable to walking, bicycling, and public transportation use. There is a limit to how much road design can achieve alone; better land use planning is required.

## REMAINING SAFETY CONCERNS

Europe's pro-pedestrian policy, design, and investment approach has improved safety for pedestrians of all ages. Nonetheless, despite overall safety gains, older pedestrians are at disproportionate risk of death and injury, largely because of their increased frailty. Nearly half of pedestrian deaths in France, Germany, and the Netherlands, and more than half in Switzerland, involve persons over the age of 64.<sup>4</sup> As the United States makes strides to increase walking rates, it should understand the lessons of the European experience. Future safety efforts in all countries must focus on the unique limitations and needs of older road users. This includes understanding age-related physical and cognitive changes, such as reduced peripheral vision, loss of visual acuity, restricted movement, degradation in selective and divided attention, and slower reaction time. A concerted focus on the needs of our roads' most vulnerable users will enable the United States and Europe to show continued declines in road deaths, while ensuring that older adults maintain their independence and quality of life. **A**

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## Endnotes

- 1 A Complete Street is one that provides safe, comfortable, and convenient travel for users of all ages and abilities, whether they are traveling by car, foot, bicycle, or public transportation.
- 2 [www.stadtentwicklung.berlin.de/verkehr/radverkehrsanlagen/de/radwege2.shtml](http://www.stadtentwicklung.berlin.de/verkehr/radverkehrsanlagen/de/radwege2.shtml) (accessed November 3, 2008).
- 3 David Morena et al., 2007.
- 4 Calculated using road fatality data from the International Road Traffic and Accident Database, Fatalities by Road Type, November 2009, and population data from the United Nations Department of Economic and Social Affairs, Population Division, World Urbanization Prospects, 2009 Revision CD ROM.

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