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Sharing the Road

*Encouraging Biking
and Walking in Minnesota*

A report by Transit for
Livable Communities

Sponsored by the
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Summary

WALKING AND BIKING are good for our bodies, our environment and our communities—and we're less likely than ever before to walk or bike to where we want to go. That's no accident. We live in an auto-oriented state, in an auto-oriented country. Investments at the local, state and national levels support driving and parking and at best minimally support and at worst work against biking and walking.

Today's land uses are often spread out and cater only to cars. Basic infrastructure like sidewalks, bikeways and bicycle parking can be sporadic or missing altogether. Many roads have so many lanes of fast moving traffic that it is impossible for bicyclists and pedestrians to share the road—or even to safely cross the street. In Minnesota, as in the rest of the country, government spends very little on pedestrians and bicyclists when it funds transportation infrastructure, teaches traffic safety or pays to have children bused to school.

It's time to take walking and biking seriously as cost-efficient modes of transportation that reduce the need for road expansion and parking, help create a sense of community, reduce pollution and make us healthier. To do this, we must level the playing field so that government, institutions and businesses make biking and walking a priority, subsidizing them in the same way roads, parking and traffic management are subsidized.

To create more communities where people of all ages can choose to walk or bicycle, we must:

- Design communities where walking and bicycling are safe, convenient, appealing modes of transportation.
- Invest in pedestrian and bicycle infrastructure that provides safe, convenient, accessible and pleasant travel and that links major destinations within and between communities.
- Revise road design standards to allow for the



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construction and reconstruction of roads that are narrower, allow for lower design speeds and have improved access for bicyclists and pedestrians.

- Ensure speed limits maximize safety for drivers, pedestrians and bicyclists.
- Provide a greater share of transportation funding to pedestrian and bicycle projects and programs.
- Increase traffic enforcement and use new enforcement strategies to make roads safer for drivers, transit users, pedestrians and bicyclists.
- Greatly increase education about pedestrian and bicycle safety for children, adults and drivers.
- Support and fund Safe Routes to Schools programs for all Minnesota schools, to give children the opportunity to walk and bike to school. Support neighborhood schools and discourage remotely located mega-schools.
- Support and fund bicycle and pedestrian advocacy.

There are communities in Minnesota, around the United States and in other countries that are making walking and biking a high priority. This report describes a number of these initiatives and innovative programs to illustrate the possibilities.

Biking and Walking Today

BICYCLING AND WALKING are the two most popular forms of outdoor recreation in the United States, providing transportation, recreation and exercise for people of all ages and walks of life. Nearly all of us are pedestrians at some point each day, even if we drive, because our trips are likely to begin and end with walking. Most of us have ridden a bicycle at some point in our lives.

When we walk or bike, we are healthier, we live longer and we have a more positive outlook. We spend less time in traffic congestion and the air we breathe is cleaner. We greet each other and provide “eyes on the street,” an important crime deterrent, as we walk or pedal through the neighborhood. Communities where we can walk and bicycle are the kinds of places most people want to live.

Eight million U.S. households do not have a car. As many as 30 percent of us cannot drive because we are too young, too old, or physically impaired.¹ For those who cannot or choose not to drive, bicycling and walking provide crucial access to goods, services and recreation.

We could easily walk or bike more: Half the trips we make are less than three miles, 40 percent are less than two miles, and 28 percent are less than one mile.² Yet 75 percent of trips of less than one mile are made by car.³

Rates of biking and walking in the United States and in Minnesota, even among children, are very low and decreasing. As fewer of us walk and bicycle, society becomes focused on driving as the sole means of travel, communities become less safe and appealing for bicyclists, pedestrians and transit users—and the number of us walking and bicycling decreases even more.

Rates of walking and bicycling are much higher in Europe than in the United States. This is true even of senior citizens: of Dutch and German senior citizens 65 and over, nearly half bike and walk as the primary means of transportation.⁴ As people age in the United States they become more dependent on getting a ride, but their counterparts in the Netherlands and Germany

maintain their independence by shifting more of their trips to walking and biking.

Rates of bicycling and walking

In 2001, 8 percent of trips made by U.S. adults were on foot and less than 1 percent were by bicycle.⁵ According to the 2000 U.S. Census (which only measures trips to and from work), 3 percent of adults walked to work and less than 1 percent biked.⁶ Rates of walking have been decreasing in the past 25 years; the rate of bicycling has remained about the same.⁷

Minnesota’s rates of bicycling and walking are similar to those of the rest of the United States. Minneapolis has one of the highest rates of bicycle travel to work—2 percent—of any large U.S. city.⁸ This may be due in part to Minneapolis’ extensive network of trails and dedicated bicycle lanes leading to and through the downtown area.

Children’s rates of bicycling and walking have declined 37 percent in the past two decades.⁹ Ninety percent of trips by children today are made as a passenger in a car. This low level of walking and biking impacts children’s health, independence and ability to learn walking and bicycling skills.

Safety

Nationally, pedestrians and bicyclists make about 6 percent of total trips, but they accounted for approximately 14 percent of all traffic fatalities in 2000–2001.¹⁰ Pedestrian traffic crashes are the second leading cause of unintentional injury-related death among children ages 5 to 14.¹¹

An average of 50 Minnesota pedestrians were killed each year from 1996 to 2000, with pedestrian and bicycle fatalities accounting for approximately 10 percent of all traffic deaths.¹² Accident rates for pedestrians and bicyclists in Minnesota are declining, but this may be due to a drop in walking and bicycling rates rather than real improvements in safety.

Health impacts

Americans' low levels of bicycling and walking reflect our low rates of physical activity generally—which carries alarming health implications. The Centers for Disease Control and Prevention recommends that adults get 30 minutes of physical activity each day, but only 25 percent of us get this much, and another 25 percent are not active at all.

Lack of physical activity is second only to the effects of tobacco as a cause of death, contributing to the incidence of high blood pressure, heart disease, diabetes, osteoporosis, and other serious diseases.¹³ The Surgeon General estimates that 14 percent of U.S. deaths are related to physical inactivity and poor diet, a total of 200,000 deaths per year.

The Minnesota Department of Health estimates that \$495 million was spent in the state in 2000 treating diseases that could have been prevented by regular physical exercise. The research predicts that if Minnesotans were more active, the rates of serious diseases would decline by as much as 30 percent.¹⁴

The American Medical Association links decreased opportunities for daily activities like bicycling and walking with rising obesity levels. In the past 20 years, obesity in the United States has increased dramatically, up to 27 percent of adults and 13 percent of children.¹⁵

Potential to increase bicycling and walking

A nationwide survey on walking conducted in 2002 found that over half of respondents reported that they would like to walk more for exercise, for fun, and to run errands. Respondents reported two main reasons for not walking more: "things are too far to get to" and "not enough time." The survey also found broad support for policies to make it easier to walk including better enforcement of traffic laws and greater investment in sidewalks and safe pedestrian crossings.¹⁶

Nearly 80 percent of respondents agree that bike trails and on-street bicycle lanes are important to creating safe communities for children.¹⁷ In another survey, 74 percent of home buyers said



We could easily walk or bike more: Forty percent of the trips we make are less than two miles, and 28 percent are less than one mile; yet 75 percent of trips of less than one mile are made by car.

the presence of walking and biking trails is very or extremely important in their choice of location.¹⁸

The Twin Cities region is projected to grow by one million people by 2030, adding nearly five million daily trips to an already congested transportation system. One cost-effective and community-friendly alternative to more roadway congestion is to make bicycling, walking and transit real options for significantly more people.

Resources

Surface Transportation Policy Project (STPP), *Mean Streets 2002* (Washington, D.C.: STPP, 2002). Statistics on pedestrian and bicycle safety and spending by state and major metropolitan area.

Centers for Disease Control website, www.cdc.gov. Information and statistics on health and physical activity.

www.bicyclinginfo.org and www.walkinginfo.org. Statistics and studies regarding the levels of biking and walking in the United States and crash rates.

Land Use and Street Patterns

Recommendations

Design communities where walking and bicycling are safe, convenient, appealing modes of transportation.

- Local governments should integrate land use and transportation planning. They should adopt ordinances that encourage compact, mixed-use development, minimize the need for off-street parking, and require well-connected streets, sidewalks, and trails.
- The Metropolitan Council and local communities should implement a land use plan that encourages development in mixed use centers along public transit corridors with a focus on walking, biking and transit use.

Background

Land use and street patterns have a huge impact on our preferred mode of travel because they affect how fast, safe, or pleasant our trip will be. Compact, mixed-use development patterns with well-connected streets are more conducive to bicycling and walking. Less dense development, with winding streets and cul-de-sacs, can make cars the only viable means of transportation.

Until the middle of the 19th century, all cities were designed and built for walking. The central parts of most older small and large cities in America still have this pedestrian-friendly design. From the middle of the 19th century to the middle of the 20th century, public transit became the dominant form of transportation, and people often walked or biked to public transit.

After the Second World War, rising incomes and federal subsidies for the Interstate Highway Program and single-family home ownership combined to encourage greater auto use and the development of lower density suburbs. New municipal zoning ordinances required separated land uses and spread out patterns of growth. This development—which continues today—is commonly referred to as sprawl.

Between 1982 and 1997, the population of the

Twin Cities region grew by 25 percent, but the amount of land converted to commercial, industrial, and residential development grew by 61 percent.¹⁹

The kind of development that supports walking and bicycling is characterized by:

- A mix of residential, commercial and office uses in one area, rather than in separate, distant zones. This reduces the distances between destinations and makes it possible to walk or bike between home, work and shopping.
- Varied housing options within neighborhoods that include townhomes or condominiums, apartments and single-family homes. This makes it possible for more people to live near work.
- Off-street vehicle parking located at the side or rear of buildings and secure parking for bicycles.
- Design of commercial and civic buildings with interesting architecture, windows at street level, and sidewalk cafes to make walking interesting.
- Sidewalks, on-street bike lanes, trails and paths with pedestrian-scale lighting and public benches throughout residential, commercial, recreational and most industrial areas.
- Street patterns that are logical and well-connected with short blocks and many collector streets, so no one street becomes too large or overburdened by traffic.

A study of neighborhoods in Portland, Oregon found that “households in pedestrian-friendly neighborhoods make more than three times as many transit trips and nearly four times as many walk and bicycle trips as households in neighborhoods with poor pedestrian environments.... The measures of pedestrian friendliness were density, proximity to employment, grid-pattern streets, continuous sidewalks and easy street crossings.”²⁰ Another study found that in typical single-use office parks, only 3 to 8 percent of midday lunch

or errand trips were made on foot, but in pedestrian-accessible, mixed-use areas, 20-30 percent of such trips were made on foot.²¹

Success stories

- Several **cities in the Twin Cities region**—including Burnsville, New Brighton, Chaska, Brooklyn Park, Maple Grove, Lino Lakes and St. Louis Park—are **retrofitting their communities with traditional town centers** that are more compact and pedestrian-oriented. Some suburbs are experimenting with pockets of compact, mixed-use or pedestrian-friendly development. Many of these initiatives received incentive grants from the Metropolitan Council. In greater Minnesota, some cities have renovated historic districts, such as Duluth's Canal Park and Red Wing's downtown area. Here, bicycling and walking are especially pleasant.
- As part of a public-private redevelopment project, **Saint Louis Park** is creating a **high-amenity, mixed-use town center** that welcomes pedestrians as well as motorists. Parking has been significantly reduced, with much of it placed underground or in ramps. Streets have extra-wide sidewalks, buildings include interesting architecture and storefronts, and the main street surrounds a large town green. The 15-acre site is adjacent to Excelsior Boulevard, a busy urban arterial that Saint Louis Park has made more appealing by improving pedestrian crosswalks and enhancing the streetscape.
- In 1997, **Saint Paul** completed a development plan for its downtown that focused heavily on improving the pedestrian environment. Recently, the city has approved a **new zoning district** that **encourages compact, mixed-use development** and discourages excessive on-site parking. The new district is called a Traditional Neighborhood Design or TND zone. One of the first development projects in the new TND zones was the North Quadrant—a four block residential development on the northeast side of downtown. The development of 360 condos and apartments includes reduced off-street parking, a park, wide sidewalks, attractive facades, bicycle parking, and space for first floor retail.



Park Commons, Saint Louis Park, Minnesota, 2003. Saint Louis Park is developing a higher-density, mixed-use town center with amenities that encourage walking and biking.

- **Portland, Oregon** is consistently named one of the best cities for walking and bicycling in the country. It's also known for its high quality transit system that includes bus, light rail, streetcars and good intercity rail connections. A key factor in Portland's success is the region's **integration of land use and transportation planning**. Growth management mandated by the state and aggressively pursued by the region has kept development relatively compact. The region's 40-year growth plan sets a goal to increase the travel mode share for walking and biking to 10 percent of all trips and to reduce off-street parking. The Portland region was the first in the United States to adopt street classifications and design standards that balance multiple modes of travel with an aim of encouraging more walking, biking, and transit use. *See page 14 of this report for more details.*

Resources

Reid Ewing, *Transportation and Land Use Innovations*, (Chicago: American Planning Association, 1997). An easy-to-understand explanation of the connection between land use and transportation and how to design communities to reduce auto use.

1000 Friends of Minnesota, www.1000fom.org. A statewide advocacy organization promoting balanced growth and land and resource conservation.

Congress for New Urbanism, www.cnu.org. An organization promoting new urbanist design, including architects, developers, planners and others. The CNU website has many examples of compact, mixed-use development, walkable neighborhoods and attractive, accommodating civic spaces.

Infrastructure

Recommendations

- State, regional and local governments should plan, fund and build pedestrian and bicycle infrastructure that links housing, jobs, shopping, and recreation within and between communities.
- Pedestrian and bicycle infrastructure should provide for travel that is safe, convenient, accessible, and pleasant.



Downtown Redwing, Minnesota. Redwing has made investments to make the city an appealing place to walk and bike.

Background

Older communities, including Minneapolis, Saint Paul and some inner ring suburbs, were constructed with sidewalks for walking (and bicycling by young children) and streets safe for bicycle travel. Many of today's newer communities are not designed this way.

Many suburbs in the Twin Cities region were built between 1960 and 1990, a time when development throughout the United States became more auto-oriented and most residential neighborhoods were built without sidewalks. While sidewalks and multi-use trails exist in a few places, they are often not continuous, they don't connect to major destinations, and they don't feel pleasant or safe (narrow sidewalk or bike lane next to fast moving traffic, no shade trees, no transit service or transit amenities).

Starting in 1990, suburbs began again to require, or at least encourage, the construction of sidewalks in new residential development. Efforts to install sidewalks in neighborhoods previously built without them are rare, but efforts to build trails are more common.²² The city of Shoreview, which has few sidewalks, is working to link all major destinations by trails and to install trails along most major roads within the city. With the system about 80 percent complete, Shoreview has more than 40 miles of bituminous trails.²⁴

Dakota County has 240 miles of off-street bicycle paths, as well as 145 miles of paved roadway shoulders rated suitable for bicycling. The county added bikeways to its transportation system in the 1980s; since then, county road construction or reconstruction projects have included a bikeway evaluation. The county also pays for installation of bicycle parking and lockers at key transit hubs within the county.²⁴

Minnesota has a statewide trail system of more than 1,300 miles, which reflects positively on the state's commitment to recreation. However, few trails connect to places of employment, shopping, or services so their transportation value is limited.



Snelling Avenue, Saint Paul, Minnesota 2002. Despite having a sidewalk, this section of Snelling Avenue—near the State Fairgrounds with its fast moving traffic—feels dangerous and unpleasant for walking and bicycling.

Even in Minneapolis and Saint Paul, infrastructure for biking and walking is extensive but not complete. While most areas have sidewalks, there are still locations along collector and arterial streets, across bridges, and in suburban-style commercial areas that lack sidewalks, or have narrow sidewalks that are not separated from fast-moving traffic. Most collector streets do not have on-street bike lanes. Many areas are not pleasant for walking and bicycling because of lack of shade or pedestrian-scale lighting.

Minneapolis has 79 miles of on-street bike lanes as well as 53 miles of off-street bike trails. The city plans to add 125 miles of new bikeways by 2008.²⁵ In Saint Paul, there are 16 miles of striped and signed on-street bicycle lanes, 18 miles of bicycle lanes that are striped but have no signs, and 68 miles of off-street bicycle trails.²⁶ There are no bicycle lanes in the downtown area. Saint Paul has an ambitious bike plan as part of its City Transportation Plan, but little of it has been implemented since it was written in 1997.

Maintenance

In most cities, the cost and maintenance of sidewalks is primarily the responsibility of individual homeowners and businesses; roads are

Elements of good **bicycle** infrastructure

- **Connections to the places people want to go.** Bikeways serve transportation, not just recreational purposes. They connect all destinations throughout residential, commercial, industrial, and recreational areas.
- **Safety.** Collector and non-expressway arterial streets have on-street bike lanes with adequate width and proper striping. Separate off-street bicycle paths or trails are of adequate width with proper striping, offering faster travel yet accommodating less skilled bicyclists.
- **Bike parking.** Visible and provided at all local and regional destinations.
- **Signage.** Bikeways have route and destination indicators.
- **Convenience and continuity.** Routes are direct and continuous with safe crossings of busy roads, bridges, railroad lines and other barriers.
- **Maintenance.** Bikeways are repaired and cleared of snow, dirt and debris, allowing year-round use.

built and maintained at taxpayer expense.²⁷ When sidewalks are not adequately maintained or plowed in winter, or cleared of sand and gravel in other seasons, they are dangerous and discourage bicycling and walking.

Secure bicycle parking

In contrast to the acres of vehicle parking provided and usually paid for by employers, businesses and government, designated bicycle parking is hard to find. Almost all local governments have substantial requirements for vehicle parking for every type of land use, but rarely require bicycle parking. Because bicycle theft is common, secure bicycle parking is a key element to increasing bicycle use.

There are exceptions: In downtown Minneapolis, large commercial developments must provide bicycle parking as well as lockers and showers for commuters. The city also has a cost-share program with private businesses for voluntary installation of bicycle parking. There are approximately 2,500 bicycle parking spaces in downtown Minneapolis and several hundred spaces in the

Uptown area.²⁸ St. Louis Park gives incentives to developers to provide bicycle parking.

Regional planning

The Metropolitan Council's Blueprint 2030, adopted in December 2002, includes a focus on walking and bicycling and identifies several ways that walking and bicycling can be encouraged. The Council is currently participating in a multi-stakeholder effort to map existing bikeways and missing connections in the metropolitan area. When completed, the new map is expected to form the basis of a more substantive regional bicycle plan. Over the last decade, through its Transportation Advisory Board, the Metropolitan Council has provided many grants for bike and pedestrian projects from its allocation of federal transportation funds.

Success stories

- Using local dollars and federal grants, **Minneapolis** has built many **new bike and pedestrian trails** including the Kenilworth Trail, the Cedar Lake Trail, the Bassett Creek Trail and the Midtown Greenway. The city has also refurbished two abandoned railway bridges over the Mississippi River for pedestrian and bike use. A coalition of neighborhood groups and bike activists, in conjunction with Hennepin County, is developing a former railway corridor that runs east-west across south Minneapolis into the Midtown Greenway bike trail. When completed, the Greenway will have landscaping, community gardens, public art and, if approved, new development and redevelopment that is bike and pedestrian friendly. There are also plans for the Greenway to include a street-car line.
- **Davis, California**, a college town of 62,000 in California's Central Valley, is known by many as the bicycling capital of the United States. Since the 1960's the city of Davis has encouraged bicycling through **planning and implementation of extensive bicycling infrastructure**, and the city boasts a bicycle mode share of 20 to 25 percent. Eighty percent of major roads have bike lanes,

Elements of good pedestrian infrastructure

- **Connections to the places people want to go.** Sidewalks and trails connect all destinations throughout residential, commercial, civic areas, schools and parks. Sidewalks are built on both sides of the street, except in very low-density areas.
- **Convenience and continuity.** Routes are direct and continuous with safe crossings of busy roads, bridges, railroad lines and other barriers.
- **Safety.** Users are protected from vehicles by boulevards, parked cars or barriers. Street crossings are not too wide or have bumpouts or refuge islands. Sidewalks and paths are of adequate width, well-lit, with no broken or cracked surfaces.
- **Accessibility for all users.** Sidewalks, trails and paths have smooth surfaces, are cleared of snow and debris and have curb cuts for wheelchairs. Traffic signals are timed to accommodate slow walkers.
- **Comfort.** Lanes and paths are easily identified, of adequate width and appropriate surface, with trees or other vegetation to provide shade.
- **Interesting and pleasant environments.** Routes include landscaping, sidewalk furniture, buildings with interesting architecture, and street activity.

most lanes are at least 5 feet wide, and there are 50 miles of off-street paths. On the U.C. Davis college campus, where half of students and 20 percent of staff and faculty bicycle, bicycle-only traffic signals have been installed at the busiest intersections to give bicyclists time to clear the intersections ahead of cars.²⁹

- **Anchorage, Alaska** has **250 miles of trails** within the city limits that are maintained by the city and used extensively by residents year round. In the winter, the city maintains 22 miles of trails for winter running and walking, with most of these trails lighted. Several other trails are regularly packed for skiers, mountain bikers, dogsledders and others. The trail system has more than 24 grade-separated crossings of major highways, allowing for continuous travel for over 20 miles without crossing a street.³⁰
- A **bicycle planning effort** initiated by **Chicago** Mayor Richard Daley and conducted in collaboration with the Chicagoland Bicycle Federation (CBF) and other advocacy organizations produced the city's first bicycle plan in 1992.³¹ In 10 years, the city created 300 miles of bikeways and installed 8,000 bicycle racks, more racks than in any other U.S. city. The bicycle racks were funded with \$1.8 million in federal Congestion Mitigation Air Quality (CMAQ) funds.³² The city has begun a new round of planning for a 2010 bicycle plan, and CBF volunteers are conducting a bicycling needs assessment on hundreds of miles of roads.³³
- Caltrain, a commuter train that serves communities south of **San Francisco**, has a **rail car just for bikes**. **Portland, Oregon, and Boston** have programs to improve **bike and pedestrian connections to transit stations**. Improved access for bicyclists and pedestrians reduces the need to construct expensive vehicle parking at transit stations, reduces traffic congestion around transit stations and increases transit ridership.



Southwest Station, Eden Prairie, Minnesota 2003. Covered bike parking makes it more appealing to bicycle to transit.

- The Metropolitan Council partnered with the City of **Minneapolis and Hennepin County** to identify needed **improvements to sidewalks and bikeways near station areas** along the Hiawatha light rail line in Minneapolis. Many of the recommended bicycle improvements are described in Minneapolis' 2001 Five Year Bikeways Plan Update and in the city's 20-year Master Plan.³⁴

Resources

Florida DOT, *Florida Pedestrian Planning and Design Handbook* (North Carolina: University of North Carolina Highway Safety Research Center, April 1999). Considered an excellent pedestrian facilities design guide.

Minnesota DOT, *Minnesota Bicycle Transportation Planning and Design Guidelines*, (June 1996). Considered an excellent bicycle facilities design guide.

Oregon DOT, *Oregon Pedestrian and Bicycle Plan*, (June 14, 1995). An example of a high-quality plan.

WalkBoston, Metro Area Planning Council, Massachusetts Bay Transportation Authority, *Improving Pedestrian Access to Transit*, (Washington, D.C.: Federal Transit Administration, September 1998). Ways to better link pedestrians to transit.

Road Design

Recommendations

- Accommodate pedestrian and bicycle travel as standard practice in the design of road projects.
- Revise state, county, and municipal road design standards to allow for the construction and reconstruction of roads to reflect existing and planned land uses and to better balance the needs of vehicle drivers with bicyclists, pedestrians, and transit users.
- Revise regional road classifications to reflect existing and planned land uses and to better balance the needs of vehicle drivers with bicyclists, pedestrians, and transit users.
- Provide training for road planners and engineers on best practices in designing for bike and pedestrian travel.
- Promote and use existing state guidelines for developing bicycle facilities, and develop and promote similar resources for pedestrian facilities.



In Minnesota, there is no guideline book that helps citizens understand the complicated process of road design.

Background

For decades, roads have been designed to provide safer and faster travel for cars and trucks. Compared to 50 years ago, today's roads have wider traffic lanes and shoulders, more traffic lanes, and fewer obstructions to visibility, including, in some instances, roadside trees and parked cars. New or expanded highways today take up much more land than highways built in previous decades. While today's road design standards can improve safety for vehicle drivers and enhance traffic flow, they can also create barriers that make walking and biking dangerous, unpleasant, or even impossible.

Minnesota has no guidebook or manual that explains in lay person's terms the complex process of road design. This makes it difficult for interested citizens, impacted property owners, or sometimes even city officials to understand and effectively participate in planning for roadway construction or reconstruction.

Road design standards depend on the type of road (functional classification), the jurisdiction

that owns the road, and where the funding comes from for construction or maintenance:

- **Interstate Highways.** Design standards for federal and state roadways in Minnesota are governed by the Road Design Manual published by the Minnesota Department of Transportation (MnDOT). This document, while generally based on the *Policy on the Geometric Design of Highways and Streets* (commonly referred to as the "Green Book"), by the American Association of State Highway and Transportation Officials or AASHTO, incorporates local research and practices of the state department of transportation. State Trunk Highways, Interstate Freeways, and National Highway System routes are subject to these design criteria. AASHTO treats the Green Book as a policy guideline.
- **State Aid Roads.** Design standards for county and municipal roads receiving state funding are governed by rules developed by a board of city and county engineers approved by the

Commissioner of MnDOT (Minn. Rules Chapter 8820).³⁵ Typically state aid roads have high traffic volumes. In many counties, a majority of county roads are in the state aid system.

- **County roads.** Most counties follow MnDOT state aid standards for the design of county roads funded with local property tax dollars.
- **City Streets.** Each city has standards on the design of local collector and residential streets. These standards are typically found in a city’s municipal code. Design standards for city streets vary widely from city to city.

The Federal Highway Administration, while generally supportive of the AASHTO Green Book, does not require states to use the Green Book. States and other levels of government have tended to adopt the Green Book guidelines as standards and the courts have tended to accept this. MnDOT has created a set of standards that fall into the AASHTO range, but which are reflective of driving conditions that include snow and ice.

The design of a road is governed by four factors:

- The location of the road, e.g., whether it is urban, suburban or rural.
- The functional classification of the road. Roads are classified into different types—local, collector, arterial, and gradations of each—according to their function in terms of vehicle access and mobility. The higher the road classification, the higher or larger the design standards for such things as speed, lane width and shoulder width.
- The projected Average Daily Traffic (ADT) or number of vehicles projected to use the road on an average day at the end of a 20-year planning horizon. The greater the expected vehicle traffic, the greater the number of lanes, the wider the lanes and shoulders, and the more likely that turn lanes will be required.
- The design speed of the road. Road design standards specify higher design speeds for roads that are flat, or multi-lane, in rural areas, or with



Many arterial streets in Minnesota are not designed with pedestrians and bicyclists in mind.

higher traffic volumes (MnDOT Road Design Manual section 2-5.07). *See pages 16 – 17 of this report for more information on vehicle speed.*

When new roads are built, or older roads reconstructed, they are typically designed to accommodate projected traffic volumes up to 20 years in the future. This can result in roads that

Minnesota Roadway System Miles and Traffic Volume

Road System	Lane Miles of Roads (rounded)	Percent of Vehicle Miles of Travel
Federal Agency—	4,000	—
Interstate and US and State Trunk Highway (Principal Arterials)	29,000	61%
County State Aid Highway	62,000	22%
County Roads	30,000	2%
Municipal State Aid Roads—		
Large Cities	6,000	8%
City Streets—		
Large and Small Cities	32,000	5%
Townships and other	115,000	2%
Total	278,000	100%

Source: Funding Street Construction and Maintenance in Small Cities. Transportation Policy Institute, 2002. Page 4.

are too large for current traffic volumes, or actually encourage more traffic through an area as motorists take advantage of a larger, less congested road.

Roads usually are designed for speeds 5 to 10 mph above the posted speed limit in order to increase motorist safety by providing a margin of error. The design speed can be increased by widening or straightening a road, smoothing a grade or providing wide visibility. The faster traffic that inevitably results can make roads less safe for pedestrians and bicyclists.

Roadway classification

The Metropolitan Council establishes a system of functional classification for roads in the Twin Cities metropolitan area that includes principal arterials, A and B minor arterials, and collector streets for purposes of determining what routes should be on the Metropolitan highway system and what routes are appropriate for transit service.³⁶ The Metropolitan Council's Transportation Advisory Board (TAB) limits road projects that it funds with federal Surface Transportation Program dollars to A-minor and principal arterials. Currently, the TAB's selection process for roads focuses on vehicle mobility, safety, and speed. There is less emphasis on projects where road design and land use are linked to encourage transit or pedestrian-friendly development with high quality infrastructure for biking, walking, and transit.

Road design and reconstruction in older urban areas

Many existing arterial streets in older communities were built with narrower lanes and shoulders than today's standards require. Widening these roads to meet current standards can result in the removal of boulevard space and boulevard trees, the narrowing of adjacent sidewalks, or the elimination of on-street parking.

While a variance process is available for state aid roads, communities often find it to be time-consuming and complicated. Cities and counties report being reluctant to ask for a variance because they assume greater liability for the road

if a variance is granted.³⁷

Lyndale Avenue in south Minneapolis and West Broadway in north Minneapolis are busy urban arterials whose reconstruction has been delayed for several years. Design standards for reconstruction call for the roads to be widened significantly, something the impacted neighborhoods oppose.³⁸

Traffic flow vs. pedestrian safety

Sometimes road "improvements" mean reduced safety for pedestrians and bicyclists. For example, new roads typically must be designed for a certain level of vehicular traffic flow or mobility, called "vehicle level of service" (LOS). In order to achieve the required level of service, engineers may add turn lanes at intersections or change the timing of traffic signals to keep traffic moving and prevent congestion. This improves the level of service for vehicles, but can decrease it for pedestrians by increasing crossing distances and extending pedestrian wait times at signals.

The National Cooperative Highway Research Program, which is administered by the Transportation Research Board, is funding a research project to develop new LOS designations that will consider the needs of transit users, bicyclists and pedestrians as well as vehicles. The first phase of the research will be completed in 2005.³⁹

Local streets

The primary purpose of local streets is to provide access to homes, neighborhood parks and shopping, but the way those streets are designed also impacts a neighborhood's character. When local streets are narrow and traffic is slow, it improves people's feeling of safety and increases social interaction.

Local streets in older communities tend to be narrower, with adjacent sidewalks for pedestrians, on-street parking and alleys for vehicle access to residences. On-street parking often slows traffic and provides a safety buffer for pedestrians on the sidewalk. In newer communities, residential streets tend to be wider, they lack sidewalks, and are shared by pedestrians and vehicles.



Ford Parkway in Saint Paul. Saint Paul has converted a number of roads from four lanes to two with a center left-turn lane, and accident rates and speeding have declined. This design is encouraged by MnDOT.

In its *Residential Streets* guide, the Urban Land Institute, working with the Institute for Transportation Engineers and the American Society of Civil Engineers, argues for narrower residential streets (24–26 feet with two parking lanes) and lower design speeds (20–25 mph) than are common today.⁴⁰

In 2002, the city of Bloomington, Minnesota, reduced its standard width for residential streets from a minimum of 36 feet to a minimum of 28 feet, with a maximum of 32 feet. The new standard will be used to retrofit about 5 percent of the city’s residential streets with curb and gutter (the remaining 95 percent already have been rebuilt and widened to 36 feet). Bloomington found that the reduced widths saved 10 percent in street reconstruction costs and reduced vehicle speeds.⁴¹ The city currently is examining options for traffic calming on several non-residential streets.

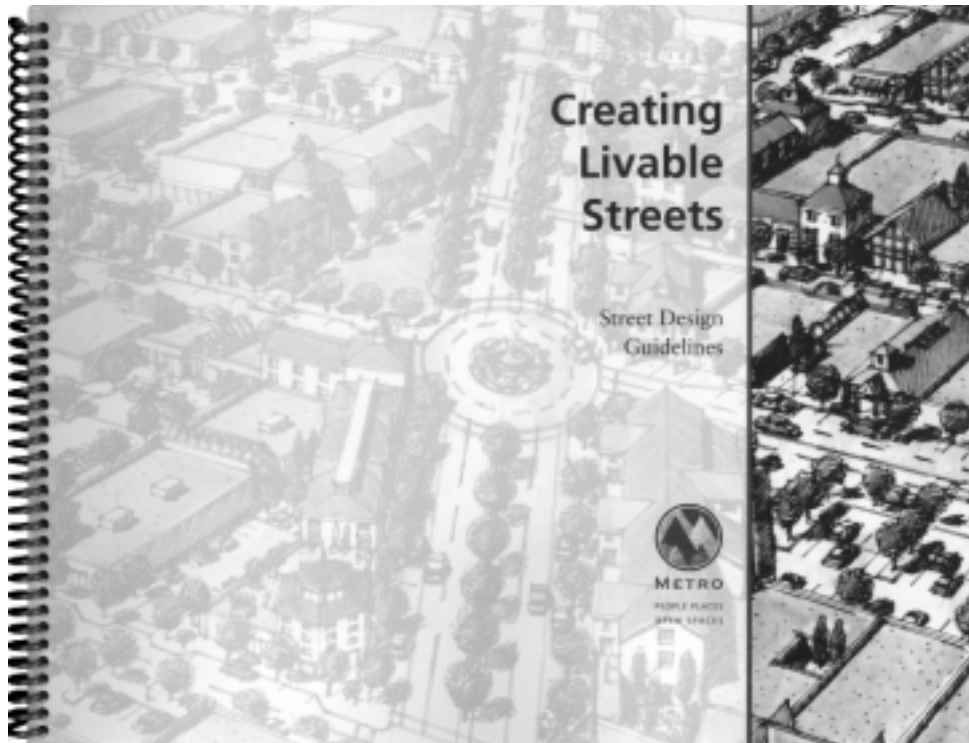
The cities of Plymouth and Rochester, Minnesota have also adopted residential street-

width standards that allow for narrower streets.⁴²

The North Carolina Department of Transportation devised new street-design guidelines for developments using “Traditional Neighborhood Design.” In this type of development, the state recommends lane widths of 8 to 9 feet (rather than the typical 10 to 12 feet) and a maximum residential speed limit of 20 mph.⁴³

Success stories

- The city of **Saint Paul** changed the **lane configuration** of a number of municipal roads to reduce vehicle speed and crashes, and to provide a safer environment for bicycles and pedestrians. The city converted a number of four-lane roads to two-lane roads with a center left-turn lane. Since 1999, when Fairview Avenue was changed from four lanes to three, accidents declined by more than 50 percent and speeding was reduced by more than 40 percent.⁴⁴
- In 1997, Metro, the regional government in



Street design standards in the Portland, Oregon, metropolitan area balance all modes of transportation and consider the function and character of surrounding land use.

Portland, Oregon adopted new regional **street design guidelines** as part of its growth plan for 2040 and its Transportation Policy Plan. The new standards better accommodate multiple modes of travel and support the regional land use plan by classifying roads in three major categories:

Highways and roads—facilities with a primary focus on vehicle traffic and regional mobility;

Boulevards—facilities oriented to pedestrian, bicycle, and transit modes of travel;

Streets—facilities that provide a balance between all modes of travel.⁴⁵

The new street classification system is the accepted standard for all communities within the region and a portion of the region’s federal transportation funds are set aside to encourage reconstruction of boulevards. Portland’s classification system is consistent with nationally accepted road design standards (AASHTO).⁴⁶

- The **Congress for the New Urbanism** (CNU), a

national organization of planners, architects, and engineers advocating compact, pedestrian-friendly urban design is working on a street design manual that will propose a new national street classification system based on principles similar to those used in Portland. CNU is also involved in a joint project with the Institute for Transportation Engineers to develop design guidelines for major urban streets.

- The **Federal Highway Administration** (FHWA) is promoting Context Sensitive Design as a solution to designing road **projects that are more responsive to community and environmental needs.**

FHWA’s 1997 publication,

Flexibility in Highway Design, encourages engineers to increase public involvement in road planning and allow for greater flexibility within the national guidelines.

- **Minnesota** was one of five states chosen by the FHWA in 1998 to pilot a training effort. Workshops on **Context Sensitive Design** have been held in Minnesota for employees of MnDOT, cities and counties. Projects in Minnesota that have used Context Sensitive Design methods include the Wabasha Bridge in Saint Paul, Highway 95 in Arden Hills, Excelsior Boulevard in St. Louis Park, I-35 through Duluth, and Highway 100 north of Highway 55.⁴⁷

- A study by the **Institute of Traffic Engineers** showed that **traffic calming measures** can slow traffic, divert cut-through traffic, and reduce crash rates—increasing pedestrian and bicycle safety.⁴⁸ In Seattle, 700 traffic circles have been installed since 1973. After implementing its citywide traffic-calming program, Seattle reported a 77-91 percent reduction in vehicle collisions.⁴⁹

- In 1999, Transportation Alternatives, a non-profit advocacy organization, was instrumental in the passage of the **New York City Slow Speed and Traffic Calming Law**. The law allows local streets to be designed for speeds as low as 15 mph and allows traffic calming measures like speed humps, traffic circles, and sidewalk extensions.⁵⁰

- **The Linden Hills neighborhood in Minneapolis** used traffic-calming measures to improve the **pedestrian environment in its business district**. With funding and technical assistance from the Minneapolis Neighborhood Revitalization Program, the neighborhood planned for and implemented pedestrian-friendly measures including: traffic circles, sidewalk extensions at intersections, boulevard trees, and wider sidewalks. The planning process included hundreds of residents and business owners.⁵¹ The City of Minneapolis also created a *Traffic Calming Guide* for neighborhoods.

- The city of **Saint Paul** has had an **informal traffic-calming program** through the Public Works Department for more than a decade. Engineering changes, such as sidewalk extensions, speed humps and traffic circles, can be installed at neighborhood request as funds allow, or in conjunction with local road projects.

- In 1998, several Saint Paul neighborhood organizations joined forces to devise more comprehensive solutions to neighborhood traffic problems. Partnering with Saint Paul Public Works and police, the neighborhoods conducted **pedestrian safety demonstrations on high-traffic arterials** and increased the visibility of and enforcement at major crosswalks. The efforts also included sponsorship of workshops by David Engwicht, an internationally known activist on traffic reduction and Safe Routes to Schools.



The Linden Hills neighborhood in Minneapolis has made many investments to improve the pedestrian environment.

Resources

Metro Regional Services, *Creating Livable Streets: Street Design Guidelines for 2040* (Portland: Metro Regional Services, 2002). Guidelines based on Portland's multimodal, community-friendly street classification system.

Congress for the New Urbanism, Local Government Commission, Surface Transportation Policy Project, *Civilizing Downtown Highways: Putting New Urbanism to Work on California's Highways* (San Francisco: Congress for the New Urbanism, 2002). Leading examples from California and elsewhere of retrofitting urban arterials and discussion of policy issues involved.

Oregon DOT, *Main Street...When a Highway Runs Through It: A Handbook for Oregon Communities* (Oregon: ODOT, November 1999). A guide to assist communities in balancing a pedestrian-friendly downtown with the movement of through traffic.

Dan Burden, *Street Design Guidelines for Healthy Neighborhoods* (Sacramento, CA: Local Government Commission Center for Livable Communities, January 1999). Residential street design standards for walkable, livable communities by a nationally known expert.

Reid Ewing, *Traffic Calming: State of the Practice* (Washington, D.C.: ITE, FHWA, August 1999). Lengthy publication on history, tools, engineering, impacts, liability, and more.

Conservation Law Foundation (CLF), *Take Back Your Streets: How to Protect Communities from Asphalt and Traffic* (Boston: CLF, January 1998). A guide to community involvement in road projects.

Vehicle Speed

Recommendations

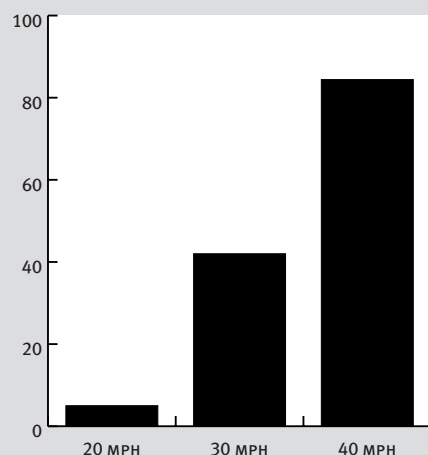
- Ensure speed limits maximize safety for all users including drivers, pedestrians and bicyclists.
- The Minnesota Legislature should reduce the speed limit for residential streets from 30 mph to 20 or 25 mph.
- MnDOT should eliminate the 85th percentile study as the basis for setting speed limits on non-expressway urban roads. MnDOT should work with cities and counties to set speed limits according to the needs and safety of all users consistent with land uses.
- State and local governments should increase education and enforcement to reduce speeding.

Background

Drivers traveling at high speeds are less aware of their surroundings and have less time to notice and react to pedestrians and bicyclists. Relatively small increases in vehicle speed can greatly increase the chances that a pedestrian will die in a vehicle-to-pedestrian crash.⁵²

Experts on street design say that 20 to 25 mph is the maximum safe speed for residential streets, but in Minnesota, the law establishes 30 mph as the speed limit for residential streets. Municipalities can lower the limit on streets to 25 mph, if signs are posted stating the lower limit.

Pedestrian Fatalities Increase with Vehicle Speed



Vehicle speed has a dramatic impact on the likelihood a pedestrian will die in a vehicle-pedestrian crash. When a vehicle is traveling 20 mph, a pedestrian has only a 5 percent chance of dying in a crash.

Source: John Pucher and Lewis Dijkstra, Making Walking and Cycling Safer: Lessons from Europe, *Transportation Quarterly*, Summer 2000.

Signs are expensive to install; even communities that want a lower speed limit rarely can afford to establish it. Saint Paul has appealed to the state legislature to lower the statutory speed limit to 25 mph in the past, without success. Michigan, Wisconsin, and several other states have universal residential speed limits of 25 mph.

Minnesota statute caps speeds on freeways and highways at 65 to 75 mph (Minnesota Statute 169.14). While 30 mph is the maximum speed allowed in an urban or on rural residential district, most speed limits on collector streets and arterial roads are set by state departments of transportation, including MnDOT, primarily using an “85th percentile study.”

For an 85th percentile study, drivers are observed during “free flow” (low-traffic) conditions. The speed that 85 percent of drivers are traveling under is considered to be the appropriate speed limit for that road. If most drivers are going over the posted speed, the limit for the road may be raised. Saint Paul city officials asked for an 85th percentile study on Warner Road a few years ago, hoping to lower the 40 mph speed limit. After the study, the speed limit was raised to 45 mph.

The 85 percentile method has been effective at moving vehicles efficiently on highways, but its effects are not well studied for smaller roads or roads shared with pedestrians or bicyclists.⁵³ Surrounding land uses and the presence of large numbers of bicyclists and pedestrians are not major factors in determining posted speed limits.

The Transportation Research Board, a division of the National Academies of Science, recommends *against* using 85th percentile studies to set speed limits on urban arterials “where roadside activities are numerous” and where “driver misjudgment about appropriate driving speeds poses high risks to vulnerable road users (eg, pedestrians and bicyclists).” The Transportation Research Board recommends that “safety and enforcement considerations should be given higher priority than design speeds or vehicle



While state law sets the speed limits on residential streets at 30 mph, residents in one Saint Paul neighborhood think 20 mph is better.

operating speeds on many urban roads, particularly residential streets.”⁵⁴

In Minneapolis, there is controversy about the appropriate speed limit on Hiawatha Avenue, the principal arterial directly adjacent to and parallel to the region’s first light rail line. While the speed limit on Hiawatha Avenue was initially posted at 35–45 mph, the road was designed for a much higher speed and most cars were traveling at 46–57 mph in July 2003. Using results from an 85th percentile study, MnDOT raised the limit from 40 to 55 along Hiawatha.⁵⁵ Many neighborhood residents are concerned that a higher speed limit will make the street less safe for pedestrians and bicyclists, many more of whom will cross Hiawatha when light rail opens in 2004.

Enforcement

Most police officers ticket drivers only when they exceed the speed limit by 8 to 10 mph, in part because judges tend not to uphold lesser violations. This means vehicles can be traveling up to 40 mph—the speed at which 85 percent of pedestrians struck by a car are killed—on local residential or collector streets where the legal speed is 30 mph.



City officials and local residents worry about bike and pedestrian safety with MnDOT’s new higher speed limits along Hiawatha Avenue in Minneapolis. Light rail along Hiawatha is scheduled to open in 2004.

Success stories

- **California** and **Massachusetts** recently enacted laws that give local jurisdictions authority to lower residential speed limits from 30 to 25 mph.⁵⁶ New York allows traffic-calming measures on local residential streets to lower the average speed to 15 mph. The nonprofit organization Transportation Alternatives was instrumental in the passage of the 1999 New York City Slow Speed and Traffic Calming Law.⁵⁷
- Biking and Walking Solutions, a nonprofit advocacy organization, started a **“Traffic Busters” program in the Merriam Park neighborhood of Saint Paul**. Neighborhood participants pledged to drive the speed limit, to drive less, and to use alternative means of transportation more often. Local businesses and the local library awarded discounts and prizes to program participants. The program was modeled after the traffic reduction strategies of David Engwicht, a pioneer in street reclaiming and Safe Routes to Schools in Australia.

Resources

Transportation Research Board, *Managing Speed: Review of Current Practices for Setting and Enforcing Speed Limits* (Washington, D.C.: National Academy Press, 1998).

Traffic and Enforcement

Recommendations

Increase traffic enforcement and utilize new enforcement strategies in order to make roads safer for drivers, transit users, pedestrians and bicyclists alike.

- State and local governments should increase investment in traffic enforcement.
- The state should permit local governments to use photo enforcement to ticket vehicles and cyclists who break traffic laws.
- Local police should use new strategies that increase the effectiveness of enforcement efforts such as education/enforcement combinations and media campaigns.

Background

The growth in traffic and increase in traffic violations is creating a hostile and dangerous environment for pedestrians and bicyclists in many urban areas, including the Twin Cities.⁵⁸ Most citizens in the Twin Cities believe traffic



Snelling Avenue at I-94 in Saint Paul. Many states, excluding Minnesota, allow the use of photo enforcement to ticket cars that run red lights.

issues are a top concern, but spending on traffic enforcement is declining⁵⁹—except for Minneapolis, which in 2002 shifted resources from non-traffic-related crimes to traffic enforcement.

According to new statistics from the National Highway Traffic Safety Administration, failure to yield contributed to 16 percent of fatal crashes in Minnesota, compared to 8 percent nationwide. Driver inattention contributed to 13 percent of the state's fatal crashes, compared to 7 percent nationwide. Excessive and illegal speed is still the number one cause of vehicle crashes statewide.⁶⁰

In 1996, Minnesota strengthened the law requiring drivers to stop for pedestrians in marked or unmarked crosswalks. Minnesota now requires drivers to stop for pedestrians in or entering marked or unmarked crosswalks and prohibits vehicles from passing a vehicle that is stopped at a crosswalk.⁶¹ Anecdotal evidence suggests that majority of drivers do not stop for pedestrians. In 2001, in vehicle-pedestrian crashes for which a cause could be determined, 25 percent of drivers failed to yield the right-of-way to a pedestrian. Driver inattention or distraction was a factor in another 26 percent of crashes.⁶²

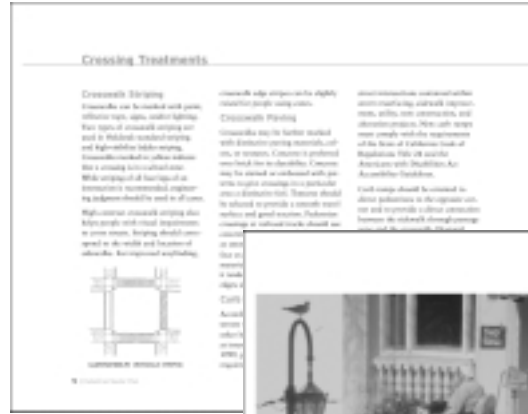
Minnesota targets only a small percentage of its state and federal traffic safety funding on bikes and pedestrians. *See page 22 for more details.*

Success stories

- In **Europe**, traffic regulations strongly favor pedestrians and police and courts place a high level of responsibility on motorists, even if pedestrians and bicycles make illegal moves.⁶³
- In 1995, the National Highway Traffic Safety Administration (NHTSA) in conjunction with the Federal Highway Administration (FHWA), launched a **campaign to help fund pedestrian and bicycle safety enforcement and education** efforts in local communities.⁶⁴ **Oakland, California and**

Montgomery County, Maryland participated. Both communities conducted “sting” operations where police targeted enforcement of pedestrian safety laws, combined with extensive media and public education.

- The **Pedestrian Safety Project in Oakland, California**, is hailed by the NHTSA as a national model. The program, which has strong community and police involvement, focuses on education, enforcement and infrastructure improvements. Hundreds of presentations and classes have been conducted to teach people pedestrian safety skills and safe driving techniques. The city targeted vulnerable populations including seniors.⁶⁵ The city created a comprehensive 150-page pedestrian master plan and a *Walk Oakland* guide and map.⁶⁶ It also provides mini-grants of \$500 to \$12,000 to communities. Police sting operations focusing on pedestrian safety have been widely used.⁶⁷
- Santa Monica, California, conducted sting operations and saw auto-pedestrian collisions decrease by 23 percent.⁶⁸
- Several states have strengthened pedestrian crosswalk laws in the past five years. **California** imposes high fines on drivers who violate pedestrian laws. A law adopted in 2000 **increases the fine for drivers** who injure pedestrians from \$103 to \$594 and raises the fine for passing another vehicle stopped at a crosswalk from \$104 to \$270.⁶⁹
- Ten states and the District of Columbia allow local jurisdictions to use **cameras installed at key locations** to identify and ticket drivers running red lights. Communities using the technology have seen violation rates drop by 42 to 92 percent. In cities using photo enforcement local citizens strongly support the technology.⁷⁰ Legislation to allow the use of photo enforcement has been proposed in Minnesota, but has not been adopted.



Oakland, California, has a comprehensive pedestrian safety program.

Resources

National Highway Traffic Safety Administration, www.nhtsa.dot.gov, and www.nhsta.dot.gov/people/injury/pedbimot/ped/ and nhtsa.dot.gov/people/injury/pedbimot/bike/. Provides funding, technical assistance and other resources for communities to start safety enforcement and education campaigns. Publishes “Building Safe Communities,” a newsletter on pedestrian and bicycle safety initiatives.

National Campaign to Stop Red Light Running, www.stopedredlightrunning.com. Source of research and status of photo enforcement efforts around the country.

Safety Education

Recommendations

Greatly increase education about pedestrian and bicycle safety.

- The legislature should provide funding for a statewide education program on bicycle and pedestrian safety.
- The state should require that driver education classes and road tests include a stronger focus on pedestrian and bicycle safety.
- All schools should teach bicycle and pedestrian safety, and should be adequately funded and trained to do so. This may require partnerships with public agencies and private organizations.

Background

In certain European countries and in selected places in the United States where a commitment has been made to safety education, walking and bicycling rates are high and crash rates are low. In European countries, pedestrian and bicycle safety is taught and tested extensively in schools and is an integral part of driver education.⁷¹ Low fatality rates in Germany and the Netherlands reflect this.

Safety education about biking and walking typically is a low priority in the United States. In Minnesota, a law requires public schools to teach bicycle safety if they teach bus safety skills, but few schools appear to do so. Since few children are walking and biking regularly, they aren't learning safety through practical experience, either.

A huge difference in safety

Compare the number of pedestrian and bicyclist deaths (per billion km traveled) in selected European countries and the U.S.

	Pedestrian deaths Per billion km traveled	Bicyclist deaths per billion km traveled
United States	364	110
Germany	26	25
Netherlands	26	17

Source: Pucher, John and Dijkstra, Lewis, "Making Walking and Cycling Safer: Lessons from Europe;" *Transportation Quarterly*, Feb. 2000, p. 24.

From 1975 to 1998, the University of Minnesota Extension Service taught bicycle safety to children ages 11-17, trained police officers on bicycles and promoted the state's voluntary bicycle registration program through a Community Bicycle Safety Project. The Extension Service also produced the Twin Cities Bicycle Commuter Map, which has won national awards. The program ended when its \$80,000 annual state funding was eliminated.⁷² See p. 18 of this report for more on funding for pedestrian safety.

Success stories

- Traffic safety education is integrated throughout **school curriculums in Denmark**, starting in pre-school. In the past 20 years, all types of vehicle crashes in Denmark have declined by 85 percent.⁷³
- In **Florida, bicycle safety education** is a part of public school education, driver education and training for police officers and other community leaders. A statewide program, run through the University of Florida in conjunction with Bike Florida, a nonprofit organization, trains physical education teachers to teach safe bicycling skills to kindergarten through eighth grade students. Approximately 55 percent of school districts in Florida now teach bicycle safety education. Federal Safety 402 funding started the program, which is now funded as part of Florida DOT's regular training budget.⁷⁴
- Florida also has developed **pedestrian and bicycle safety materials** for drivers' education classes. This program is supported through the sale of specialty license tags that encourage drivers to "Share the Road!" which raises \$100,000 annually.⁷⁵ Advocates are trying to get a law passed to mandate that pedestrian and bicycle safety be taught in drivers' education classes statewide.
- The **League of American Bicyclists (LAB)**, a non-



The League of American Bicyclists has trained more than 800 individuals to teach bicycle safety in their communities.

profit training and advocacy organization, has trained more than 800 individuals to teach bicycle safety in their communities. LAB organizes a National Bike to Work Day, Week, and Month. LAB also has a program that encourages communities to earn a “Bicycle-Friendly” designation.⁷⁶

- In **Madison, Wisconsin**, the **After School Bike Club** takes advantage of an existing after school program in middle schools to teach children bicycle safety skills and give them bicycling experience. The program is run by the city of Madison and the Bike Federation of Wisconsin, a nonprofit organization, using curriculum based on the League of American Bicyclists’ course on Effective Cycling.⁷⁷
- An initiative by the NHTSA, **Pedestrian Safety Roadshows**, has increased local action on pedestrian safety issues in several states, including Utah and Texas. The NHTSA holds half-day

workshops that bring together leaders and stakeholders from a specific community to raise awareness about pedestrian safety issues, identify needed changes and create momentum for change. In Texas, the advocacy organization Trans Texas Alliance conducts Pedestrian Roadshows in which they partner with a local neighborhood organization, school district or business association to address pedestrian safety within a small geographic area.⁷⁸

Resources

U.S. DOT, FHWA, Good Practices Guide for Bicycle Safety Education, (Washington, D.C.: U.S. DOT, FHWA, 2001). Summaries of scores of effective bicycle safety education programs around the country.

League of American Bicyclists (LAB), www.bikeleague.org. The organization trains bicycle safety educators throughout the country.

Funding and Staffing

Recommendations

Pedestrian and bicycle projects and programs should get a greater share of transportation funding. At a minimum, funding and staffing for pedestrian and bicycle programs should be adequate to greatly increase pedestrian and bicycling mode shares.

- In the reauthorization of TEA-21, Congress should increase its commitment to those funding programs that can be used for bike and pedestrian projects (Enhancement, Congestion Mitigation and Air Quality, and Surface Transportation Program) and allow flexibility in the use of other TEA-21 program funds to encourage investment in projects and programs that reduce the need to drive.
- In the reauthorization of TEA-21, Congress should create a separate funding category for Safe Routes to Schools.
- The Minnesota DOT should designate a percentage of federal transportation safety funds (Hazard Elimination Safety and Safety 402 funds) for Safe Routes to Schools and other pedestrian and bicycle safety projects.
- The Minnesota legislature should require that state-funded road projects accommodate travel by pedestrians and bicycle, with few exceptions.
- The Metropolitan Council and its Transportation Advisory Board should target a significant share of federal transportation funding to infrastructure and education projects to encourage walking and bicycling.
- Local governments should use a greater share of their transportation spending for sidewalks and bicycle lanes, trails and other infrastructure and programs.

ects. As a result, investment in pedestrian and bicycle projects has increased substantially nationwide and in Minnesota.

Nevertheless, the lion's share of federal dollars is still invested in roads and bridges. From 1998 to 2001, less than 1 percent of approximately \$46 billion annually in federal transportation funds was spent on pedestrian and bicycle facilities and programs.⁷⁹ In Minnesota, 1.7 percent of all federal transportation dollars was spent on pedestrian and bicycle projects. While this is more than in most states, it translates into a mere \$1.55 per year for each Minnesota resident.⁸⁰

Surface Transportation Program, Transportation Enhancements, and Congestion Mitigation Air Quality (CMAQ) are the federal funding sources used most often for bike and pedestrian projects.

Federal Hazard Elimination and Safety (HES) funds can be used to increase pedestrian and bicyclist safety, but MnDOT uses HES money primarily for projects designed to reduce vehicle crash rates at intersections. MnDOT approved HES-funded projects totaling \$4 million for 2005-2006.⁸¹

The Metropolitan Council's Transportation Advisory Board and the Minnesota Department of Transportation are responsible for making decisions about the allocation of federal transportation dollars in the metro area. In the 2005-2006 funding round, less than 5 percent of federal funds budgeted for the Metropolitan area will be for bike and pedestrian projects.⁸²

Background

ISTEA and TEA-21—The Intermodal Surface Transportation Efficiency Act (ISTEA), adopted by Congress in 1991, and the Transportation Efficiency Act for the 21st Century (TEA-21), adopted in 1997, provided states with great flexibility in the use of federal transportation dollars. The laws created several categories of funding that can be used for bicycle and pedestrian proj-

Federal safety funds

Safety 402 funds are designated for state traffic safety programs, with federal guidelines favoring pedestrian and bicycle programs. In 2001, \$3 million in Safety 402 funding was allocated to Minnesota; only \$10,000 of it was spent on pedestrian and bicycle safety. The Minnesota Department of Public Safety plans to make available between \$50,000 and \$150,000 of Safety



Federal transportation funding is often used for major bike and pedestrian projects such as the Stone Arch Bridge in Minneapolis.

402 grant funds to local communities for pedestrian safety and enforcement in 2003.⁸³

State funding

Of the \$2.5 billion in transportation projects listed in the 2001-2004 Transportation Improvement Plan for the Twin Cities metropolitan area, only 2 percent was for bicycle and pedestrian projects.⁸⁴ This figure does not take into account instances where pedestrian or bicycle infrastructure is included in a road project, but that also is estimated to be a small percentage.⁸⁵ There is no legislative requirement or MnDOT policy that pedestrian and bicycle travel be accommodated in state-funded road projects. Such spending is not tracked, making it difficult to evaluate how much is being spent and how often the needs of bicyclists and pedestrians are being identified or met.⁸⁶

Often sidewalks, bike lanes, trails and other bike and pedestrian amenities are built as part of road construction or reconstruction. Bike trails, sidewalks, and tree replacement parallel to and adjacent to Minnesota's designated state aid streets and roads are eligible for state-aid funding. MnDOT allows other bike and pedestrian

amenities such as benches, trash containers, pedestrian scale lighting, crosswalk pavers, sidewalk extensions, bike lockers, and bus shelters, to be paid for with state aid dollars as long as the costs don't exceed 5 percent of a city or county's annual state-aid allotment.⁸⁷

Local funding

Most cities and counties spend property tax dollars for bike and pedestrian infrastructure, but these investments are dwarfed by the investment in roads, driving and parking. Cities also use property tax revenue for traffic enforcement, emergency response, court costs and other costs related to traffic management and vehicle crashes.

Some cities require developers to install and pay for sidewalks as part of new development, and some charge developers fees that can be used for trail construction.⁸⁸

Staff commitment for biking and walking

There are few staff at any level of government in Minnesota dedicated to bicycling and walking, in stark contrast to the large numbers of planners and engineers dedicated to roads and parking. At best, most cities or counties have staff



California spends a large amount of its federal safety money on Safe Routes to Schools.

who work on an ad-hoc basis on trail and sidewalk planning and construction.

Success stories

- Since 1971, the state of **Oregon** has required **accommodation of pedestrians and bicyclists** in all road projects that use state funds, with few exceptions. The law also requires that a minimum of 1 percent of all state highway funds be spent on pedestrian and bicycle facilities.⁸⁹ **Wisconsin** and **Florida** have similar laws that require routine accommodation of pedestrians and bicyclists in road projects.⁹⁰
- In **Wisconsin, Pennsylvania, and Idaho**, the state health agencies provide funding for Safe Routes to School and other pedestrian and bicycle safety activities.⁹¹ **Nevada** imposes a 50¢ fee on drivers' licenses to fund pedestrian and bicycle education programs.⁹²
- The Metropolitan Washington Council of Governments in the **Washington, D.C. region** is organizing a \$300,000 **radio advertising campaign** called Street Smarts, to promote pedestrian and bicycle safety. Virginia, Maryland and

Washington, D.C. are each contributing Safety 402 funds and one county in Virginia is contributing county funds.⁹³

- **California** has used one third of its funding from the Hazard Elimination and Safety (HES) program, \$25 million annually through 2003, for engineering projects for **Safe Routes to Schools**.
- Federal tax law currently allows employers to offer their employees a tax-free monetary incentive to take transit or carpool—\$100 per month. The **Bicycle Commuter Act**, a bill proposed by Rep. Earl Blumenauer of Oregon, Rep. James Oberstar of Minnesota and others, would extend the same pre-tax “transportation fringe benefit” to bicyclists.⁹⁴

Resources

Surface Transportation Policy Project, Washington, D.C., www.transact.org. An organization that influences federal transportation policy and investments through advocacy, education, research and organizing. Promotes environmentally sustainable and community-friendly transportation strategies like transit, biking and walking.

U.S. DOT, FHWA, *The National Bicycling and Walking Study*, (Washington, D.C., U.S. DOT, 1994) and U.S. DOT, *National Bicycling and Walking Study: Five Year Status Report*, (U.S. DOT, April, 1999). Available from: www.fhwa.dot.gov/environment/bikeped/study.htm. Lists many sources of federal, state, and local funds for bicycle and pedestrian projects and programs.

Marin County Bicycle Coalition, “ABC’s of Bicycle Funding,” www.marinbike.org/Resources/FundingABC.htm. Funding sources and strategies for California and other states.

Schools

Recommendations

Support and fund Safe Routes to Schools programs for all Minnesota schools to encourage children to walk and bike to school. Support the rehabilitation and construction of neighborhood schools and discourage remotely located mega-schools.

- School districts should provide safety education and planning for biking and walking to school on par with bus safety education. Walking and biking should be evaluated as cost-effective alternatives to increasing spending on bus transportation.
- The Minnesota Department of Education should revise school siting guidelines to encourage community-based schools. The guidelines should provide reasonable acreages for new schools and encourage rehabilitation of older neighborhood schools whenever possible.
- Municipalities and school districts should work together to better integrate new schools into communities to enable bicycling and walking to school.
- Within the reauthorization of TEA-21, the federal government should create a separate funding category for Safe Routes to Schools.

nearly 60 percent of parents and children encountered at least one serious hazard along the route to school, including lack of sidewalks, unsafe intersections and heavy or speeding traffic.⁹⁷

Ironically, parents create most of the traffic near schools when they drop off and pick up their children.⁹⁸ It is estimated that parents driving their children to school make up 20 to 25 percent of morning rush hour traffic.⁹⁹

Schools often fail to provide support for children to walk or bicycle to school—and some even discourage it. Extensive education and planning supports school bus transportation, but walking routes often are not planned until well into the school year, school crossing guard programs are minimally supported, and there is little or no bicycle-or pedestrian-safety education in school curriculums.

The remote location of many new schools can be a major barrier to children walking and biking to school. The Minnesota Department of Education recommends that a new elementary

Background

Many of us remember walking or bicycling to school when we were children. As recently as 1969, 50 percent of children walked to school. By 1995, only 10 percent walked.⁹⁵ Today, most children take the school bus or get a ride from parents.

Children face several obstacles to walking and bicycling to school, including safety concerns, lack of sidewalks and safe crossings, remote school locations, and lack of school support for bicycling and walking.

A recent survey by the Centers for Disease Control showed that 40 percent of parents said traffic was a major barrier to allowing their children to walk to school.⁹⁶ The National Safe Kids Campaign reviewed 9,000 “Walkability Audits” conducted across the country and found that



It is estimated that parents driving their kids to school comprise 20–25 percent of morning rush hour traffic.

WWW.PEDBIKEIMAGES.ORG / DAN BURDEN

school or small high school be located on a site of at least 43 acres. A site of 80 acres is recommended for large high schools (more than 2,000 students).¹⁰⁰ These siting requirements are one reason that school districts are building large mega-schools on the edges of development rather than in existing neighborhoods. Ironically, much of this required acreage is used for parking and recreation, the need for which increases as schools become accessible only by car or school bus.

Many states, including Minnesota, also require a school district to build a new school if the cost of rehabilitating an existing building exceeds 60 percent of a new building's cost.¹⁰¹ This cost comparison is glaringly incomplete as it excludes the increased costs of student busing, and the costs of municipal road and sewer construction often associated with building a new school. The National Trust for Historic Preservation (NTHP) is so concerned about school siting policies that it has placed neighborhood schools in the top 10 on its endangered list of historic buildings.¹⁰²

Community-based schools declined and school busing increased after the 1950s, in part to comply with desegregation laws. In Minneapolis and Saint Paul, popular magnet schools have had a similar effect, with many children bypassing a neighborhood school in favor of one farther away—making it less likely that they can walk or bike to school.

The Saint Paul school district spent more than \$15 million in the 2002–2003 school year on busing.¹⁰³ Nationally, school transportation costs have more than doubled in the past 30 years.¹⁰⁴

Success stories

- **Safe Routes to Schools (SRTS)** is a growing international movement to encourage more children to walk and bicycle to school. SRTS typically engages schools, parents, law enforcement, municipalities and counties and other community members to address safety concerns and provide other types of support. More than 30 states now have SRTS in one or more com-

munities, including a pilot project in Saint Paul. U.S. Rep. James Oberstar from Minnesota has been a national champion for Safe Routes to Schools programs. Safe Routes programs usually include one or more of the traditional “three E’s” of traffic management—and sometimes add a fourth, “empowerment”:

1. **Engineering**—adding or improving infrastructure such as sidewalks, bicycle paths, street crossings and bicycle racks.
 2. **Enforcement**—increasing traffic enforcement and beefing up crossing guard programs.
 3. **Education**—teaching bicycle and pedestrian safety to children and raising awareness of traffic safety issues among adults.
 4. **Empowerment**—organizing supervised groups of children into Walking School Buses or Bicycle Trains and offering events, prizes and other incentives for children to walk and bicycle to school.
- The nonprofit advocacy organization Transportation Alternatives was the first to initiate SRTS in the United States in 1997 as an effort to address the high pedestrian fatality rate for children in New York City.¹⁰⁵ In the **Bronx**, where 80 percent of children walk to school, Transportation Alternatives increased safety around 12 elementary schools by improving **pedestrian infrastructure and instituting traffic-calming measures**. As a result, crash rates declined by 30 percent. Four years later, after Transportation Alternatives had worked with 38 schools, the New York City DOT took over the program and began implementing it citywide.¹⁰⁶
 - In 2000, **Marin County, California** was one of two communities funded through a two-year NHTSA pilot grant to develop a national model for Safe Routes to Schools. Marin County used its grant to install and fix sidewalks and bicycle trails, institute traffic calming measures and **teach safety skills in schools** through Bicycle Safety Rodeos, Bike Safety Quiz Shows and other measures.¹⁰⁷ From 2000 to 2002, the rates of biking and walking increased from 21



Stillwater High School, Minnesota. School siting requirements from the Minnesota Department of Education contribute to the trend toward mega-schools that are only minimally assessable on foot or bike.

percent to 38 percent at participating schools. Marin County's program also receives funding from several private foundations and state agencies. The program is run in conjunction with the Marin County Bicycle Coalition.¹⁰⁸

- A California law designates \$25 million per year of California's share of federal Hazard Elimination and Safety money for engineering projects for Safe Routes to Schools. In addition, grants from the California Department of Health Services and other partners also funded 10 communities to assist in planning and implementation of Safe Routes to Schools programs.¹⁰⁹
- Minnesota's first pilot projects for SRTS began in 2002 in Saint Paul at St. Mark's School and Randolph Heights Elementary. The demonstration projects were organized by the Center for Neighborhoods with funding provided by the McKnight Foundation. Teachers, parents, staff from Saint Paul Department of Public Works, law enforcement, and private corporations were involved in aspects of the program. After the first phase of the program, walking and biking to school at St. Mark's increased by 52 percent, and car traffic near the school decreased by 23 percent.¹¹⁰ Biking and Walking Solutions is also changing driver behavior through a Traffic Busters pledge, in which adults agree to drive less often and more safely,

and through a "wave, wait, and walk" pedestrian safety campaign.

- Smart Growth America in Washington, D.C., and 1000 Friends of Minnesota in Saint Paul are conducting research and advocacy on school siting and its effects on land use patterns, the environment and bicycling and walking. In California, the nonprofit organization New Schools/Better Neighborhoods fights for smaller, neighborhood-based schools,¹¹¹ as does the Neighborhood Capital Budget Group in Chicago and the National Trust for Historic Preservation.¹¹² In Michigan, the Michigan Land Use Institute and the Michigan Chamber of Commerce have teamed up to study the effects that school location decisions have on community development patterns.¹¹³

Resources

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www.walk-to-school-usa.org and www.iwalk-to-school.org. Information about SRTS programs in the United States and internationally, respectively.

Safe Routes to School in Minnesota, www.saferoutesmn.org
A project of the Center for Neighborhoods/Biking and Walking Solutions in Saint Paul, Minn.

Advocacy and Empowerment

Recommendations

Support and fund bicycle and pedestrian advocacy.

- Pedestrian and bicycle advocates should be represented on state, regional, county and municipal planning boards and other decision-making bodies in the area of transportation.
- Government should partner with advocacy organizations to carry out programs and projects.

Background

Advocates—in neighborhoods, the private sector, nonprofit sector, or government—are important to any cause to focus attention and resources on the issues and be champions or leaders for change.

Throughout Minnesota, neighborhood organizations and individuals have worked successfully to improve conditions for biking and walking. They have educated drivers about safety, influenced road design, proposed new bike routes, demanded safe pedestrian crossings, and more. In many cities, individuals have organized



Grand Opening of the Midtown Greenway in Minneapolis, 2001. Bike advocates were instrumental in the development of this “bicycle highway” running east to west across Minneapolis.

around a particular bike or pedestrian issue or project. A few cities have a formal bike or pedestrian advisory committee and some neighborhoods have committees that focus on transportation and related issues like land use.

Several private or nonprofit advocacy organizations are involved to some degree in pedestrian and bicycle issues in Minnesota, but existing advocates point to the need for a statewide pedestrian and bicycle advocacy organization or for at least a coordinated overall advocacy effort for pedestrian and bike issues.¹¹⁴ Organizations and committees in Minnesota whose work includes at least some advocacy on pedestrian and bicycle issues include:

- Be Active Minnesota
- Bicycle Advisory Committees for Saint Paul Minneapolis and Hennepin County
- Bikes Belong
- Biking and Walking Solutions
- Midtown Greenway Coalition
- Minnesota State Bicycle Advisory Board
- Several neighborhood organizations in Minneapolis and Saint Paul
- 1000 Friends of Minnesota
- Parks and Trails Council of Minnesota
- Twin Cities Cycling Club
- Transit for Livable Communities
- Trust for Public Land

U.S. Rep. James Oberstar from Chisholm, Minnesota, is the ranking minority member on the Transportation and Infrastructure Committee and a powerful champion in Congress for bicycling, walking and transportation reform. Oberstar was a key architect of ISTEA and TEA-21. He’s an avid cyclist and is very interested in bicycling, public transit and Safe Routes to Schools.

In other states, advocacy groups have been critical to new initiatives and reform efforts for bicycling and walking.

Success stories

- **Pedestrians Educating Drivers about Safety, Inc.**, or PEDS, is a small nonprofit organization based in **Atlanta**, historically one of the most dangerous cities for pedestrians. Since 1996, PEDS has been effective in gaining media attention for pedestrian issues, building partnerships with public officials, and achieving concrete changes. PEDS started with a small, highly visible project: crosswalk striping.¹¹⁵ Today, because of PEDS' efforts, the Georgia DOT has instituted a new statewide standard for highly visible crosswalks.¹¹⁶
- The **Texas Bicycle Coalition** (TBC), a statewide advocacy group, was instrumental in securing \$3 million in state funding for Safe Routes to Schools in 2002. TBC organized hundreds of bicycle advocates to lobby state legislators and helped win passage of the Matthew Brown Act (named after an 11-year old boy killed while bicycling). The new law helps local communities start SRTS programs and requires better data collection and tracking of bicycle crashes. TBC also helped defeat anti-bicycle legislation the same year.
- In 2002, **Feet First, a Seattle bicycling and pedestrian advocacy organization**, began distributing a pocket size pedestrian guide called the *Ballard Pedestrian Friend*. The guide, which contains a detailed walking map, is a great resource on walking, transit access, and places to see in the Ballard neighborhood of southwest Seattle. The guide was funded by a grant from the city and costs only 5¢ per copy to produce. It even lists "pit stops," retailers who allow walkers to use restrooms even when they don't make a purchase.
- **David Engwicht** of Brisbane, Australia, is a pioneer in what he calls "**street reclaiming**," which encourages citizens to reclaim their streets for public use and enjoyment. Engwicht lays out a vision for community streets based on the historic multiple uses of streets for play, social interaction and economic exchange. He calls on citizens to organize with their neighbors to reduce vehicle trips, drive slower, and "reclaim



Feet First in Seattle distributes a detailed guide and map for the Ballard neighborhood to encourage walking.

and reuse" local street space for activities that improve the community.¹¹⁷ Engwicht's approach has been used successfully by communities in several countries.

- A couple in Minneapolis printed and distributed thousands of **bumper stickers** with the message "CALM DOWN: Pedestrians First, Safe Speeds, Full Stops." The city of Minneapolis put the stickers on its fleet of public works vehicles.

Resources

America Walks, Portland, Oregon, www.americawalks.org. A national coalition of grassroots pedestrian advocacy organizations. Holds an annual training. Several teaching resources available on their website, including the "Toolbox for Pedestrian Advocates."

Thunderhead Alliance, www.thunderheadalliance.org. A national coalition of state and local advocacy groups addressing barriers to safe bicycling.

Association of Pedestrian and Bicycle Professionals (APBP). www.apbp.org. Excellent source of information and links to other sites on pedestrian and bicycle issues.

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The Minneapolis Park and Recreation Board, an independently elected, semi-autonomous body, administers a nationally recognized 6,400-acre park system that includes 55 miles of parkway and state-of-the-art biking and walking facilities.