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Special Transportation Issue

By Barbara McCann

Complete the Streets!

Phil Sanders

In many communities, designating a bicycle route or pouring a few new sidewalks is no longer enough. In the college town of Columbia, Missouri, the city adopted new street standards last June calling for wider sidewalks and narrower lanes. The governing commission of the South Carolina Department of Transportation recently passed a resolution declaring that "bicycling and walking accommodations should be a routine part of the department's planning, design, construction, and operating activities."

In San Diego last November, voters approved a sales tax measure that is expected to generate $14 billion over 40 years. It specifies that any roads built or improved with these funds must have room for cyclists and pedestrians.

All of these jurisdictions are part of a new trend: creating complete streets.

For everyone

A complete street is defined as a street that works for motorists, for bus riders, for bicyclists, and for pedestrians, including people with disabilities. A complete streets policy is aimed at producing roads that are safe and convenient for all users.

Complete streets are not limited to a few designated corridors. Many communities have launched main street initiatives, adopted bicycle plans, or undertaken special planning processes for nonmotorized travel in specific places. In contrast, complete streets policies strive for diversity on just about every thoroughfare. And the process of creating complete streets is leading planners and engineers across the country to approach street design in fundamentally new ways.

Most U.S. roadways are not "complete streets." According to a national survey conducted in 2002 by the federal Bureau of Transportation Statistics, about one quarter of all walking trips take place on roads without sidewalks or shoulders, and bike lanes are available for only about five percent of bicycle trips. Another BTS poll, the 2003 National Transportation Availability and Use Survey, found that the top complaint among both able-bodied and disabled pedestrians and cyclists was that there were too few usable sidewalks and bikeways—essentially, too many incomplete streets.

New state and local policies require that virtually all roads be built to serve all types of users.

Good examples: From left, a Boulder arterial that was built as a multimodal corridor for auto, pedestrian, bicycle, and transit use; a commercial street filled with activity in Santa Rosa, California; Water Street in Vancouver, British Columbia.

A new name

For advocates of bicycling and walking, this state of affairs demanded a whole new paradigm—and a name to go with it. The term "complete streets" was coined in early 2003 by bicycle advocates as a way to describe—and sell—what had until then been referred to as routine accommodation.

For years, advocates of this approach had lobbied to get a provision inserted in federal law that would require roads built using federal highway funds to accommodate people on foot and bicycle. While the Transportation Equity Act of 1998 (TEA-21) included language asking states to consider bicycle and pedestrian travel, it is still not a requirement.

Creating complete streets is a key goal of America Bikes, a group formed by eight national bicycling organizations to lobby for bicycle-friendly provisions in the next federal transportation bill. "We saw how the name Safe Routes to School opened doors for bicycle and pedestrian safety for children," says Martha Roskowski, former campaign manager for America Bikes. "Finally we have a name that describes the current vision of a network that is complete for everyone using the roads."

Today's policies

More than two dozen jurisdictions have adopted laws or policies requiring that all roads be routinely built and reconstructed to accommodate pedestrians and bicyclists, including disabled travelers, according to a recent national survey conducted for the Thunderhead Alliance, a coalition of state and local advocacy groups.

These policies differ from typical bicycle and pedestrian plans in that they are not limited to roads that are part of designated bicycle or pedestrian networks, but cover all roads, or at least all major roads, in the system. The idea is that multimodal corridors would become the default mode—and justification must be given when they are not.

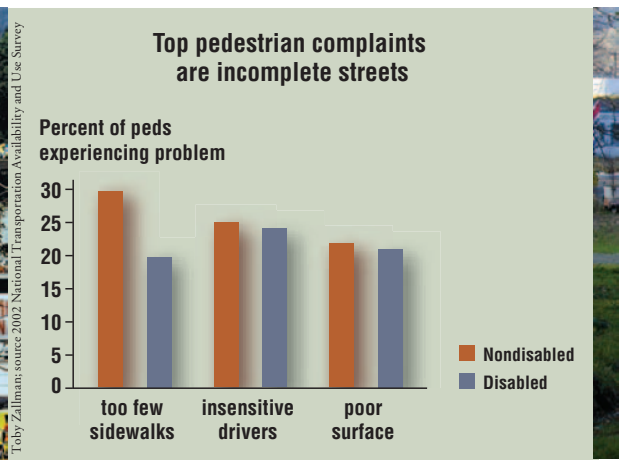
Most of these policies have been put in place since 2001, when the U.S. Department of Transportation issued design guidance in response to the new language in TEA-21. The guidance document, "Accommodating Bicycle and Pedestrian Travel," states that "bicycling and walking facilities will be incorporated into all transportation projects unless exceptional circumstances exist."

Exceptions include roads where bicyclists or pedestrians are prohibited by law; where the costs are excessive (more than 20 percent of project costs); and where there is clearly no need. The document also calls for paved shoulders on rural roads and designs that are accessible for disabled people.

Some states, including South Carolina, Tennessee, California, Kentucky, and Virginia, have adopted resolutions or directives enacting some variation of the federal policy.

At the urging of bicycle advocates, Caltrans, California's transportation agency, adopted Deputy Directive 64 in 2001, calling for full consideration of the needs of bicyclists and pedestrians. The directive has been criticized for its vague wording, but the policy has spurred training programs in bicycle and pedestrian planning for both planners and engineers.

In March 2004, Virginia Transportation Secretary Whitt Clement announced "a broader



Toby Zallman: source 2002 National Transportation Availability and Use Survey

and more enlightened approach to highway construction." The new policy requires the commonwealth to "initiate all highway construction projects with the presumption" that they will accommodate bicycling and walking.

Elsewhere, metropolitan planning organizations, counties, and cities have also used the federal guidance as a model, or in some cases, have crafted their own policies.

Santa Barbara's general plan, adopted almost three years before California's statewide 2001 directive, calls for "achieving equality of choice and convenience among modes." In Columbia, Missouri, new street standards calling for narrower roads and wider sidewalks were pushed by public health advocates and by Mayor Darwin Hindman, who firmly believes in the health benefits of walking and bicycling.

Many local policies have been adopted through internal directives or revised planning documents, but at least two local governments—in Illinois and California—have passed broadly worded council resolutions or ordinances, and MPOs in Ohio and California are requiring local governments using MPO-administered funds to meet complete street standards. In California, Sacramento has joined San Diego in requiring that roads built with funds raised through voter-approved bonds accommodate pedestrians and cyclists.

Farthest along

For a vision of the future of complete streets, visit Oregon. The state adopted the idea long before anyone else and codified it into state law. Legislators passed a "Bike Bill" in 1971, about the same time as the state's innovative land-use planning laws were taking shape.

The bill, which required bicycle and pedestrian facilities on all new roads, streets, and highways, was considered a tough sell, recalls Michael Ronkin, head of the Oregon DOT's bicycle and pedestrian program. The measure was sponsored by a conservative Republican from the southern part of the state, who at the same time was promoting bills to regulate dynamite and to tax church property.

"Of the three," says Ronkin, the legislator "was told the bike bill was least likely to pass." But pass it did. The measure, which allows highway funds to be used to retrofit all roads, also requires that at least one percent of the state's highway fund be spent on bicycle and pedestrian ways.

The impact of the law is obvious across the state. In Corvallis, 95 percent of arterial roads include bike lanes. In Portland, the rapid growth of the bike lane network since 1990 has been linked to dramatic increases in bicycle commuting. And even in suburban and rural areas, bike lanes and sidewalks are common.

But Oregon's work is far from done. Early implementation ignored pedestrians, and design standards were poor. It took years to make transportation engineers and designers aware of the requirement. Now, in the state's fourth decade of building for all modes, state and local bicycle and pedestrian planners are working on the thorniest design problems. "We've already gotten the low-hanging fruit; now we have to get out the big ladder," says Ronkin.

Bigger issues of land use and street connectivity still play a huge role in decisions to walk or cycle. In Oregon's experience, adding bike lanes and sidewalks to roads that are being widened from two to five lanes is not enough to mitigate the increased traffic volumes: Walking and cycling are still likely to decline.

Nonetheless, Ronkin says, roads must make these accommodations. "It is all a part of rethinking how roads function and whom they serve," he says.

Unique streets

While the idea of complete streets is based on consistency—every time you build or reconstruct a road, make it multimodal—in practice, every project is unique. In a rural area, a complete street may be a two-lane road with a paved shoulder. In a congested urban area, it may feature an extra-wide sidewalk and refuge islands for pedestrians. It does not necessarily have to include bike lanes, however, because cyclists can travel safely with the slow-moving automobile traffic.

Truly complete streets expand beyond bicycling and walking to consider disabled users and transit riders. Every street cross section requires balancing the needs of many users in a way not considered in typical highway design manuals.

"For pedestrians who have disabilities, the weak link is the sidewalk," says Lois Thibault of the U.S. Access Board, an independent federal agency that develops accessibility guidelines. She notes that walking is the only independent mode of travel for people who are blind. "Complete streets build a network," she says, "and that's what everyone needs." Sidewalks are a necessity for disabled travel, but details such as curb ramps and audible crossing signals are critical as well.

Planning for disabled people is certainly not a new issue. Projects built with federal highway funds have been required to be accessible to all travelers since 1973, and the Americans with Disabilities Act of 1990 broadened the requirement to apply to all facilities, regardless of funding.

Even with this history, however, implementation has been slow. That's because, in

Photos by Michael Ronkin/Oregon Department of Transportation

A photo simulation (far left) shows how a typical arterial can be converted into a complete street. Left: Canyonville, Oregon.

most cases, pedestrian planning continues to be treated separately from routine road improvements. The Federal Highway Administration is now developing new policy guidance that spells out the responsibility of transportation agencies to work on pedestrian facilities in conjunction with routine roadway resurfacing and alteration.

The new policy is expected to direct transportation agencies to consider pedestrian and cyclist access in every road improvement project. This brings pedestrians "into the same house, with somewhat equal authority to ask for funds," says Thibault.

Don't forget transit

Transit is the aspect of complete streets that has been addressed least often in existing policies. Some communities have begun to consider transit needs in their corridor planning. That's true particularly in places that are considering bus rapid transit, which calls for enhanced service in the existing right-of-way.

In some cases, transit vehicles get dedicated lanes; bus pullouts improve traffic flow, and "queue jumping" lanes help buses get through intersections. In Los Angeles, the Metro Rapid bus routes depend on a signal priority system that allows buses to extend green lights or shorten red ones.

But the key to complete streets for transit may be less in new technology and more in paying attention to the basics of pedestrian access.

"All transit trips start and end with a pedestrian component, so streets don't work for transit unless you can complete the trip," says Robin Blair, transportation planning manager for the Los Angeles Metropolitan Transportation Authority. The MTA is now developing "transit streets" that restrict automobiles but enhance pedestrian access.

The big challenge

Finding enough right-of-way can be the biggest challenge for a complete streets program. Even if the right-of-way is in the transportation agency's hands, any widening, even for a sidewalk, may get a thumbs-down from residents who want to preserve existing landscaping and parking, or

Obstacle Course

It shouldn't take Lance Armstrong to tell you that bicycling is hot. There seems to be no end to rides for charity, club rides, critical mass brigades, touring, off-road, and even tandem forays. But when it comes to everyday, utilitarian, urban cycling, all the lights are red.

Although urban cycling has gained popularity in the U.S. in recent years, it has yet to crack a one percent share of local trips. Compare that with European countries like Germany (10 percent) and the Netherlands (30 percent).

So why aren't more people riding? Here are just a few of the major barriers to urban cycling:

Second-class status. Despite laws that guarantee bicyclists equal road rights with motorists, drivers tend to see cyclists as intruding on their turf. That's partly because motorists have so little experience or training in the rules governing sharing a roadway with cyclists.

Behavior. Bicyclists and motorists don't always respect the rules of the road. If they did, we wouldn't see bike riders zooming through red lights and drivers switching lanes at high speeds.

Strip shopping. Strip shopping centers are a nightmare for cyclists, who must dodge the constant stream of cars and trucks exiting and entering the parking lots.

Zoning. The typical separation of uses required by suburban zoning ordinances means longer distances—and longer bike rides—to schools, shopping, and the movies.

Speed. When the speed limit is 40 mph and the typical motorist is going 50 mph, small wonder that the thought of taking to the streets makes would-be cyclist tremble.

Budgets. An urban cycling infrastructure means more than painting lines on bike lanes. It requires proper signage and lighting and training of traffic police. All that costs more than most communities want to spend.

Education. Isn't it odd that a five-year-old is not required to have formal training before riding a bike in the street? And isn't it odder still that the driver's test that same child takes at 16 has no questions about the lawful ways that cars and bikes are supposed to share the road?

Infrastructure. Our inadequate circulation systems are the greatest barrier to urban cycling. Our planning goal should be a safe and efficient network that allows functional travel to school, errands, jobs, and recreation throughout the metropolitan area.

Enforcement. Even if all the obstacles listed here are removed, we're in trouble without adequate enforcement mechanisms. Laws must be rewritten to accommodate and even encourage cycling, and public officials must buy into the changes.

For cyclists to get a 10 percent share of local trips (as in Germany) implies a total transformation in the way urban transportation systems are conceived, planned, and implemented. That should change a lot of red lights to green. *Martin Zimmerman*

Zimmerman is a planner and urban affairs journalist in Charlotte, North Carolina, where he serves on the board of a bicycle advocacy group.

Complete streets mean more pleasant neighborhoods for everyone, from children to seniors. Right, State Street in Santa Barbara, California; far right, Corvalis, Oregon.

informal, private use of the right-of-way. This is the case along Florida's A1A, where plans to add a bike lane have met stiff opposition.

In response, many communities have begun to create complete streets where it is easiest—at a location where a wide travel lane can be narrowed or where traffic volume allows a four-lane road to be converted to two lanes with the addition of a center turn lane and bike lanes.

Fear of high costs is an equally great obstacle. Most complete streets policies don't come with special funding attached, and project budgets are sometimes set before bicycle and pedestrian facilities are considered. Street policies commonly cite "disproportionate cost"—defined by the U.S. DOT as 20 percent of the project budget—as a reason for exemption.

Experienced officials say the issue of cost can be overblown. Jeff Morales, former director of Caltrans, has said that integrating access for bicyclists, pedestrians, and disabled people right from the start actually minimizes costs.

Bridges offer a dramatic example. Providing enough room for cyclists and pedestrians during initial construction is far more effective than widening a bridge later.

Learning curve

Two fundamental challenges to instituting a complete streets policy are a mind-set that is geared to following manuals and a lack of training. Until very recently, few schools offered either undergraduate or graduate courses on bicycle and pedestrian planning, and even fewer courses on planning for multiple users.

Keith Knapp, assistant professor of engineering and professional development at the University of Wisconsin–Madison, travels the country offering continuing education classes to engineers and planners. "I've talked for hours about the needs of bicyclists and pedestrians," he says, "only to have 80 percent of the students say at the end of the class that they don't plan to consider them."

Knapp attributes the students' resistance to the direction engineers get from their state transportation department directors and to engineers' typical reliance on standard traffic manuals. They fear that unconventional solutions will lead to unintended consequences, he says.

The manuals themselves are inadequate, in Knapp's view. The two manuals most commonly used—AASHTO's *Green Book* and the *Highway Capacity Manual*, published by the Transportation Research Board—are geared to rural construction and new roads that maximize traffic volume.

Knapp is looking forward to two forthcoming volumes that will take an integrated approach to designing for diverse users: an urban street design handbook from the Institute of Transportation Engineers, and urban arterial design guidelines being developed by ITE and the Congress for the New Urbanism.

Users, most notably bicyclists, are helping some state transportation departments to overcome the hurdles of implementing complete streets and urging other agencies to address the issue. In South Carolina, the League of American Bicyclists and local bicycle advocates are working with the state DOT to help implement its new policy, including training department personnel.

Several local and state bicycle advocacy organizations that are part of the national Thunderhead Alliance are pushing for new policies and planning Complete the Streets campaigns in Washington, Colorado, and Illinois (where a complete streets bill has passed through a legislative committee). And Advocates representing a long list of national groups—from AARP to Smart Growth America—met in January to consider strategies for spreading the idea.

Taking the next step

Despite the challenges, a few communities are taking complete streets a step further. They are not simply adding a requirement to existing road plans or limiting themselves to rewriting their design manuals. They are reinventing their entire planning process to serve the needs of all road users.

Boulder, Colorado, has been promoting alternative modes for decades. Its GO Boulder initiative encourages bicycling, walking, and transit, and its innovative Hop, Skip, and Jump bus lines have reinvigorated the city's transit system with colorful vehicles and frequent service. But until recently, planning and funding were handled separately for each mode.

In 2003, Boulder eliminated the separate categories to create a multimodal corridor plan, so that every project considers every mode. "The change in the language and funding changed the dynamic," says Tracy Winfree, the city's director of public works for transportation. "The competition we had experienced before between modes disappeared."

The new plan calls for converting 10 city arterials into multimodal corridors, with the

Resources

Advocates. Reach Barbara McCann at wwww.bmccann.net. For more more on complete streets, go to www.completethestreets.net. America Bikes is at http://www.americabikes.org/completestreets.asp. Get the Thunderhead Alliance report at www.thunderheadalliance.org.
State and local. Oregon's "Bike Bill" is at www.odot.state.or.us/techserv/bikewalk/plan_app/366514.htm.

For information on the University of Wis-consin's continuing education courses, go to http://epdwww.engr.wisc.edu. The Boulder Transportation Master Plan is at www.ci.boulder.co.us/publicworks/depts/transportation/masterplan.
Federal. For the U.S. DOT Design Guidance, "Accommodating Bicycle and Pedestrian Travel", see www.fhwa.dot.gov/environment/bikeped/design.htm. The U.S. Access Board is at www.access-board.gov.

Photos by Michael Ronkin

aim of integrating and coordinating automobile, transit, foot, and bicycle use citywide. Some arterials have already been converted. In addition, transportation network plans are to be developed for specific areas of the city.

Charlotte, North Carolina, has traditionally taken an auto-oriented approach to road design. Today, the city is taking a different tack. "We're looking to create a thought process that ensures that all users and all modes are considered," says city transportation planner Tracy Newsome.

A multidisciplinary team convened by the Charlotte DOT is creating a six-step process to evaluate each project in terms of the needs of various users, and in terms of the broader transportation and land-use context.

The process, now under review, will identify opportunities in each street segment to close gaps and increase connections in the bicycle, pedestrian, transit, and automobile networks, before selecting and modifying one of five multimodal street types. While the system won't result in equal treatment of everyone on every street, the intent is to complete the travel network for all users.

Converging trends

The complete streets movement represents a convergence of several existing trends, spearheaded by a variety of groups. Bicycle advocates have long fought for "routine accommodation" policies. Innovative cities have adopted multimodal plans to free residents from automobile dependence. New urbanist builders have emphasized the need for walkable communities.

They have been joined recently by public health advocates seeking to increase physical activity and stem the obesity epidemic. Finally, more and more state and local transportation agencies are recognizing the need to do things differently.

At last January's annual meeting of the Transportation Research Board—an event usually dominated by traditional highway engineering concerns—more than 180 people packed a session called "Complete the Streets," with highway planners sitting side by side with disability and bicycle advocates. A series of similar sessions is planned for next year's meeting.

Complete streets may yet become a way for all road users, and all road designers, to shape the future of a maturing road network.

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The Path to Pedestrianization

It is a truism that most suburban land-use planning and development over the past four decades has made it very difficult to build walkable communities. Connectivity has been designed out—or wasn't there to begin with.

From the 1940s on, neighborhood streets have grown wider, densities have decreased, and land uses have become more strictly segregated. Cul-de-sacs were seen as the basic organizing principle.

These "improvements" have had many unintended consequences. The wide streets actually imperil pedestrians and bicyclists. Low densities and segregated land uses put people farther from work, play, school, and daily errands, making cars necessary for most trips. Cul-de-sacs cut off connectivity for local residents. People can and do walk in their neighborhoods, but it's pretty tough to actually *get* anywhere.

My modest solution to these disconnections is an old one: the dedicated pedestrian path. Pedestrian paths between and among houses were popularized in the U.S. early in the 20th century, first in Radburn, New Jersey, and later in new towns like Greenbelt, Maryland. More recently, we've seen them in new urbanist villages like Seaside, Florida.

The paths offer a way to get around safely. (At least, that's true in the older planned communities; in the more spread-out new towns like Columbia, Maryland, and Reston, Virginia, where paths are sometimes isolated, personal safety has been a concern.)

Pedestrian paths are a way to connect cul-de-sacs with the street network.

But would pedestrian paths help to solve the mobility and accessibility problems of existing suburbs? I suggest that they would.

The first step in a suburban retrofit is for the local jurisdiction, in an open and public process, to identify potential linkages—for instance, a path connecting a series of cul-de-sacs to a local arterial. These linkages could be narrow pathways along lot lines, maybe only a few feet wide, with or without a fence. In some cases, they would be formalizing long-known and well-used neighborhood "cut-throughs."

Of course, the landowners would have to agree to grant a limited-use easement to the local jurisdiction, with or without payment. Some community-minded homeowners might be perfectly happy to do so. In all cases, property owners would have the right either to turn down the easement request or to demand to be paid fair market value. To sweeten the pot for some reluctant landowners, the local government might even throw in the price of nice fencing.

And what would it cost? Let's say a half-acre lot in a particular jurisdiction is worth $50,000 (not counting improvements). A 450-square-foot easement might be worth $1,000 to $1,500. A modest number of easements could be purchased for about $50,000 a year.

This is a small idea, but a worthy one. Daniel Burnham's admonition to "make no little plans" doesn't, I think, extend to little *ideas* that can pay some dividends, in this case improving accessibility and mobility in and among suburban neighborhoods at low cost. In terms of changing the DNA for growth, this would be more like modest gene splicing. Every little change helps.

Lee R. Epstein

Epstein, a planner and lawyer, directs the lands program for the Chesapeake Bay Foundation in Annapolis, Maryland.