10. *Connectivity.* More direct connections to destinations shorten driving distances and increase the viability of alternatives to driving. In urbanizing areas, subdivision requirements need to ensure adequate connectivity through gridded street networks or other configurations. Cities that have adopted connectivity ordinances include Fort Collins, Colorado; Eugene, Oregon; Cary, North Carolina; and San Antonio, Texas. In areas that are already built up, connectivity can be enhanced through strategic investments in facilities—such as bridges or tunnels—that will allow bicyclists and pedestrians to "cross" freeways. Examples of such facilities can be found along Interstate 80 in Berkeley and Davis, California.
11. *Street design.* Traditional level-of-service measures for local roads put the needs of vehicles above the needs of other users and other functions. Innovative approaches to street design address the needs of all travel modes, help to build sense of community, create attractive public spaces, and minimize environmental harm. Examples include the Embarcadero in San Francisco, the redesigned Riverfront Parkway in Chattanooga, and Denver's downtown transit mall.
12. *Coordinated planning.* The key to making all these strategies work is to coordinate land use planning with transportation planning. This means focusing development in areas served by transit, encouraging mixed-use development that puts destinations within walking distance, and instituting design guidelines that enhance the quality of the urban environment. Success also depends on coordination at the regional scale. Regional visioning programs, like those in the Salt Lake City and Sacramento regions, provide the foundation for coordinated planning.

In sum, instead of making it easier to drive, transportation planning should focus on (1) making it easier to drive less; (2) increasing awareness and use of alternatives to driving; and (3) making it harder to drive in some situations.

FOCUS ON

Pedestrian and bicycle planning

Bruce S. Appleyard

For well over half a century, transportation and land use planning in the United States has been driven by automobile needs.[1] Therefore, creating walkable and bikeable communities requires a coordinated, consistent, and comprehensive approach. The "five Es" needed to effectively promote walking and bicycling are *engineering* (of planning and building facilities), *enforcement* (of laws related to safe driving and pedestrian and bicycle travel), *education* (of all roadway users, including motorists, pedestrians, and bicyclists), *encouragement,* and *environment.* To these should be added *evaluation,* or the measurement of conditions for pedestrian and bicycle travel. Thoughtful urban design and land use planning—including zoning, subdivision ordinances, design guidelines, and project review—are also essential to creating walkable, bikeable, and ultimately more livable communities.[2]

Street safety and livability

Accommodating and encouraging walking and cycling improves the overall safety and livability of our streets. Starting in the late 1960s, Donald Appleyard championed the idea of street livability, finding that decreasing the volume and speed of traffic enhances residents' sense of comfort and actually encourages them to spend time in front of their homes, socializing and building stronger community ties.[3] Research confirms that slower traffic typically makes streets safer: a pedestrian who is struck by a vehicle going 30 miles per hour is eight times more likely to be killed than a one who is hit by a car traveling at 20 miles per hour, and the latter actually has a 95 percent chance of surviving![4] Moreover, as speeds decrease, drivers

With special thanks to Peter Bosselmann, Dan Burden, Robert Cervero, Elizabeth Deakin, Richard Dowling, Reid Ewing, Amy Fauria, Christopher Ferrell, Lawrence Frank, Susan Handy, John LaPlante, Ian Moore, Michael Moule, Kamala Parks, Robert Schneider, Michael Southworth, and Paul Zykofsky, and also to Melissa, Shea, and Jason Donald "J.D." Appleyard.

not only are better able to see pedestrians and cyclists who are immediately in front of them, but also are more readily able to stop in time, and within a shorter distance, to avoid a collision. And safer streets make it easier and more attractive for people to engage in activities that will also increase their physical and creative health.

The kinds of streetscapes that encourage walking also appear to contribute to traffic safety: Eric Dumbaugh found that beautifying streets with "livable streetscape" elements, such as buildings with visually complex façades (often historic buildings) built close to the street and trees planted along the street (which, to many traffic engineers, decreases *automobile* safety), actually cause drivers to drive more carefully, thereby increasing the street's safety for nondrivers.[5] And through his research, Peter Jacobsen concludes that there is "safety in numbers": collision rates decline as the number of pedestrians and cyclists present increases.[6] Drivers apparently travel with more care when they expect people to be on and around the street, so streets with a lot of street life and activity are safer than those devoid of it.

Choosing to walk or bike

To successfully support walking and bicycling, a community needs to provide both physical space and connectivity. Adequate walkways, dedicated bicycle and pedestrian trails, and bike lanes can help encourage these alternatives to driving.

Choosing to walk: Overcoming distance and time

While many factors other than recreation enter into a person's decision to walk (e.g., car availability and parking convenience; retail, housing, and residential land use mix; urban design), the ultimate decision is determined by the traveler's perception of distance, time, safety, and comfort ("livability"), along with the inconvenience and cost of other modes of travel (automobile, transit service, etc.).

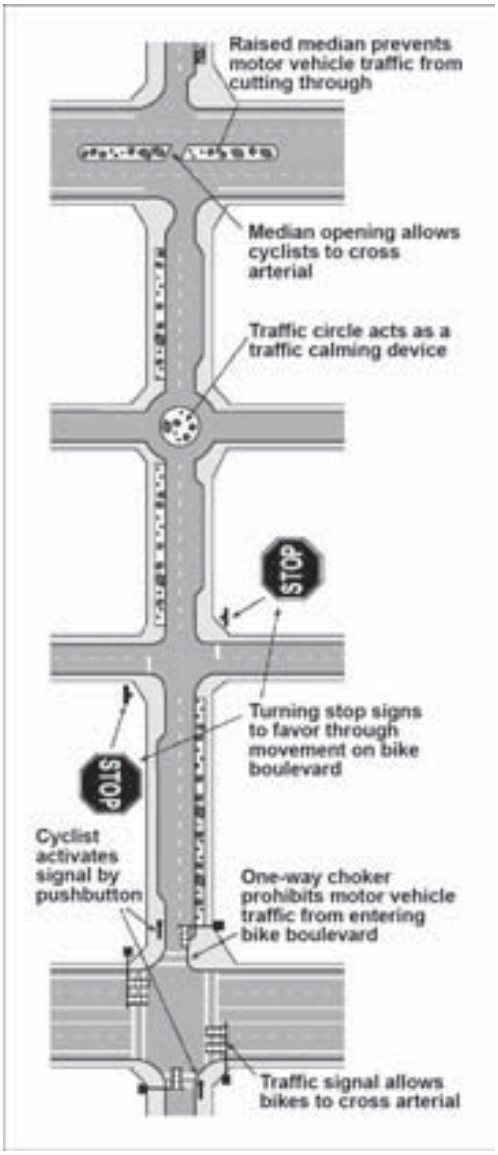
According to a 2008 study, people are willing to walk farther than previously believed—about a half mile—to reach a transit station.[7] The average adult walks three to four feet per second, which translates to between one-sixth and one-third of a mile within five to ten minutes, or about two to three miles per hour (although children, seniors, and people with mobility limitations tend to move more slowly).[8] Moreover, studies have shown that a pedestrian's perception of time—and thereby his or her perception of distance—can be influenced by the aesthetic quality of the experience: a street alive with activity, human-scaled buildings with interesting façades, and a sense of enclosure tends to shorten a person's perception of time, which is likely to extend the distance he or she is willing to walk.[9]

Choosing to bicycle: Ensuring safety and comfort

While bicyclists and pedestrians have many similar needs, the greater levels of speed, momentum, and inertia characteristic of bicycle travel make it more critical for bicycle plans to recognize that cyclists have a broader range of comfort and skill levels than pedestrians. A 2008 survey by the city of Portland, Oregon, found a potentially large demand for bicycle commuting, provided that the right encouragement is given through both infrastructure improvements and relevant programs (e.g., safety education, active living, energy conservation). The study identified almost two-thirds of all commuters as "interested, but concerned" regarding bicycle commuting; these are commuters who would likely "ride if they felt safer on the roadways—if cars were slower and less frequent."[10] This finding is consistent with other research currently being conducted by Dr. Jennifer Dill, who has found that perhaps the best way to get noncyclists to start cycling is to create bicycle boulevards (Figure 7–5)—local streets that have been modified with traffic calming devices and other controls to function as through streets for bicycles while maintaining local access for automobiles.

More research is needed to fully determine how far bicyclists are willing to travel. Up until now, studies have been hampered by small sample sizes, wide variances in trip lengths, and a failure to take into account both individual attitudes and the distinct community characteristics of the built environment, although the 2001 National Household Travel Survey did find that the average bicycle commute-to-work distance is about three miles.[11] But with the provision

Figure 7–5 A refinement of the shared roadway concept, bicycle boulevards use median strips, traffic circles, and stop signs to make streets safer for cyclists.



Source: *Oregon Bicycle and Pedestrian Plan: An Element of the Oregon Transportation Plan,* 2nd ed. (Salem: Oregon Department of Transportation, 1995), 77, oregon.gov/ODOT/HWY/BIKEPED/docs/or_bicycle_ped_plan.pdf.

of more bicycle lanes, boulevards, and better end-of-the-trip facilities (e.g., lockers, showers, and secure bicycle-locking facilities),[12] in addition to the wider availability of transit-carrying capacity for bicycles, the distances that cyclists may be able and willing to travel for work, school, and other purposes may well increase.[13]

Improving the travel experience

Some of the main components needed for overcoming distance for both walkers and cyclists, and for creating a safe, inviting, and livable walking and bicycling experience, are as follows:[14]

- *A network of safe, direct, and comfortable routes and facilities.* A 2004 Planning Advisory Service report recommends that pedestrian (and bicycle) path connections should be every 300 to 500 feet; for motor vehicles, the authors recommend 500 to 1,000 feet.[15] For new development, these standards can be implemented through subdivision ordinances.[16]
- *Traffic buffers.* Sidewalks should be buffered from traffic annoyances (threats to personal safety, noise, etc.). Buffers can be provided by on-street parking, bike lanes, and a "furniture zone" that might include lights, signs, benches, transit shelters, planters, and/or trees.
- *Width.* Since walking should be viewed as a social activity, paths should be at least five to six feet wide (seven feet, if the walkway has a wall on one side) to provide enough room for two people to walk side by side and a third person to pass comfortably. Sidewalks along commercial streets should accommodate the interaction between a building's activity and street life by allowing space for seating, displays, etc., as well as walkway space and traffic buffers/furniture zones, as described above. Twelve to fifteen feet appears to be an ideal width; sidewalks may be even wider in areas with high levels of pedestrian activity (see Figure 7–7).

  A cyclist in motion requires width to maintain balance and to weave to the extent necessary to move forward while keeping the bicycle upright; "shy distance" is also necessary to separate the bicyclist from curbs, posts, and other potential hazards. Combining these allowances with the width of an average bicycle means that a bicyclist will need about a five-foot-wide space to ride comfortably.[17]

  In cases where the road is narrow, wide enough perhaps for only one bike lane, a "climbing lane" could be added on the uphill side and an in-pavement "sharrow" painted in the downhill lane to remind drivers to share the lane with cyclists.[18] A "Share the Road" sign could be posted for both directions as well.
- *Street crossings and intersections.* Safety at crossings can be cost-effectively

Figure 7–6 Equipping buses with bike racks and allowing bicycles on railcars are effective ways to make cycling competitive, in terms of time, with regional auto trips, even if the trip begins and ends in a low-density suburban area with poor transit service.

Source: Bruce Appleyard

improved through the use of signs, in-pavement markings, and clearly visible crosswalks so that drivers will proceed cautiously.[19] Planners might consider ways to minimize pedestrians' and cyclists' crossing distances and exposure to traffic, and to make it easier for these travelers to see and be seen by motorists. Such improvements can be accomplished by "breaking up the task" of crossing a street with medians and islands, while "shortening the task" with curb extensions (bulb-outs) and tighter corner radii. For cyclists, a recent innovation is the bicycle box, a waiting area that is clearly marked for cyclists at signalized intersections in front of waiting cars (Figure 7–8 on page 370).[20]

Planning and implementation

Communities develop pedestrian and bicycle transportation plans for several reasons. They may, for example, wish to

- Engage in an official process that recognizes walking and cycling as important modes of travel that should be supported through all actions of a jurisdiction

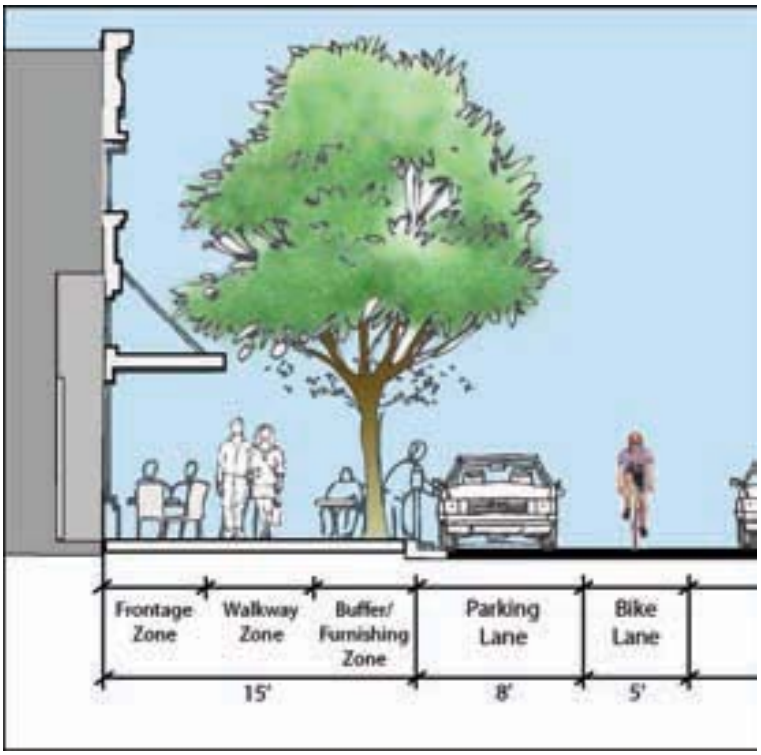


Figure 7–7 To permit social activity, sidewalks need to be wide enough for two people to walk side by side and a third to pass comfortably. In addition, sidewalks along commercial streets should allow space for seating, displays, and traffic buffers/furniture zones.

Source: Bruce Appleyard

Figure 7–8 By allowing cyclists to move in front of vehicles and by coloring the bike lane through the intersection, bike boxes create safer conditions for cyclists, particularly when drivers are planning to make right turns.

Source: Bruce Appleyard

- Identify the opportunities for, as well as obstacles and solutions to, providing physical infrastructure and/or programs to encourage the safe, comfortable, and inviting use of these modes of travel
- Recommend and guide the prioritization and sequence of specific projects and/or programs
- Gather data and create a framework for measuring progress toward the stated goals, objectives, and desired outcomes of the planning process.

While pedestrian and bicycle plans are prepared for different purposes, follow different processes, and are implemented by different levels of government, many of the best plans

- Are tailored to the needs of the community and have a high level of community involvement
- Establish clear goals and identify desired outcomes
- Provide good data on existing conditions
- Make specific recommendations to be implemented by a specific agency within a specified timeframe
- Take advantage of the strengths of multiple departments and agencies by coordinating effectively within the local government
- Provide flexibility to take advantage of opportunities that may arise as the plan is implemented.[21]

To fulfill these functions, many pedestrian and bicycle planning processes engage and involve stakeholders; collect and analyze data on existing conditions; undertake field assessments; identify, map, and analyze problems, and articulate solutions; prioritize and phase projects; and develop implementation strategies before adopting and implementing the plan.

Engage and involve stakeholders

Any plan to encourage walking and biking should begin with efforts to engage and involve the many stakeholders who will be essential throughout planning and implementation. Stakeholders include

- Individuals (cyclists, walkers, and residents who are interested in improving neighborhood safety)
- Citizen-based organizations (bicycle- and pedestrian-advocacy organizations, neighborhood associations)
- Public agencies (public works, streets and transportation, and other departments)
- Elected and appointed officials (the local government manager, members of the governing body)
- The private sector (developers, business owners, and business organizations)
- All forms of the media to pass on information, gather important feedback from the public, generate information, support for the process, and so on.

Collect and analyze data

Traditionally, transportation safety projects have been assigned priority on the basis of data on collisions, personal injuries and/or property damage, and traffic volumes. However, because pedestrians and cyclists have a higher aversion to risk than drivers do, they

often avoid hazardous locations, thereby hampering the effective identification of such locations. Moreover, vehicle and pedestrian/bicycle collisions do not always get reported.

Thus, to effectively identify pedestrian and bicycle safety concerns, planners need to go beyond data on accidents and traffic volumes to obtain information on land use, and especially on important pedestrian- and bicycle-trip generators. Such information gathering may entail community surveys, whether online, by phone, or in person; focus groups; and "walkabouts."[22]

An even more proactive approach to evaluating street safety and livability would be to identify and prioritize key destinations and then create an effective transport network supporting pedestrians and bicycle access. Such an approach requires a dual perspective that looks at local and regional origins, destinations, and paths: first, important regional activity centers—such as schools, employment centers, and parks—must be charted; second, staff and key members of the public and stakeholders must identify and prioritize key project needs along the way as well as identify the best routes to reach them.

Undertake comprehensive field assessments

Conducting pedestrian and/or bike audits with appropriate key stakeholders at the appropriate times can be very useful for identifying locations where improvements are needed. For example, to create safe routes to and from a school, planners should undertake field assessments during arrival and dismissal times.[23] Through a walkabout, planners and stakeholders might note where conditions might be unsafe for pedestrians and cyclists.[24] Stakeholder observations could be captured using video cameras, recorders, maps and aerial photos, note cards, etc. An emerging technology useful during this phase is a geographic information system (GIS)/global positioning system (GPS)/camera-equipped personal digital assistant (PDA), which can dynamically capture and immediately cross-reference spatial, visual, and statistical data.[25]

Identify, map, and analyze problems, and articulate solutions

After working with stakeholders, compiling and analyzing data, and conducting field assessments, planners can produce maps and satellite images of the locations they have surveyed. These maps and images can then be analyzed (e.g., using GIS) to identify and communicate such things as existing conditions, opportunities and constraints, and the critical improvements needed to encourage walking and bicycling.

Prioritize and phase projects

Once the necessary improvements have been articulated and located, the next step is to develop a prioritization process and criteria (see Figure 7–10 on page 372). It is important to maintain flexibility, however: such a scoring process should be used to inform rather than to drive project priority decisions, so the numbers should not be allowed to overtake professional and community judgment in deciding where and when certain solutions should be enacted.[26]

Developing implementation strategies/ action plan

During this phase, planners should look to the future as to who, and with what resources (labor and capital), will most effectively implement and realize the plans, goals, and outcomes. Some key steps in this process to support implementation include the following:

- Identify individuals and/or groups responsible for plan implementation.
- If not yet formed, create either separate pedestrian and bicycle advisory committees or a combined committee. Members should be drawn from the initial stakeholder groups, a multidisciplinary group of local agency staff (public works, engineering, planning, police/fire, etc.), and at least one planning commissioner and one elected official.[27]
- Review zoning and subdivision ordinances for possible revisions. Seek to require that new construction include bike lanes, sidewalks, and other forms of circulation and access for pedestrians and cyclists. Incentives should also be provided for developers to provide "end of the trip" bicycle facilities, such as showers and safe bicycle parking.
- Create a dedicated team (often from public works) to oversee the construction of sidewalk sections and bicycle lanes. This group can also serve as a rapid-response

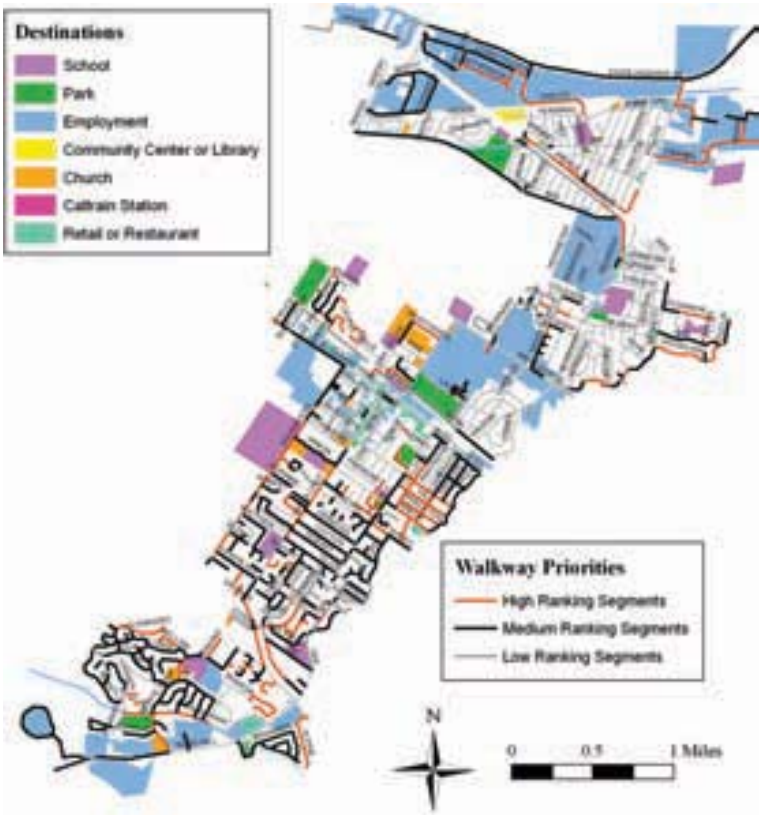
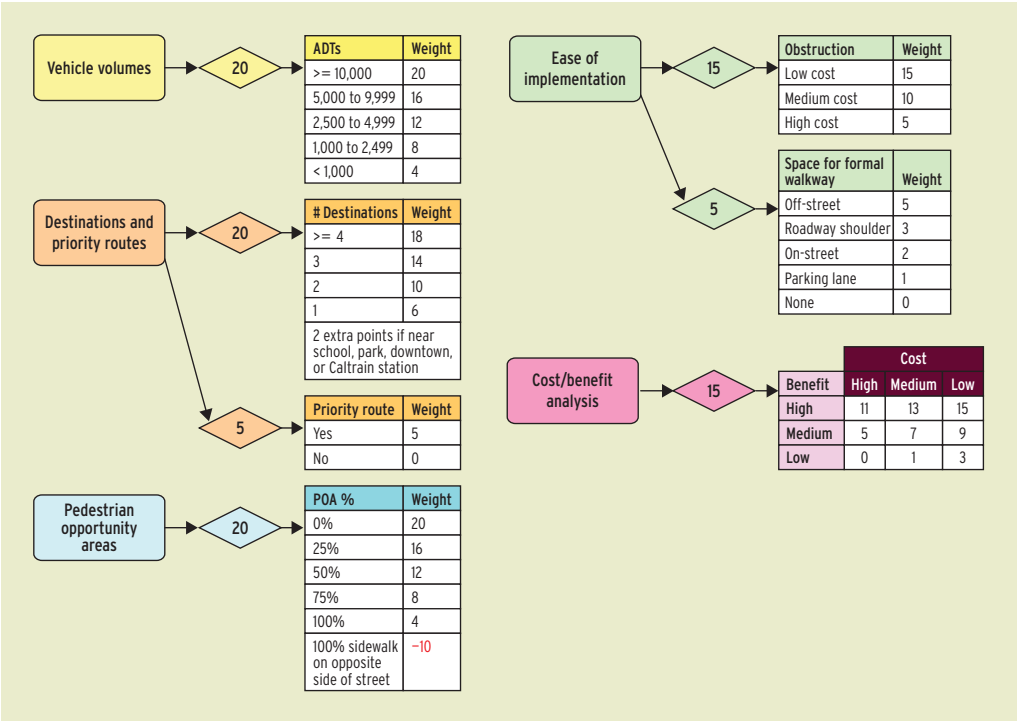


Figure 7–9 A sidewalk master plan can include maps of important community destinations and priority routes to arrive at them.

Source: Dowling Associates

Figure 7–10 A ranking system can be used to establish priorities for pedestrian projects.



ADTs	Weight
>= 10,000	20
5,000 to 9,999	16
2,500 to 4,999	12
1,000 to 2,499	8
< 1,000	4

# Destinations	Weight
>= 4	18
3	14
2	10
1	6
2 extra points if near school, park, downtown, or Caltrain station	

Priority route	Weight
Yes	5
No	0

POA %	Weight
0%	20
25%	16
50%	12
75%	8
100%	4
100% sidewalk on opposite side of street	−10

Obstruction	Weight
Low cost	15
Medium cost	10
High cost	5

Space for formal walkway	Weight
Off-street	5
Roadway shoulder	3
On-street	2
Parking lane	1
None	0

	Cost		
Benefit	High	Medium	Low
High	11	13	15
Medium	5	7	9
Low	0	1	3

Source: Dowling Associates

team to address any problems that involve compliance with the Americans with Disabilities Act.

Adopt and implement the plan

The final step in the process is for appointed and elected officials to adopt the project map, priority list, and implementation plan. The pedestrian and/or bicycle master plan should become part of a local government's capital improvement plan; it should also be part of the metropolitan planning organization's regional transportation plan to ensure that recommended projects are eligible for inclusion in the organization's transportation improvements program.

Once the plan is adopted, the task of getting the projects built and the education and encouragement programs implemented has just begun. Because the demand for pedestrian and bicycle facilities often outstrips the available funds, implementation requires vigilance, flexibility, and creativity. Public agency staff, working with pedestrian and bicycle advisory committee(s), should constantly be on the lookout for opportunities by regularly reviewing road building, repaving, and other maintenance activities.

Notes

1 Some of the most vocal initial advocates for improving U.S. roads were bicycling organizations, active around the 1890s. A good reference for how city streets in the United States were transformed from being truly multimodal to being dominated by automobiles, or "motordom," is Peter Norton, *Fighting Traffic: The Dawn of the Motor Age in the American City* (Cambridge: MIT Press, 2008).

2 During a 2006 expert panel discussion on what makes a community "great," there was unanimous agreement with University of Michigan professor Douglas Kelbaugh's suggestion that it be safe and comfortable for all nondrivers.

3 See Donald Appleyard, *Livable Streets* (Berkeley: University of California Press, 1981); Donald Appleyard and Daniel T. Smith, *Improving the Residential Street Environment* (Washington, D.C.: Federal Highway Administration, 1981); Bruce Appleyard, "Home in the Zone: Creating Livable Streets in the US," *Planning* (October 2006): 30–35.

4 Department of the Environment, Transport and the Regions (DETR), *Road Safety Strategy: Current Problems and Future Solutions* (London: DETR, 1997).

5 Eric Dumbaugh, "Safe Streets, Livable Streets," *Journal of the American Planning Association* 71, no.3 (2005): 283–300.

6 Peter Lyndon Jacobsen, "Safety in Numbers: More Walkers and Bicyclists, Safer Walking and Bicycling," *Journal of Injury Prevention* 9 (2003): 205–209, tsc.berkeley.edu/newsletter/Spring04/JacobsenPaper.pdf (accessed September 11, 2008).

7 Asha Weinstein, Marc Schlossberg, and Katja Irvin, "How Far, by Which Route, and Why? A Spatial Analysis of Pedestrian Preference," *Journal of Urban Design* 13, no. 1 (2008): 81–98.

8 Richard L. Knoblauch, Martin T. Pietrucha, Marsha Nitzburg, "Field Studies of Pedestrian Walking Speed and Start-Up Time," *Transportation Research Record* 1538 (1996): 27–38, enhancements.org/download/trb/1538-004.PDF (accessed September 11. 2008); John LaPlante and Thomas P. Kaeser, "A History of Pedestrian Signal Walking Speed Assumptions," in *3rd Urban Street Symposium: Uptown, Downtown, or Small Town: Designing Urban Streets That Work,* Seattle, Washington, June 24–27, 2007.

9 For more on the relationship between time and distance traveled on foot, see Peter Bosselmann, *Urban Transformation: Understanding City Design and Form* (Washington, D.C.: Island Press, 2008); Peter Bosselmann, *Representation of Places: Reality and Realism in City Design* (Berkeley and Los Angeles: University of California Press, 1998), 61; and Raymond Isaacs, "The Subjective Duration of Time in the Experience of Urban Places," *Journal of Urban Design* 6, no. 2 (2001): 109–127.

10 City of Portland, Office of Transportation, "Four Types of Transportation Cyclists," portlandonline.com/TRANSPORTATION/index.cfm?a=158497&c=44597 (accessed August 5, 2008).

11 According to the *National Household Travel Survey 2001,* the average bicycle commute-to-work distance was about three miles (based on a sample of only seventy one bicycle work commute trips reported by respondents). Of those surveyed, the average distance for all bicycle trips was about two miles (sample of 1,851 total trips). See Federal Highway Administration, *National Household Travel Survey 2001* (Washington, D.C.: U.S. Department of Transportation, 2001), nhts.ornl.gov/download.shtml.

12 Awarding zoning bonuses to developers who install such amenities in their buildings is one way to encourage bicycle use.

13 For more information, see *TCRP Synthesis 62: Integration of Bicycles and Transit,* onlinepubs.trb.org/Onlinepubs/tcrp/tcrp_syn_62.pdf (accessed September 11, 2008).

14 For more information, see American Association of State Highway and Transportation Officials (AASHTO), *AASHTO Guide for the Design of Pedestrian Facilities* (Washington, D.C.: AASHTO, 2004); *AASHTO Guide for the Development of Bicycle Facilities* (Washington, D.C.: AASHTO, 1999; updated 2009); Institute of Traffic Engineers (ITE), ite.org/traffic/; and *Context-Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities* (Washington, D.C.: ITE, 2006), ite.org/bookstore/RP036.pdf (accessed September 3, 2008).

15 Susan Handy, Robert G. Paterson, and Kent Butler, *Planning for Street Connectivity: Getting from Here to There,* PAS Report #515 (Chicago: APA Planners Press, 2004).

16 The regional government of Portland (Oregon) Metro requires street connectivity in its regional transportation plan and in the development codes and design standards of its constituent local governments as follows: local and arterial streets must be spaced no more than 530 feet apart (except where barriers exist); bicycle and pedestrian connections must be made (via pathways or on road right-of-ways) every 330 feet; and cul de sacs (or dead-end streets), which are discouraged, can be no longer than 200 feet and have no more than twenty-five dwelling units.

17 The space occupied by a bicycle and its rider is relatively modest. Generally, bicycles are between 24 and 30 inches wide from one end of the handlebars to the other. An adult tricycle or a bicycle trailer, on the other hand, is approximately 32–40 inches wide.

18 The incorporation of pedestrian and bicycle facilities into design and construction, originally referred to as "routine accommodation," is now commonly known as "completing the streets," which includes

a movement toward retrofitting existing streets; see completethestreets.org.

19 Crosswalks in commercial areas should be at least twelve feet wide to allow people to flow in both directions. On wide streets, crossing islands with a median nose provide added protection. The clear path for pedestrians through the median island should be six feet. Countdown signals that let pedestrians know how much time they have left to cross reduce stress and accidents. See Paul Zykofsky and Dan Burden, "Walkability," in *Planning and Urban Design Standards* (Hoboken, N.J.: John Wiley & Sons, 2006), 478–480.

20 For more information, see City of Portland, Office of Transportation, "What Is a Bike Box," portlandonline.com/shared/cfm/image.cfm?id=185112 (accessed September 11, 2008).

21 Several good examples of pedestrian and bicycle plans can be accessed from the Pedestrian and Bicycle Information Center; see, for example, walkinginfo.org/develop/sample-plans.cfm and bicyclinginfo.org/develop/sample-plans.cfm (accessed September 9, 2008).

22 See, for example, Arizona Department of Transportation, Multimodal Planning Division, "Statewide Bicycle & Pedestrian Plan" (2005), azbikeped.org/statewide-bicycle-pedestrian-intro.html (accessed September 11, 2008).

23 Center for Health Training, *Safe Routes to School: Practice and Promise* (Washington, D.C.: National Highway Traffic Safety Administration, 2004), nhtsa.dot.gov/people/injury/pedbimot/bike/Safe-Routes-2004/index.html (accessed September 11, 2008).

24 Undertaking pedestrian and bicycle survey counts can also be helpful, but such counts provide a snapshot of people who currently bike or walk, not necessarily information about the routes they want to take (they may be avoiding a hazardous route or intersection) or about the actual number of people who might be walking or cycling if facilities were improved.

25 Marc Schlossberg, Asha Weinstein, and Katja Irvin, "An Assessment of GIS-Enabled Walkability Audits," *URISA Journal* 19, no. 2 (2007): 5–11.

26 For more information, see the Sidewalk Master Plan for the City of Menlo Park at dowlinginc.com/publications.

27 This section of the plan can also guide the operation of such a group, although it is a good idea to allow the group some flexibility to make certain decisions—for example, how often it should meet, how decisions should be made, how many members will constitute a quorum—on its own, to be reviewed perhaps on an annual basis.

FOCUS ON

Transit-oriented development

Robert Cervero

When it comes to transit and urbanism, America is in the midst of a sea change. In once car-dominant settings, yesterday's design templates are being discarded in favor of transit-oriented development (TOD). Mixed-use TODs in such diverse settings as Mockingbird Station (Figure 7–11), located four miles north of downtown Dallas, and Fruitvale Transit Village (Figure 7–12), located in downtown Oakland, would have been unimaginable in the 1980s.

Figure 7–11 While much of the development next to Dallas Area Rapid Transit stations is "transit adjacent" rather than "transit oriented," one notable exception is Mockingbird Station, an assemblage of offices, shops, restaurants, and lofts linked directly to a light-rail station via a welcoming pedestrian bridge.

Source: Dallas Area Rapid Transit

TOD is very much an antidote to sprawl. By attracting a mix of residences, businesses, shops, and civic activities within a quarter of a mile—that is, within walking distance—of an urban railway station, TOD can draw people to transit and thereby relieve traffic congestion and improve air quality. The station and its immediate surroundings also serve as the hub of a community: a focal point for regen-

Figure 7–12 Despite the many hurdles that stood between concept and reality, Oakland's Fruitvale Transit Village has taken shape as an inner-city, transit-oriented redevelopment project boasting a retail area with an international theme, a large pedestrian plaza, and community services that include a state-of-the-art health care facility and a child care center.

Source: Unity Council, Oakland, California