Chapter 7 – Implementation and Resources

Getting Started

Construction Strategies

Funding

Web Sites

Guides, Handbooks and References
Communities are asking that motor vehicle speeds be reduced on their neighborhood streets and that streets be made more accessible and inviting for bicycling (and walking). Some of the most important issues to the public are safety, access, and aesthetics. This chapter discusses some of the issues related to setting priorities and implementing needed bicycling improvements.

GETTING STARTED

Getting started can be daunting—the needs are overwhelming, resources are scarce, and staff time is limited. Every community is faced with the questions of “Where do I start?” and “How do I get going?” While it is not the intent of this guide to provide an exhaustive discussion of implementation strategies, it offers some direction.

PRIORITIES

Since all bicycling needs cannot be addressed immediately, project priorities need to be established. To create priorities requires several program objectives:

- Safety—One objective should be to reduce the number and severity of crashes involving bicyclists. Accomplishing this would require: (1) a good understanding of the types of crashes that are occurring in your community, and (2) application of appropriate countermeasures to address these crashes. The information provided in this guide is intended to help select the countermeasures that would be most effective in addressing selected types of crash problems.

- Access—A second objective should be to create an accessible community where all bicyclists can reach their desired destinations. Typically, this begins with identifying corridors frequented by bicyclists and how these corridors can be accessed with connecting streets, as well as determining if the main corridor streets need improvements.

- Aesthetics—It is not enough to simply have a safe, accessible community—it should also be an aesthetically pleasing place to live and work. Landscaping, lighting, parking, and other facilities help create a “livable community” and should be considered when making bicycling improvements.

ONE STEP AT A TIME

To create a safe community for bicycling, take one step at a time. Along main corridors, check to see that there is adequate space for riding for the speed and volume of motor vehicle traffic at both midblock and intersection locations. In other words, check block by block and intersection by intersection. Individually, these locations do not create a safe, livable community. Collectively, they create the infrastructure needed for a great place to work, play and conduct business. In other words, the whole bicycling system is greater than the sum of its parts.

COMMUNITY CONCERNS

Be very sensitive to community concerns. Public participation will build community pride and ownership that is essential to long-term success. Some of the problems identified in this guide will not be an issue in your community and some of the tools may be perceived as too expensive (at least initially). There probably will be measures that your community puts on hold for a few years until a community consensus is reached. Conversely, there probably will be measures that your community would like to pursue that are not even mentioned in this planning section.

DELIVERABLES

It is very important to produce immediate deliverables that people can see. For example, the addition of bike lanes and/or the removal of parking along a street are highly visible, while a transportation plan is a paper document that may never be seen or appreciated by the public. To keep its momentum, a program needs some “quick wins.” They create the sense that something is happening and that government is responsive.

ADDITIONAL RESOURCES

The Bikeability Checklist can quickly identify some of the more obvious deficiencies in your neighborhood or community.

http://www.rwjf.org/files/newsroom/interactives/sprawl/bike_app.jsp
http://www.bicyclinginfo.org/cps/checklist.htm

The American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities is a comprehensive document for information about facilities. The AASHTO Web site is:

http://www.transportation.org/

The Bicycle Compatibility Index (BCI) is a tool that can be used by bicycle coordinators, transportation planners, traffic engineers, and others to evaluate the capability of specific roadways to accommodate both motorists and bicyclists.

http://www.hsrc.unc.edu/research/pedbike/98095/index.html
Information on both Bicycle Level of Service (BLOS) and the Bicycle Compatibility Index (BCI) is contained at a Web site maintained by the League of Illinois Bicyclists. http://www.bikelib.org/roads/blos/

Information on the Intersection Level of Service: The Bicycle Through Movement is contained on a Florida Department of Transportation Web site: http://www.dot.state.fl.us/planning/systems/sm/los/pdfs/BLOSTM.pdf

NCHRP Project 7-14 provides guidelines for the analysis of investments in bicycle facilities. The research was performed by the University of Minnesota, Planners Collaborative Inc, the UNC Highway Safety Research Center, and the UNC Active Living by Design Program. A cost-demands-benefits analysis tool can be found at this Web site: http://www.bicyclinginfo.org/bikecost/


CONSTRUCTION STRATEGIES

There are many ways to accomplish projects. Be creative; take advantage of opportunities as they present themselves. Here are some suggestions:

REGULATION OF NEW DEVELOPMENT AND REDEVELOPMENT

Issues here tend to pertain more to pedestrian activities. For example, developers can be required to install public infrastructure such as sidewalks, curb ramps, and traffic signals. In addition, zoning requirements can be written to allow for or require narrower streets, shorter blocks, and mixed-use development. However, these infrastructure items benefit bicycling as well. Encouraging developers and community leaders to focus on basic pedestrian and bicycling needs will benefit the community and increase the attractiveness of the developments themselves.

ANNUAL PROGRAMS

Consider expanding or initiating annual programs to make small, visible improvements. Examples include improving space for bicyclists on streets where it is poor, or adding space to a link between two areas to improve connectivity. This creates momentum and community support. Several considerations should be made when developing these programs:

• Identify corridors where bicycling takes place and give priority to these locations.

• Consider giving preference to requests from local bicyclists about spot improvements or addressing a crash problem.

• Evaluate your construction or renovation options. Consider having city crews do work requested by residents to provide fast customer service while bidding out some of the staff-generated projects.

CAPITAL PROJECTS

“Piggybacking” bicycling (and pedestrian) improvements onto capital projects is one of the best ways to make major improvements in a community. For example, when a street is resurfaced, consider whether lanes should be narrowed when the street is re-striped to provide for bike lanes, wide curb lanes, or simply more space for cyclists. Landscaping, lighting, and other amenities can be included in road projects, utility projects and private construction in public rights-of-way (for example, cable television, high-speed fiber optics, etc.). To accomplish this, there are several things that can be done:

• Contact all State and regional agencies, and local public and private utilities that do work in public rights-of-way. Secure their five-year project plans as well as their long-range plans. Then, work with them to make sure that the streets are restored in the way that works for your city.

• Look internally at all capital projects. Make sure that every opportunity to make improvements is taken advantage of at the time of construction.

• Consider combining small projects with larger capital projects as a way of saving money. Generally, bid prices drop as quantities increase.

PUBLIC/PRIVATE PARTNERSHIPS

Increasingly, public improvements are realized through public/private partnerships. These partnerships can take many forms. Examples include Community Development Corporations, neighborhood organizations, grants from foundations, direct industry support and involvement of individual citizens. In fact, many public projects, whether they are traffic-calming improvements, street trees or the restoration of historic buildings, are the result of individual people getting involved and deciding to make a difference. This involvement doesn’t just happen; it needs to be encouraged and supported by local governmental authorities.
ADDITIONAL RESOURCES
Cities such as Cambridge, MA, Eugene and Portland, OR, and Seattle, WA have adopted plans and procedures to ensure that bicycle improvements become a routine activity in new development projects, reconstruction work, and retrofits. Charlotte, NC, also has some exciting urban street design guidelines out for public review. These include a chapter on the design of streets for multiple users, as well as an appendix with a tool to calculate bicycle and pedestrian level of service at signalized intersections. Please note that Web site addresses change frequently.

City of Cambridge, MA
http://www.cambridgema.gov/~CDD/et/bike/

City of Eugene, OR

City of Portland, OR
http://www.portlandonline.com/transportation/index.cfm?c=34772

City of Seattle, WA
http://www.ci.seattle.wa.us/transportation/bikeprogram.htm

City of Charlotte, NC
http://www.charmeck.org/Departments/Transportation/Urban+Street+Design+Guidelines.htm

FUNDING
Bicycling (and pedestrian) projects and programs can be funded by federal, State, local, private, or any combination of sources. A summary of federal bicycling (and pedestrian) funding opportunities can be viewed at http://www.fhwa.dot.gov/environment/bikeped/bp-broch.htm#funding.

Communities that are most successful at securing funds often have the following ingredients of success:

- Consensus on Priorities — Community consensus on what should be accomplished increases the likelihood of successfully funding a project. A divided or uninvolved community will find it more difficult to raise funds than a community that gives broad support to bicycle (and pedestrian) improvement programs.

- Dedication — Funding a project is hard work, and generally, there are no shortcuts. It takes a great amount of effort by many people using multiple funding sources to complete a project successfully. Be aggressive and apply for many different community grants. While professional grant-writing specialists can help, they are no substitute for community involvement and one-on-one contact (the “people part” of fund raising).

- Spark Plugs (Change Agents) — Successful projects typically have one or more “can do” people in the right place at the right time who provide the energy and vision to see a project through. Many successful “can do” politicians get their start as successful neighborhood activists.

- Leveraging — Funds, once secured, should always be used to leverage additional funds. For example, a grant from a local foundation could be used as the required match for a Transportation Equity Act for the 21st Century (TEA-21) Enhancement grant.

WEB SITES
There are dozens of Web sites that contain information on bicycle safety and mobility. The Pedestrian and Bicycle Information Center (PBIC) maintains a list at http://www.bicyclinginfo.org/links of national and international government agencies, state and local government agencies, professional organizations, advocacy groups and other sites as listed in the following sections.

GOVERNMENT AGENCIES AND OFFICES
Danish Road Directorate
http://www.vejdirektoratet.dk/roaddirectorate.asp?page=dept&objno=1024

Federal Highway Administration (FHWA)
http://www.fhwa.dot.gov

FHWA Office of Highway Safety
http://safety.fhwa.dot.gov/ped_bike/bike/index.cfm

FHWA/NHTSA National Crash Analysis Center
http://www.ncac.gwu.edu

House Committee on Transportation and Infrastructure
http://www.house.gov/transportation

International Bicycle Fund
http://www.ibike.org/
National Highway Traffic Safety Administration (NHTSA)  
http://www.nhtsa.dot.gov

Transportation Association of Canada  
http://www.tac-atc.ca

U.S. Architectural and Transportation Barriers Compliance Board (Access Board)  
http://www.access-board.gov

U.S. Department of Transportation (U.S. DOT)  
http://www.dot.gov

GOVERNMENT PROGRAMS AND INITIATIVES
FHWA Bicycle and Pedestrian Program  
http://www.fhwa.dot.gov/environment/bikeped

FHWA Office of Safety  
http://safety.fhwa.dot.gov/index.htm

FHWA Bicycle Safety  
http://safety.fhwa.dot.gov/ped_bike/bike/index.htm

FHWA Pedestrian and Bicycle Safety Research Page  
http://www.tfhrc.gov/safety/pedbike/pedbike.htm

FHWA Pedestrian/Bicyclist Crash Analysis Tool (PBCAT)  
http://www.walkinginfo.org/pc/pbcat.htm

NHTSA Fatality Analysis Reporting System (FARS)  

NHTSA Traffic Safety  
http://www.nhtsa.dot.gov/portal/site/nhtsa/  
menuitem.5928da45f99592381601031046108a0c/

For NHTSA Bicycle Safety  
http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.810acaee50c651189ca84e401db046a0/

For NHTSA Pedestrian Safety  
http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.df635f972381601031046108a0c/

Pedestrian and Bicycle Information Center (PBIC) Web Sites  
http://www.pedbikeinfo.org
http://www.walkinginfo.org
http://www.bicyclinginfo.org
http://www.pedbikeimages.org
http://www.iwalktoschool.org
http://www.walktoschool.org
http://www.saferoutesinfo.org

Safe, Accountable, Flexible, Efficient Transportation Equity Act: A Legacy for Users (SAFETEA-LU).  
http://www.fhwa.dot.gov/safetealu/

PROFESSIONAL ORGANIZATIONS
American Association of State Highway and Transportation Officials (AASHTO)  
http://www.transportation.org

American Planning Association (APA)  
http://www.planning.org/

American Public Works Association  
http://www.apwa.net/

American Society of Landscape Architects  
http://www.asla.org

American Traffic Safety Services Association  
http://www.atssa.com/

Association of Pedestrian and Bicycle Professionals (APBP)  
http://www.apbp.org/

Bicycle Federation of America/National Center for Bicycling and Walking  
http://www.bikewalk.org/

Human-Powered Transportation Committee of the American Society of Civil Engineers  
http://www.ascehpt.homestead.com/

Institute of Transportation Engineers  
http://www.ite.org/

League of American Bicyclists  
http://www.bikeleague.org/

National Safety Council  
http://www.nsc.org/

Transportation Research Board  
http://www.trb.org/

OTHER ORGANIZATIONS (INCLUDING ADVOCACY ORGANIZATIONS)
AAA Foundation for Traffic Safety  
http://www.aaafoundation.org/home/
America Bikes
http://www.americabikes.org

Bicycle Helmet Safety Institute
http://www.bhsi.org

Bikes Belong Coalition
http://www.bikesbelong.org

Better Environmentally Sound Transportation
http://www.best.bc.ca

Brain Injury Association of America (formerly National Head Injury Foundation)
http://www.biausa.org/Pages/home.html

Chainguard—Bicycle Advocacy Online
http://probicycle.com/

Conservation Law Foundation
http://www.clf.org

Harborview Injury Prevention and Research Center
http://depts.washington.edu/hiprc/

Highway Safety Research Center
http://www.hsrc.unc.edu/

International Mountain Bicycling Association
http://www.imba.com

Massachusetts Bicycle Coalition
http://www.massbike.org

National Center for Bicycling and Walking
http://www.bikewalk.org

National Safety Council
http://www.nsc.org/

National Transportation Enhancements Clearinghouse
http://www.enhancements.org

Rails to Trails Conservancy
http://www.railtrails.org

Surface Transportation Policy Project
http://www.transact.org

Texas Bicycle Coalition
http://www.biketexas.org

Thunderhead Alliance
http://www.thunderheadalliance.org

Transportation Alternatives Citizens Group (New York City Area)
http://www.transalt.org

Transportation Research Board
http://www.trb.org

Travis County (Austin, TX) SuperCyclist Project
http://www.ci.austin.tx.us/bicycle/super.htm

Tri-State Transportation Campaign (New York/New Jersey/Connecticut)
http://www.tstc.org

Vermont Bicycle and Pedestrian Coalition
http://www.vtbikeped.org

Victoria Policy Institute
http://www.vtpi.org

Walkable Communities, Inc.
http://www.walkable.org/

Washington Area Bicyclist Association
http://www.waba.org/

LOCAL/STATE SITES
City of Boulder, CO, Transportation Planning
http://www3.ci.boulder.co.us/publicworks/depts/transportation.html

City of Cambridge, MA, Environmental and Transportation Division

City of Eugene, OR, Bicycle Information

City of Portland, OR, Pedestrian Transportation Program
http://www.trans.ci.portland.or.us

City of Seattle
http://www.ci.seattle.wa.us/transportation/bikeprogram.htm
City of San Francisco (and County)
http://www.bicycle.sfgov.org/site/dptbike_index.asp

City of Tallahassee, FL, Bicycle and Pedestrian Master Plan
http://www.crtpa.org/

Florida Department of Transportation Pedestrian and Bicycle Safety Program
http://www.dot.state.fl.us/Safety/ped_bike/ped_bike.htm

Missouri Department of Transportation Bicycle/Pedestrian Program
http://www.midot.org/othertransportation/bicyclepedestriangeneralinformation.htm

Montgomery County, MD, Residential Traffic-Calming Program
http://www.dpwt.com/TraffPkgDiv/triage.htm

North Carolina Department of Transportation Division of Bicycle and Pedestrian Transportation
http://www.ncdot.org/transit/bicycle/
Note: Information from more than 9,000 recent bicycle and pedestrian crashes in North Carolina has been compiled in an interactive database.

Oregon Department of Transportation Bicycle and Pedestrian Program
http://www.odot.state.or.us/techserv/bikewalk/

University of California-Davis Bicycle Program
http://www.taps.ucdavis.edu/bicycle/

Virginia DOT Traffic Calming Guide

Wisconsin Department of Transportation Bicycle and Pedestrian Information
http://www.dot.wisconsin.gov/modes/pedestrian.htm

**PEDESTRIAN AND BICYCLE LINK PAGES**
Pedestrian and Bicycle Information Center bicycling information sites
http://www.bicyclinginfo.org

Bicycle advocacy Web sites provided by Chainguard
http://probicycle.com/mainnet.html

Bicycle education and safety sites provided by Chainguard
http://probicycle.com/mainedu.html

Pedestrian and bicycle sites provided by TransAct
http://www.transact.org/issues/intro_hss.asp

State bicycle laws provided by Bicycle Coalition of Massachusetts
http://www.massbike.org/bikelaw

**PEDESTRIAN AND BICYCLE STUDIES AND STATISTICS**
BTS National Transportation Library Links to Bike/Pedestrian Transportation Research
http://www.transtats.bts.gov/Databases.asp?Mode_ID=7&Mode_Desc=Bike/Pedestrian&Subject_ID2=0

Bureau of Transportation Statistics
http://www.bts.gov

http://www.cpsc.gov/cpscpub/pubs/rec_sfy.html

Insurance Institute for Highway Safety – Bicycle Fatality Facts
http://www.iihs.org/research/fatality_facts/bicycles.html

National Bicycling and Walking Study Ten-Year Status Report
http://www.bicyclinginfo.org/pp/nbws1.htm

Nationwide Household Travel Survey

Northwestern University Traffic Institute
http://server.traffic.northwestern.edu/

University of Michigan Transportation Research Institute
http://www.umich.edu/~industry/pedvis.html

University of North Carolina Highway Safety Research Center
http://www.hsrc.unc.edu/
GUIDES, HANDBOOKS AND REFERENCES

There are a significant number of additional resources related to the topic of bicycle (and pedestrian) safety and mobility. A sample of the national and international guides, practitioner handbooks, research reports and other general references are provided in this section. Note that this list is not comprehensive, but it should provide a place to start a search for information.

DOMESTIC GUIDES AND HANDBOOKS

Bike Facility Planning and Design


Oregon Department of Transportation, Oregon Bicycle and Pedestrian Plan, 1995.


Bicycle/Pedestrian Safety


Bridge Design


Crash Analysis

Laws

Rail/Trail

Roadway Design
American Association of State Highway and


**Roadway Operations and Capacity**


**School Safety**


**Traffic Calming**


**Traffic Control Devices**


**Traffic Engineering**


**INTERNATIONAL GUIDES AND HANDBOOKS**

**Bicycle/Pedestrian Safety**


**Bike Facility Planning and Design**


Roadway Operations and Capacity

Traffic Calming
County Surveyors Society, Department of Transport, Association of Metropolitan District Engineers, Association of London Borough Engineers and Surveyors, and Association of Chief Technical Officers, Traffic Calming in Practice, Great Britain, 1994.

Traffic Engineering


Herrstedt, L. et al., An Improved Traffic Environment — A Catalogue of Ideas, Danish Road Directorate, Copenhagen, Denmark, 1993.

Traffic Control Devices

Traffic Engineering

ARTICLES, RESEARCH REPORTS AND GENERAL REFERENCES


Brookline Transportation Department, Neighborhood Traffic Calming Program for Residential Streets, Town of Brookline, MA, 1996.


Cline, E., “Design of Speed Humps...Or The Kinder, Gentler Speed Hump,” Presented at the *45th California Symposium on Transportation Issues*, May 12-14, 1993.


Richardson, E. and J.R. Jarvis, The Use of Road Humps on Residential Streets in the City of Stirling, Western Australia, ARRB Internal Report, AIR 335–3, Australian Road Research Board, 1981.


Route 50 Corridor Coalition, A Traffic-Calming Plan for Virginia’s Rural Route 50 Corridor, Middleburg, VA, 1996.


