

Strategy Analysis Report:

BICYCLING

Bicycling and walking are important elements of an integrated, intermodal transportation system. Constructing sidewalks, installing bicycle parking at transit, teaching children to ride and walk safely, installing curb cuts and ramps for wheelchairs, striping bike lanes, and building trails all contribute to our national transportation goals of safety, mobility, economic growth and trade, enhancement of communities and the natural environment, and national security.

U.S. Department of Transportation
Federal Highways Administration
FHWA Guidance: Bicycle and Pedestrian Provisions of Federal Transportation Legislation
[http://safety.fhwa.dot.gov/PED_BIKE/docs/pb_memo1999Guidance.pdf]



Chicago Metropolitan
Agency for Planning

Strategy Analysis Report: Improving Bicycling Infrastructure

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Introduction

The Chicago Metropolitan Agency for Planning (CMAP) is responsible for comprehensive planning for a seven-county region in northeastern Illinois. The region is over 4,500 square miles and home to more than eight million people. CMAP was created in 2005 to combine previously separate transportation and land-use planning agencies in northeastern Illinois into a single entity designed to protect natural resources and minimize traffic congestion as the region plans for the 21st century and beyond. CMAP serves the counties and communities of Cook, DuPage, Kane, Kendall, Lake, McHenry and Will Counties, as well as a portion of Grundy County.



Photo courtesy of Dan Burden

As part of its mission and mandate, CMAP has recently begun work on northeastern Illinois' first Regional Comprehensive Plan. Required to be finished and adopted by autumn 2010, this will be an integrated plan for land use and transportation, and will also contain elements on the environment, economic development, housing, and human services. The plan will build on both the 2030 Regional Transportation Plan (produced by CATS in 2003) and the 2040 Regional Framework Plan (produced by NIPC in 2006). CMAP's Comprehensive Plan, however, will focus more on implementation than either of these past planning efforts.

One major step in the process of creating the Regional Comprehensive Plan is to identify and evaluate potential planning strategies. Planning strategies are, very broadly, actions which the region, or governments within the region, might take in order to realize what they envision as their desired future. These strategies fall under the broad headings Transportation, Land Use, Housing, Environment and Natural Resources, and Economic Development. Examples of planning strategies may include, among others: promoting infill, redevelopment, and compact development; preserving, improving, and increasing parks and open space; increasing public transportation service and usage, and reducing automobile dependency/travel times; increasing the provision of affordable housing; promoting energy conservation; supporting taxation reform and tax sharing agreements; and creating ADA-compliant public places.

Included among the various transportation- and land use-related strategies is *Improving Bicycling Conditions*. This paper will briefly introduce and define bicycling as a planning strategy, review the existing conditions and the potential for improving the conditions for bicycling in the region, and finally examine the (plausible) effects of implementing this strategy, for the region and for individual communities within the region. This paper is not intended to be a comprehensive, definitive exposition of bicycle planning and programming – generally or in our region – but rather a planning tool, intended to initiate

dialogue and discussion on the possible implications and impacts of improving bicycling conditions in our region.

As is the case with other planning strategies, bicycling could very easily and appropriately have been placed under a number of other broad topic areas to be addressed in the Comprehensive Plan. ‘Land Use’, ‘Environment and Natural Resources’, and ‘Economic Development’ are all areas for which bicycling improvement projects can – and will, if implemented – have significant effects. In this paper, we will define bicycling broadly then, and consider its impacts not only on transportation, but also on health, the environment, and economic and community development.

The strategy is defined very roughly as “Improving the conditions for bicycling”. Improvement could take the form of new bikeways, changes to existing transportation infrastructure to make bicycling easier and safer, new laws or ordinances protecting or promoting cyclists, educational and outreach programs designed to encourage and increase bicycling, or even enforcement programs intended to improve safety for bicyclists and other users of roadways and paths. Our research represents, then, an attempt to answer the broad question: “*What would happen if the region improved bicycling/pedestrian conditions?*”

Research Question

This paper, then, will first look at existing conditions, both in terms of policy and in terms of existing plans and programs, which our region and its communities, agencies, and organizations have put in place in order to promote bicycling. We will then briefly review some of the major literature and sources of information for understanding the challenges and benefits of implementing bicycle-friendly plans and programs. This will involve, to some extent, surveying programs and projects outside the northeastern Illinois region. Finally, we will briefly consider and attempt – if not to answer, then at least to inspire reflection on our core research question, “*In our region and in your communities, what effects would improving conditions for bicycling have?*” The discussion and any answers we propose will, by nature and by design, remain hypothetical and tentative, though hopefully plausible.

Bicycling as a Planning Strategy

Bicycling is a form of *active transportation*. Like walking, and other non-motorized modes of travel, bicycling relies on human power for locomotion. As a form of active transportation, bicycling directly supports public health and safety objectives, including increased physical fitness, pollution reduction, and improved safety (reductions in serious and fatal crashes). As a substitute for automobile travel, bicycling provides significant social, environmental, and economic benefits, including congestion mitigation, reduced travel costs, mobility for non-driving populations, increased transit access and (perhaps) ridership, and improved community livability¹. Bicycling supports efficient, compact, sustainable land development patterns, in which transportation and land use are integrated

¹ See Appendix A for resources, including a bibliography, arguing for – and when possible, quantifying – these benefits.

and working together to achieve greater mobility, equity, health, prosperity, and a higher overall quality of life.

As a planning strategy, bicycling – often combined in theory and in practice with strategies to improve pedestrian travel and encourage walkable communities – is commonly divided into the “Three E’s”: Engineering, Education, and Enforcement². The first “E” refers to physical design/construction projects. These projects include new facilities of various types, or reconstruction and improvements made to existing transportation infrastructure. The second “E” refers to programs – often in schools – which educate and encourage students and citizens about bicycling, its benefits, safe riding techniques, and how to find and use additional resources. The third “E” refers to programs, and sometimes lobbying efforts, designed to create and enforce laws recognizing and protecting cyclists as legitimate roadway users. These programs generally focus on traffic safety. All three approaches – all three “E’s” – work together synergistically and should be implemented simultaneously. However, we will focus in this section, on the physical facilities, which communities may construct, commonly referred to as “Bikeways”. These infrastructure projects provide the physical network on which cyclists (hopefully, educated and informed) will travel.

Bikeways and Bicycle Facilities

There are six major types of bikeways:

Bicycle/Multiuse Paths or Trails. Paths are off-street facilities. They are constructed of/surfaced with various materials, such as asphalt or crushed stone. For more information see

<http://www.bicyclinginfo.org/de/shared.cfm> and <http://www.americantrails.org/resources/trailbuilding/index.html>.

Bicycle Lanes. Bicycle lanes are defined as "a portion of the roadway which has been designated by striping, signing, and pavement marking for preferential or exclusive use by bicyclists"³. Bicycle lanes are designed to make the movements of both



Photo courtesy of Dan Burden

motorists and bicyclists more predictable. Insofar as they accomplish this, lanes – as well

² According to some, two additional “E”s should be included: Encouragement and Elected officials.

³ Quoted from the Pedestrian and Bicycle Information Center’s (PBIC) website. PBIC’s mission has been to improve the quality of life in communities through the increase of safe walking and bicycling as a viable means of transportation and physical activity. The PBIC is managed and operated by staff at the UNC Highway Safety Research Center. <http://www.pedbikeinfo.org/>

as other types of bicycle facilities – offer safety advantages to *all* road users.⁴ For more information on lanes, see <http://www.bicyclinginfo.org/de/onstreet.cfm#bike>

Bicycle Boulevards. A bicycle boulevard is a shared roadway which has been optimized for bicycle traffic. In contrast with other shared roadways, bicycle boulevards discourage cut-through motor vehicle traffic, but typically allow local motor vehicle traffic. They are designed to give priority to cyclists as through-going traffic. For more information, see http://en.wikipedia.org/wiki/Bicycle_boulevard and http://www.bta4bikes.org/at_work/bikeboulevards.php.



Photo courtesy of Dan Burden

Bicycle Marked Routes (“Sharrows”). A “sharrow” is an arrow-like design, often combined with a symbol of a bicycle, painted on a roadway to mark an official bicycling route. The City of Seattle defines it thus: “Bicycle symbols that are placed in the roadway lane indicating that motorists should expect to see and share the lane with bicyclists.” For more information, see http://www.bicycle.sfgov.org/site/uploadedfiles/dpt/bike/Bike_Plan/Shared%20Lane%20Marking%20Full%20Report-052404.pdf

Bicycle Signed Routes. Signed routes are roadways along which signs indicate 1) that it is an official bike route, 2) direction to specific destinations, and 3) distance to specific destinations. The AASHTO Guide for the Development of Bicycle Facilities (https://bookstore.transportation.org/item_details.aspx?ID=104) describes signed shared roadways (bike routes) as “those that have been identified by signing as preferred bike routes.” For more information, see <http://www.bicyclinginfo.org/de/onstreet.cfm#signed>



Photo courtesy of Dan Burden

Paved Shoulders (Rural areas) and Wide Outside Lane (Urban areas). Paved shoulders should be a minimum of 4 feet wide – or 5 feet if a guardrail or other barrier is present – in order to function as official bikeways. The AASHTO Guide for the Development of Bicycle Facilities notes that in rural areas “adding or improving paved shoulders often can be the best way to accommodate bicyclists.” In urban areas, paved shoulders are not normally provided on major roads. A wider outside (or curbside) lane allows a motorist to safely pass a cyclist while remaining in the same lane and this can be a significant benefit

⁴The 1999 FHWA study, “A Comparative Analysis of Bicycle Lanes Versus Wide Curb Lanes: Final Report” (Publication No. FHWA-RD-99-034) states: “The presence of a stripe separating bicyclists and motorists (as with a BL or paved shoulder) has been shown to result in fewer erratic driver maneuvers, more predictable bicyclist riding behavior, and enhanced comfort levels for both groups of users.” The report concludes thus: “Both BL and WCL facilities can and should be used to improve riding conditions for bicyclists, and this should be viewed as a positive finding for the bicycling community.”

and improvement for cyclists, especially more experienced riders. Lanes should be 14 feet wide, or 15 feet where extra space for maneuvering is required. For more information, see <http://www.bicyclinginfo.org/de/onstreet.cfm#wide>.

In addition to bikeways, another major physical element must be planned, designed, installed, and maintained by communities in order to be truly bicycle-friendly and to offer bicyclists and other users of the public rights-of-way a safe, convenient, and comfortable experience – namely, bicycle parking. Bicycle parking requires substantial knowledge and experience to plan and design well.

Bicycle Parking. Bike parking is a crucial aspect of any bicycle-friendly community. More than 1.5 million bicycles are reported stolen every year in the United States. Concerns about bicycle theft are recognized as a significant deterrent to bicycle use. The availability of safe and convenient parking is as critical to bicyclists as it is for motorists. Providing high quality, useful bicycle parking is not as easy as leaving a "fence" or "grid" style rack out by the back fence of the shopping plaza or school yard. Indeed, many agencies are now adopting very specific bicycle parking design, location, and installation requirements. For more information, see <http://www.bicyclinginfo.org/de/park.cfm>.



Photos courtesy of Dan Burden

Existing Conditions

The existing conditions for bicycling (and walking) throughout the northeastern Illinois region have been documented and analyzed in great detail in *Soles and Spokes: The Pedestrian and Bicycle Plan for Chicago Area Transportation* prepared by the Chicago Area Transportation Study (CATS) in 2004⁵. In addition, CMAP, as part of the Strategic Regional Systems element of the Regional Transportation Plan has created and maintains a Bicycle Information System (BIS). The BIS is an inventory of all local and subregional bikeway plans, as well as northeastern Illinois' Greenways and Trails plan (adopted by NIPC in 1997 and currently being updated). Plans are compiled in the BIS and, as a GIS-based geodatabase, are mapped as the Strategic Regional Bicycle and Pedestrian System (SRBPS) Map⁶. Given the regional scope of the BIS and its inclusion of planned and future routes, the SRBPS map is not intended to function as a user's map. Rather its value

⁵ See especially "Task 2 Report: Existing Conditions and Regional Trends", online at <http://www.solesandspokes.com/Task2FinalReport.pdf>

⁶ See Figure 1. The SRBPS map is designed to be printed at a much larger size – 44" x 34". This 8.5" x 11" reproduction is for illustrative purposes only. The map can be viewed at http://www.sp2030.com/strategic_bikeped_map.pdf.

and use is as a planning tool to help officials, planners, and transportation agencies understand, communicate, and coordinate efforts to accommodate bicyclists and other non-motorized modes of travel in our region. The BIS allows implementers of individual transportation and development projects to identify existing and planned bicycle facilities in the area of their projects and to integrate these plans into their designs.

Developing and improving the regional bikeway network – as well as other facilities and opportunities for non-motorized travel – is an important part of our overall regional development strategy. Specific policy recommendations and guidance in both the Regional Transportation Plan (RTP), entitled *Shared Path 2030*⁷, and in the *2040 Regional Framework Plan*⁸ affirm this fact and clearly express the importance of such a strategy.



The 2030 Regional Transportation Plan, most recently updated and approved by CMAP and the MPO in June 2007, discusses pedestrian and bicycle travel in “Chapter 5: Strategic Regional Systems”. The plan strongly encourages shared-use, multi-modal design of roadways and states that “bicycle and pedestrian transportation strategies that encourage non-motorized travel and improve the quality of walking and biking trips are integral to successful shared-use design.” Increasing bicycle (and pedestrian) travel would directly help achieve a number of the RTP’s stated objectives, including better mobility and accessibility, system

efficiency, public health and safety, and community and economic development. Specifically, it makes the following recommendations:

The RTP recommends strategic improvements to shared-use facilities that foster “routine accommodation” of pedestrian and bicycle design in all transportation projects and services (p. 128).

The RTP recommends that project implementers consider a facility’s potential use by bicycle and pedestrian travelers and make appropriate design accommodations using flexibility included in most highway design manuals. (p. 128).

The RTP includes the following statement regarding such projects:

[Routine accommodation] includes pursuing improvements that support bicycle and pedestrian access to transit and providing bicycle and pedestrian travel information and promotion as part of larger management and operation strategies applied to the entire transportation system (p. 128).

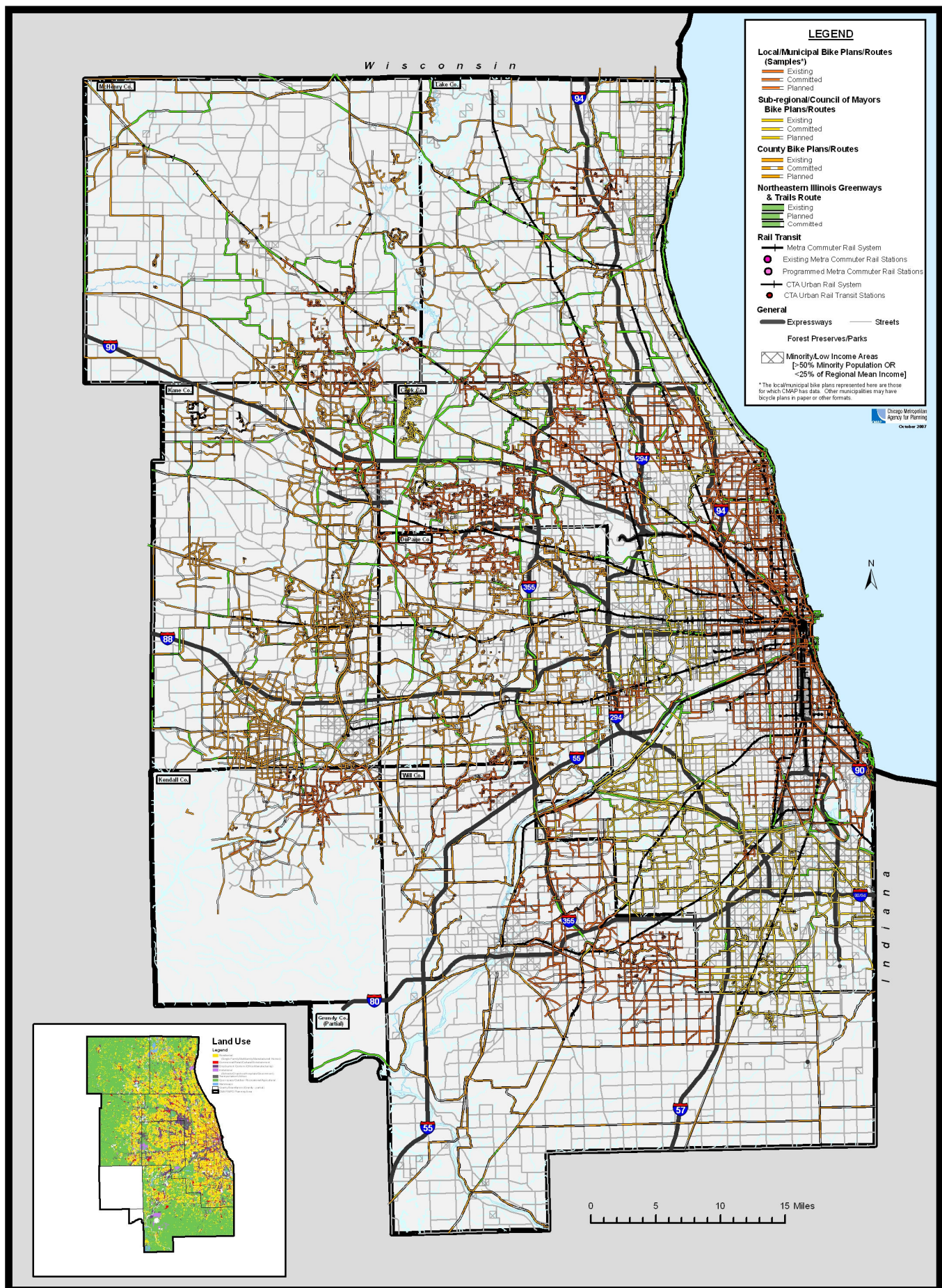
Finally, the RTP lists (pp. 128-129) a number of specific ways that communities and implementing agencies can make roadways and other transportation infrastructure safer and more convenient for bicyclists and pedestrians.

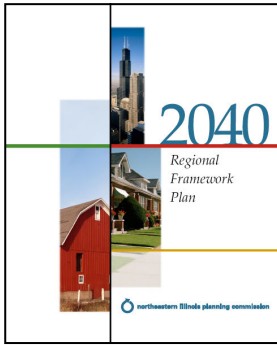
⁷ See the website www.sharedpath2030.com

⁸ See the website www.nipce.org/2040/

Figure 1:

Strategic Regional Bicycle and Pedestrian System (SRBPS)





The Northeastern Illinois Planning Commission's (NIPC) *2040 Regional Framework Plan*, focusing on land use and the promotion of sustainable development patterns throughout the region, discusses walking and bicycling most extensively in "Chapter 7: Implementation Strategies". The "Promotion of Walking and Biking as Alternative Modes of Travel" is one of 17 major strategies, which the Framework Plan establishes in order to achieve the vision of the region, which communities expressed as most desirable. The plan discusses the synergistic, mutually supportive ways in which improving bicycling and walking

conditions support and are supported by other important goals of the plan, such as compact development, mix of uses, promotion of transit, reduction of barriers between neighborhoods and communities, increased public health and safety, and equitable mobility and access. Overall, the *2040 Regional Framework Plan* recommends that bicycle and pedestrian connections be ubiquitous in fully urbanized parts of the region and that bicycle and pedestrian connections linking centers be developed in less urbanized areas (pp. 193-194).

At municipal and sub-regional (i.e. county and council of government) levels of government, several examples of bicycle-friendly places exist within our region. On a national level, the League of American Bicyclists' Bicycle Friendly Community⁹ awards program has recognized both the City of Chicago and the City of Schaumburg as exceptionally bicycle-friendly communities (receiving the Silver and Bronze Awards, respectively).

In *Soles and Spokes*¹⁰, various approaches and measures are used to attempt to answer the question, "How walkable and bikeable is our region?" Appraising general compactness of development, mix of land uses, and average block lengths; calculating bicycle and pedestrian levels-of-service; and counting/ inventorying bicycle and pedestrian facilities, as well as barriers, throughout the region, leads – as one might expect for such a large, diverse region – to mixed conclusions. Overall, the region is a mixture of good and bad, bicycle-friendly and bicycle-hostile areas. Given such a conclusion, the section on "Examples of Developments that



Source: <http://www.bikeleague.org/programs/communities/>

⁹ See the website <http://www.bicyclefriendlycommunity.org/index.htm>

¹⁰ See Footnote 2 above.

Encourage Bicycling and Walking” (pp. 51-53) is very useful. Examples like the City of Chicago’s aggressive, “retro-fit” bike program¹¹, the pioneering efforts in Schaumburg, and recent compact, mixed-use, bicycle- and pedestrian-friendly developments in Vernon Hills, Arlington Heights, and other communities – as well as county-wide efforts in DuPage, Lake, and Kane Counties – give us a clear picture and good understanding of what works when setting out to create bicycle-friendly places.

In the section entitled, “Connectivity and Distribution of Bicycle Facilities” (p. 74), *Soles and Spokes* summarizes the overall situation in northeastern Illinois thus:

An examination of the distribution of developed bikeway systems throughout the region seems to indicate a relationship between development patterns and provision of bicycle facilities. Put simply, densely developed communities have more bikeways. In particular, urban areas tend to have bike lanes and signed bike routes on streets. These bikeway systems tend to be in older urban areas where bicycling has become common and grid street systems can provide connectivity for a variety of bicycling skills. By contrast, suburban and rural areas have provided riders predominantly with off-road facilities such as multi-use paths. For the most part, these off-road facilities have been developed along natural recreational corridors (rivers, forest preserve green belts) or abandoned or unused railroad rights-of-way (Illinois Prairie Path, North Shore Trail).

Over the past several years, subsequent to the much of the data used in analyses in *Soles and Spokes*, bicycling appears to have increased in northeastern Illinois, both in terms of the number of persons bicycling for transportation and recreation, and in terms of the planning and provision of bicycle facilities by governments and governmental agencies. Most recently, on October 10, 2007, the Illinois House overrode the Governor’s veto on Senate Bill 314, commonly known as the “Complete Streets” law. This new law requires that bicycle and pedestrian travel ways or routes shall be given full consideration in the planning and development of transportation facilities. It also requires that bicycles and pedestrians be accommodated when roads are built or rebuilt in urban areas. And finally, the bill requires that IDOT establish design and construction standards for bicycle and pedestrian ways.

An improvement in the overall conditions for bicycling, and an increase in official support and promotion of bicycling as a legitimate travel mode in our region, may be related to trends in land use and development patterns, demographic changes, achieving a “critical mass” of bicycling infrastructure, increasing automobile congestion, growing awareness of environmental problems, higher gasoline prices, increased funding opportunities, and/or successful marketing and advocacy efforts. Most likely, improvements/increases in bicycling can reasonably be connected with all of these factors, as well as others. However, no clear causality can be definitively established. The complexity and inter-relatedness of such disparate factors and spheres of activity hinders attempts to isolate causes and to affect quick, sweeping changes. As a result, those seeking to improve conditions for bicycling and to increase its share as means of transportation, must work on several, very different fronts, integrating and coordinating wide-ranging efforts.

¹¹ See website <http://egov.cityofchicago.org/city/webportal/home.do>, then go to Department of Transportation, Bike Program

Nevertheless – and regardless of the elusiveness of an obvious “cause” for or a simple “means” to increasing bicycling as a travel mode – the reason for and the benefits of doing so are very clear indeed.

Reasons for Improving Bicycling Conditions in Northeastern Illinois

The justification for federal, state, and local support of bikeways initiatives, and for proactively seeking to increase the mode share of bicycles within our transportation system is based on widely accepted transportation planning concepts, and even more broadly, on the fundamental principles of planning itself – namely, the health, safety, and welfare of our communities and the individuals who live in them. The effort to increase bicycling as transportation and as recreation in northeastern Illinois is important for reasons of mobility, health, safety, and the environment. In the context of our transportation system, developing bicycle facilities and programs is important for reducing congestion and improving the overall operation of the system.

- *Congestion Relief.* Bikeways can offer an alternative to passenger cars. Local trips using passenger cars now clog our arterial and expressway systems with short trips and turning vehicles. In Chicago, 31% of trips are less than one mile in length; 59% are less than three miles long, an easy distance by bike. In the suburbs, 20% of trips are less than a mile; and 51% of trips are less than three miles long.

We have been successful in encouraging travelers to use alternative transportation. For example, between 1990 and 2000, work trips by bicycle increased 58%. More broadly, walking and bicycling together account for 1.5 million trips daily in the region, and many more if transit access is considered (our transit system depends on non-motorized access). As our region and our transportation system grow, we will need additional facilities to provide the linkages for local, non-motorized links to keep local trips off our congested regional road system. Support at all levels of government is an important component of this effort.

- *Safety.* In our seven-county region in 2005, we had 75,696 motor vehicle injuries, of which 629 were fatal. Our region has a motor vehicle crash each one minute and forty-six seconds. We have a fatal crash every 18 hours. Providing safe facilities and encouraging less driving can result in fewer crashes, injuries, and deaths. Such a strategy has led to lower death rates in northwestern Europe: whereas the United States had 14.9 traffic fatalities per 100,000 population in 2002, the United Kingdom and the Netherlands both had 6.1 traffic fatalities per 100,000 population by providing a safe traffic system and with a bicycle-pedestrian mode share of 30% and 48%, respectively. Less vehicle exposure can lead to fewer vehicle deaths.

- *Public Health.* Our transportation system should not contribute to our obesity epidemic. Obesity contributes to cardiovascular disease, diabetes, cancer, arthritis, and other chronic diseases. Sedentary lifestyles, including automobile dependence, contribute to obesity. Without adequate non-motorized facilities, our wide, high-speed highways can preclude active transportation like walking and bicycling. Providing bikeways, which cross these barriers, makes healthy walking and bicycling trips possible where they otherwise would not be. These barrier-crossing links are often far beyond the capabilities of local communities alone to finance, so state and federal support is crucial.
- *Environment.* Non-motorized trips are also important to reduce automobile emissions. Bicycles have no carbon emissions, and don't contribute to smog. An average of 1 mile of walking or bicycling by each of the three million households in the Chicago region adds up to savings of more than 1,800 kilograms of VOC emissions. We are seeking to provide a robust transportation system that will work in a number of future energy and environmental scenarios. Bicycle and pedestrian transportation options will be a part of this robust system.

General Benefits of Bicycling¹²

There is growing interest, among both residents and officials in northeastern Illinois, in walking and bicycling as both a means of transportation and a recreational activity. Although, walking continues to decrease as a travel mode here and across the country, there are signs that a reaction to this is beginning to set in, among government and health officials, as well as urban planners and architects. As noted above, walking and bicycling are healthy, efficient, low cost, and available to nearly everyone. They help communities achieve the larger goals of developing and maintaining “livable communities,” making neighborhoods safer and friendlier; reducing transportation-related environmental impacts, mobile emissions, and noise; and preserving land for open space, agriculture, and wildlife habitat. Perhaps most importantly, they provide transportation system flexibility by giving people alternatives in congested conditions and by providing improved multimodal access, particularly in combination with transit systems. There is also growing interest in encouraging walking and bicycling as a means for improving public health. Increasingly, public health organizations are looking to urban, regional, and state transportation planners to create more walkable and bikeable communities in order to encourage healthier lifestyles across the United States.

Transportation System Flexibility and Connections to Transit

¹² This section is taken in large part from the report entitled, “Pedestrian and Bicycle Facilities in California: A Technical Reference and Technology Transfer Synthesis for Caltrans Planners and Engineers”, July 2005. Available at: http://www.dot.ca.gov/hq/traffops/survey/pedestrian/TR_MAY0405.pdf

There are many benefits of integrating bicycle, pedestrian, and transit methods of travel. Transit enables the bicyclist or pedestrian to take longer trips. Adequate non-motorized facilities enlarge transit's catchment area. Transit enables the bicyclist or pedestrian to pass over or through topographical barriers. Good bicycling and walking facilities that complement a comprehensive transit system create a transportation synergy that can provide people access to work, school, shopping, and other desirable destinations, while at the same time relieving automobile congestion on the roadways. In the state of California, after bike racks were installed on Caltrain (the San Francisco-San Jose commuter rail system) a 4% ridership increase was attributed to bicyclists (Ciccarelli, 1998). In 1999, Denver's Regional Transportation District (RTD) conducted a survey of bicyclists who utilized the bike racks on buses. Survey results showed that approximately 50% of the bike-on-bus trips were transit passengers that would not make the trip on transit if it were not for bike racks (Epperson, Kent. RTD Bike-n-Ride Survey. December 1999).

Health

Bicycling and walking are excellent ways to improve cardiovascular health and help prevent chronic diseases associated with excessive body weight. A 2001 National Health and Nutrition Examination Survey (NHANES) reported that 64% of Americans are either overweight (34%) or obese (30%), conditions associated with heart disease, certain types of cancer, type II diabetes, increased risk of stroke, arthritis, breathing problems, and psychological disorders such as depression. Nationally, this trend has increased dramatically over the past decade: in 1991, only four of 45 states had obesity rates of 15% to 19%. No states had rates in excess of 20%. In 2000, 49 states (all but Colorado) had obesity rates in excess of 15% and 22 of the 49 participating states had obesity rates of 20% or greater. Illinois' rate of adult obesity increased from 12.7% in 1991 to 20.5% in 2001¹³.

The National Center for Disease Control (CDC) recommends at least 30 minutes of brisk activity five days per week to maintain cardiovascular fitness and control weight. Other organizations recommend at least one hour of physical activity per day. Currently, fewer than one third of adults meet the recommended amount of physical activity. In fact, 40% of American adults lead sedentary lifestyles, participating in no leisure time physical activity at all (Office of the Surgeon General, 2001). Improving bicycling conditions and increasing bicycle usage will help the region and its communities overcome this problem.

Bicycling or walking to work, the store, or to visit friends are excellent ways to integrate exercise into one's daily activities. Nationally – as is the case in our own region (see pp. 10-11 above) – studies show that many trips made by American households are within comfortable bicycling or walking distance. Almost half (49%) of all trips are shorter than three miles, 40% are shorter than two miles, and 28% are shorter than one mile.

¹³ CDC, Behavioral Risk Factor Surveillance System, 1991 – 2001. See http://obesity1.tempdomainname.com/subs/fastfacts/obesity_US.shtml

Environment

Bicycling (and walking) are important to the health of all residents of northeastern Illinois, not just to those doing the walking or cycling. Bicycle travel spares the air many tons of greenhouse gases and hundreds of pounds of inhalable particles each day. People bicycling or walking are typically replacing shorter automobile trips, which contribute disproportionately high amounts of pollutant emissions. As modes of travel, bicycling and walking contribute no pollution, require no external energy source, and use land efficiently. They move people effectively from place to place without adverse environmental impacts.

As noted above, bicycling and walking can also help alleviate congestion and stressed transportation systems. Nationally, the number of vehicle miles traveled (VMT), rates of car ownership, and trips have continued to rise, which has increasingly strained our transportation systems (primarily roadways) and contributed to ever-worsening congestion (NPTS, 2003). By replacing automobile trips, bicycling can mitigate congestion and environmental damage. Bicycling and walking require less space and infrastructure than automobile facilities – 10 to 12 bicycles can fit into a single automobile space. As a mode of travel, bicycling corresponds to and works synergistically with compact, sustainable development patterns.

Community

As the urban theorist and author Jane Jacobs noted, “People love activity, not emptiness.” Both bicycling and walking allow people to get outside and interact with one another. They fill the public realm with activity, create opportunities to speak with neighbors, and provide more “eyes on the street” to discourage crime and violence. Increasing the ease and comfort with which residents can bicycle is also good for families with children. A bicycle enables a young person to explore his or her neighborhood, visit places without being driven by parents, and experience the freedom of personal decision-making. More trips by bicycle and on foot means fewer trips by car. This, in turn, can mean less traffic congestion around schools and in the community, as well as less time spent by parents chauffeuring kids around.

Approximately 3.5 million households – representing 7 million youngsters – spend an hour or less a week in some type of physical activity. A study conducted for the Boys & Girls Clubs of America and the Pennsylvania-based nonprofit group KidsPeace found 54% of respondents said they had little or no time, or wished they had more time, to spend in physical activities with their kids. Riding a bicycle or walking a child to school, or simply around the neighborhood after dinner, can give parents and kids one-on-one time to talk and spend meaningful, healthy time with one another.

In summary, bicycling is people-powered and human-oriented. Travel by bicycle brings people into closer, more meaningful contact with their surroundings than travel by automobile. While the geographic sphere within which one travels is generally smaller,

bicycling allows one to know that sphere better, to observe the physical and social elements of one's neighborhood – to more easily stop, take note, greet, help, or exchange information with others.

Economy

A number of studies have looked at the high economic cost of automobile travel (even without externalities factored in) to individuals and communities, as compared to travel by bicycle or transit. The strong connection between auto-dependent, sprawl development and higher costs for transportation has been studied in a report by the Center for Neighborhood Technology and the Surface Transportation Policy Project entitled "Driven to Spend: Pumping Dollars out of Our Households and Communities."¹⁴ This study found that households in automobile-dependent communities devote more than 20% of household expenditures to surface transportation (more than \$8,500 annually), while those in communities with more accessible land use and more multi-modal transportation systems spend less than 17% (less than \$5,500 annually), representing a savings of thousands of dollars a year.

Bicycling (and walking) are, then, relatively inexpensive means of travel, costing the individual as little as \$0.07 and \$0.04 per mile respectively (in 1996 dollars) (Litman, 2003), while automobile cost averages \$0.32 per mile.

In addition to providing direct savings to users, bicycling (and walking) may provide numerous economic benefits to the community at large. A comprehensive trail system, bikeway, or a continuous sidewalk network can increase community livability and economic vitality, improving access to shopping, employment, and increasing property values, thereby benefiting the local economy through increased tax revenues (Litman, 2002). In a survey of business owners in an urban retail district, Drennen (2003)¹⁵ found that 65% consider arterial bike lanes to provide overall economic development benefits, compared with 4% that consider it overall negative, and 65% support expansion of the program in their area.

Car vs. Bike Costs (per mile cost, Boston, MA area)	Single Occupancy Vehicle Costs	Bike Costs
Depreciation/financing	20.1¢	4.5¢
Insurance	12.1¢	n/a
Registration/licensing/taxes	1.3¢	n/a
Gasoline/oil	6.8¢	n/a
Repairs/parts/tires	3.3¢	3.1¢
Parking - user paid	4.7¢	n/a
Parking - home	15.7¢	.6¢
Total User Costs	66.5¢	9.6¢
Total Government Costs	9.8¢	.7¢
Total Societal Costs	17.4¢	2.3¢
Total of All Costs	93.8¢	12.8¢

Source: Ken Kifer, <http://www.kenkifer.com/bikepages/advocacy/autocost.htm>

¹⁴ Available online at: <http://www.transact.org/report.asp?id=236>

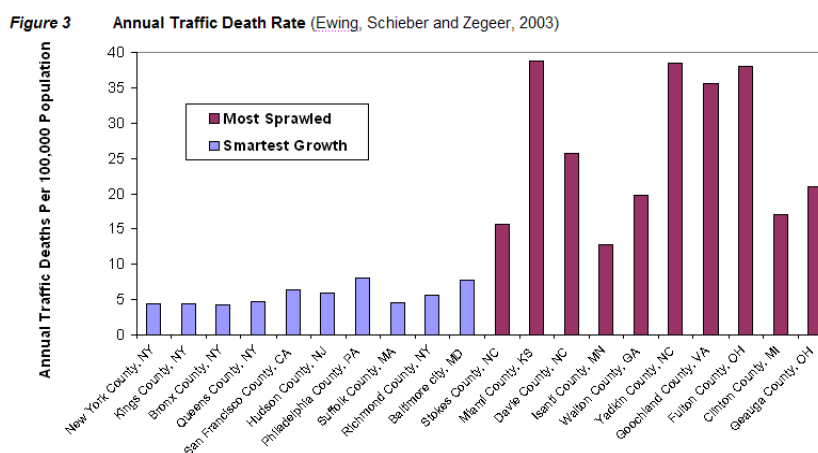
¹⁵ Emily Drennen (2003), *Economic Effects of Traffic Calming on Urban Small Businesses*, Masters Thesis, San Francisco State University.

The societal, or public, costs of bicycling versus automobile travel show an even greater discrepancy between them. These costs indicate clearly that increasing bicycling (and walking) in a community can have substantial economic benefits for the community at large. In addition to lower infrastructure, maintenance, and operation costs, a comprehensive trail system, bikeway system, or continuous sidewalk network can increase community livability and economic vitality, improving access to shopping, employment, and increasing property values – thereby benefiting the local economy through increased tax revenues (Litman, 2002). In a report entitled, “The Benefits of Bicycling in Minnesota,” the author summarizes the estimated annual economic benefits of bicycling for the state of Minnesota thus:

TABLE 4.1: Estimates of Total Annual Benefits of Bicycling in Minnesota			
	Total benefits	Adults	Children
User non-monetary	\$240 million	\$130 m.	\$110 m.
Reduced medical costs	\$24 million	\$13 m.	\$11 m.
Productivity gains	\$8 – 24 million	\$8 – 24 m.	\$0
Economic impacts Approx.	900 jobs, \$30 million payroll		
Minor benefits Approx.	\$3 m.	\$2.5 m.	\$0.5 m.

A list of and links to various articles and studies on the economic benefits of bicycling is available at the University of Minnesota, Hubert H. Humphrey Institute of Urban Affairs’ website: http://www.hhh.umn.edu/centers/slp/bike_economic_benefits.html

Included in the benefits above are ‘Reduced medical costs’. The reduction in these costs which can accrue to a society or a community as a result of increasing bicycle usage, points both to the high degree of danger inherent in automobile travel¹⁶, and to the physical and mental health problems which can result from a sedentary lifestyle. This in turn points to the crucial connection between transportation and land uses. When communities develop in ways and forms that result in nearly complete automobile dependency, the annual traffic death rate show a dramatic increase:



The ten U.S. communities ranked least sprawled have much lower annual traffic fatality rates than the ten communities that are ranked most sprawled.

¹⁶ “From the 2002 National Center for Health Statistics (NCHS) data, it was determined that motor vehicle traffic crashes were the leading cause of death for every age 3 through 33. Because of the young lives consumed, motor vehicle traffic crashes ranked 3rd, behind only cancer and diseases of the heart, in terms of the years of life lost, i.e., the number of remaining years that the person is expected to live had they not died.”, NHTSA Report No. DOT HS 809 843, June 2005.

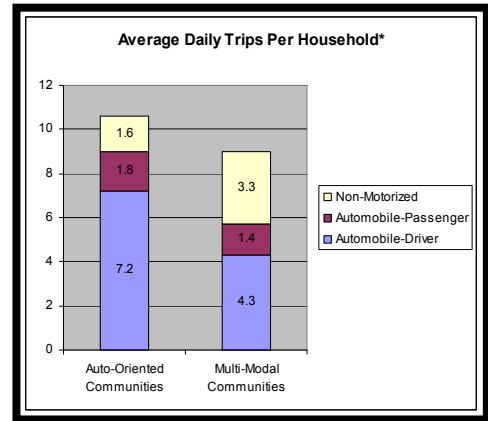
Summary: Implementation Effects

In summary, and in answer to our initial research question, *“What effects, in our region and in its communities, would the improvement of conditions for bicycling have?”* we may offer the following answers, divided into the major issue areas that CMAP’s Regional Comprehensive Plan will address:

1. Economic and community development
 1. Supports small business activity and local commercial, retail, and services
 2. Helps create/maintain “eyes on the street”, neighborhood/community identity and pride, and closer, more detailed knowledge among residents of their neighborhood and community, which in turn enhances safety.
 3. Lowers transportation costs (individual and societal/external)
1. Environment and natural resources
 1. Helps reduce air pollutants
 2. Reduces energy/oil consumption
 3. Reduces factors contributing to both global warming/climate change and to localized, urban heat island effect
 4. Prevents water quality damage through runoff (from roadways) of automotive pollutants
 5. Contributes to creation of linear open space and greenways
 6. Lowers noise pollution levels
2. Housing
 1. Synergy with and support to compact, dense, and multi-family housing
 2. Supports ethnically, socially, and economically diverse communities
3. Human services
 1. Promotes mobility/access equity for handicapped, low-income, youth, and senior populations
 2. Helps create physical and mental health through physical activity and social interaction.
4. Land use
 1. Supports compact, dense, mixed-use development
 2. Helps “create place” and social interaction
 3. Helps enliven street and create positive, active “street life”
 4. Helps create/maintain “human scale” in neighborhoods and communities
5. Transportation
 1. Relieves congestion
 2. Creates safer roads through lower speeds
 3. Strong synergy with and support to transit use
 4. Reduces individuals’ and communities’ dependence on automobiles.
 5. Creates multi-modal system (i.e. choices)

Conclusion

The connection between land use and transportation – which was the impetus behind the creation of CMAP itself and which will serve as the theoretical foundation and guiding principle of CMAP’s Regional Comprehensive Plan – is embodied and epitomized in the strategy of improving and increasing opportunities for bicycling in individual communities and throughout the region. In conjunction with other non-motorized modes of travel, a strong commitment to developing bicycling facilities and programs offers communities an important and effective way to address many of the challenges they face, not only in terms of transportation mobility and access, but also as regards environmental health and the protection of finite natural resources, public health and the physical fitness of residents, equitable travel opportunities, overall livability, and ultimately, the long-term desirability and sustainability of our communities.



* B. Friedman, S. Gordon and J. Peers, "Effect of Neotraditional Neighborhood Design on Travel Characteristics," *Transportation Research Record 1466*, 1995, pp. 63-70.

BICYCLING

APPENDIX A: Resources, Information, Research

WEBSITES:

Pedestrian & Bicycle Information Center (PBIC)

www.pedbikeinfo.org
www.bicyclinginfo.org
www.walkinginfo.org

National Center for Bicycling & Walking (NCBW)

www.bikewalk.org
www.activelivingresources.org

US DOT FHWA Bicycle & Pedestrian Program

<http://www.fhwa.dot.gov/environment/bikeped/index.htm>

US DOT FHWA Highway Safety Research

<http://www.tfhrc.gov/safety/pedbike/index.htm>

International Bicycle Fund

www.ibike.org

The League of American Bicyclists

www.bikeleague.org

The League of Illinois Bicyclists

www.bikelib.org

America Bikes

<http://www.americabikes.org>

Bikes Belong

<http://www.bikesbelong.org>

Association of Pedestrian and Bicycle Professionals (APBP)

<http://www.apbp.org>

The Thunderhead Alliance

<http://www.thunderheadalliance.org/>

Rails to Trails Conservancy

<http://www.railtrails.org/index.html>

trailnet.org

http://www.trailnet.org/transport_why.php?PHPSESSID=b61ab62d456b08cb384b9717e787e279

Chicagoland Bicycle Federation

www.biketraffic.org

CMAP (CATS) Bicycle and Pedestrian Plan

<http://www.solesandspokes.com/>

National Highway Traffic Safety Administration

<http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.810acae50c651189ca8e410dba046a0/>

and

<http://www.nhtsa.dot.gov/portal/site/nhtsa/menuitem.dfedd570f698cabbbf30811060008a0c/>

Center for Disease Control

<http://www.cdc.gov/healthyplaces/>

DOCUMENTS (BOOKS, ARTICLES, FACTSHEETS, ETC.):

CMAP

“Soles & Spokes Bicycle and Pedestrian Plan

Task 2 Report: Existing Conditions and Regional Trends”

(Link: http://www.solesandspokes.com/current_home.html)

See especially pp. 46 ff.

CMAP

“Soles & Spokes Bicycle and Pedestrian Plan

Task 3 Draft Report: Best Practices”

(Location on CMAP Network:

O:\Shared\Planning\PlanDevelopment\Bikeped\regionalbikepedplan\task3\Task3Draft4parts1to4.pdf)

CMAP

“Regional Transportation Plan” (Capital Elements Update, 2007)

(Link: http://www.sp2030.com/2030_RTP_Capital_Element_Update.pdf)

See Bicycle and Pedestrian Strategic System, pp. 54-57.

American Association of State Highway Officials (AASHTO)

“Guide for the Development of Bicycle Facilities, 3rd Edition”

(Link: https://bookstore.transportation.org/item_details.aspx?ID=106)

Provides information on the development of new facilities to enhance and encourage safe bicycle travel. Planning considerations, design and construction guidelines, and operation and maintenance recommendations are included.

American Association of State Highway Officials (AASHTO)

“Guide for the Planning, Design, and Operation of Pedestrian Facilities, 1st Edition”

(Link: https://bookstore.transportation.org/item_details.aspx?ID=119)

Provides guidance on the planning, design, and operation of pedestrian facilities along streets and highways. Specifically, the guide focuses on identifying effective measures for accommodating pedestrians on public rights-of-way. Appropriate methods for accommodating pedestrians, which vary among roadway and facility types, are described in this guide. The primary audiences for this manual are planners, roadway designers, and transportation engineers, whether at the state or local level, the majority of whom make decisions on a daily basis that affect pedestrians. This guide also recognizes the profound effect that land use planning and site design have on pedestrian mobility and addresses these topics as well.

“Context Sensitive Solutions in Designing Major Urban Thoroughfares for Walkable Communities: An Institute of Transportation Engineers (ITE) Proposed Recommended Practice”

(Link: <http://www.ite.org/bookstore/RP036.pdf>)

“Whose Roads? Defining Bicyclists’ and Pedestrians’ Right to Use Public Roadways”

By Todd Litman, Victoria Transport Policy Institute (November 2004)

(Link: <http://www.vtpi.org/whoserd.pdf>)

“Pedestrian and Bicycle Planning: A Guide to Best Practices”

By T. Litman, R. Blair, B. Demopoulos, N. Eddy, A. Fritz, D. Laidlaw, H. Maddox, K. Forster (October 2002)

(Links: <http://www.vtpi.org/nmtguide.doc> and Appendices, <http://www.vtpi.org/nmtappen.doc>)

“Cycling Safety on Bikeways vs. Roads”

By John Pucher, Transportation Quarterly, vol. 55, no. 4, 2001

(Link: <http://www.vtpi.org/puchertq2.pdf>)

“Active Transportation Policy Issues: Background”

By T. Litman, Victoria Transport Policy Institute (April 2003)

(Link: http://www.vtpi.org/act_tran.pdf)

“Quantifying the Benefits of Nonmotorized Transportation for Achieving Mobility Management Objectives”

By Todd Litman, Victoria Transport Policy Institute (November 2004)

(Link: <http://www.vtpi.org/nmt-tdm.pdf>)

“Making Walking and Cycling Safer: Lessons from Europe”

By J. Pucher and L. Dijkstra, Department of Urban Planning, Rutgers University (Feb. 2000)

(Link: <http://www.vtpi.org/puchertq.pdf>)

“Promoting Safe Walking and Cycling to Improve Public Health: Lessons from The Netherlands and Germany”

By J. Pucher and L. Dijkstra, *American Journal of Public Health*, Vol. 93, No. 9, September 2003

(Link: <http://www.vtpi.org/AJPHpucher.pdf>)

“Cycling Improvements: Strategies to Make Cycling Convenient, Safe and Pleasant”

Transportation Demand Management (TDM) Encyclopedia

(Link: <http://www.vtpi.org/tdm/tdm93.htm>)

“Economic Value of Walkability”

By T. Litman, Victoria Transport Policy Institute (October 2004)

(Link: <http://www.vtpi.org/walkability.pdf>)

“Network Evaluation Tool to Improve Real and Perceived Bicycle Safety”

By M. Klobucar and J. Fricker, CD-ROM, TRB, 2007

(Link: <http://ntlsearch.bts.gov/tris/search.do?b1=1&f1=0&t1=kw%3Abicycling&r=1&d=tr&p=7&z=1&s=yr&o=1&new=n>)

Bicycles offer a promising transportation alternative to private motor vehicles, especially in areas with congestion, poor air quality, and high fuel prices. The study on which this paper is based sought rational methods for evaluating the benefits of incorporating bicycle-friendly features into highway project designs. Data on recent bicycling fatalities and other collisions involving bicyclists in Indiana were analyzed to determine factors that could help to explain the incidents and offer insights into countermeasures or remedies. A Bicycle Network Analysis Tool was developed to assess the level of service offered to bicyclists in a study area. The tool uses route length and measures of perceived safety to quantify the bicycle friendliness of a street network. The tool can be used to compare networks and assist in the selection of locations for bicycle facility improvements.

“Testing the Effectiveness of Bicycle and Pedestrian Access Improvements in Reducing Commute Vehicle Trips”

By W. Loudon, M. Roberts, and S. Kavage, CD-ROM, TRB, 2007

(Link: <http://ntlsearch.bts.gov/tris/search.do?b1=1&f1=0&t1=kw%3Abicycling&r=1&d=tr&p=9&z=1&s=yr&o=1&new=n>)

DKS Associates has led the development of the tool called the TDM Effectiveness Evaluation Model (TEEM) to help the Washington State Department of Transportation evaluate transportation demand management (TDM) strategies. DKS has included in TEEM a method for evaluating the effect of improving bicycle and pedestrian access to employment sites through physical improvements. The tool was based on research conducted by DKS and OTAK on the existing level of bicycle and pedestrian accessibility for all employers in King County that are participating in the State’s Commute Trip Reduction program. The research team developed an index of accessibility for both bicycle access and pedestrian access based on the extent of physical infrastructure to accommodate commuting by the two modes. Data on commute mode to work for all of the employees in the CTR database for King County was then correlated with the index values to produce a functional relation between the two. Estimates were also developed for the costs per acre of raising an index value one unit for an area. With these research results, it is possible to estimate the change in walk and bicycle commute mode shares that would result from a specified percentage increase in the index values and the cost of doing that. The new tool has been used to test the cost-effectiveness of bicycle and pedestrian improvements relative to other TDM options in the I-405 corridor of the Central Puget Sound region.

“Why--and How--Pedestrians and Bicycles Count”

By D. Ragland, Traffic Safety Center Online Newsletter Vol. 3, No. 3, 2006

(Link: <http://www.tsc.berkeley.edu/html/newsletter/fall2006/pedestrians.html>)

The director of the Traffic Safety Center at the University of California at Berkeley explains in this article the need for the California Department of Transportation (Caltrans) to better understand the role of human factors and driver behavior in pedestrian and bicycle injuries and fatalities. California has a higher percentage of pedestrian fatalities per overall traffic fatalities than the national percentage. The state also has a disproportionate share of pedestrian fatalities compared to its mileage. The director proposed the state undertake a variety of research, including pedestrian exposure. He also described a pedestrian volume crash map analysis of Oakland that showed that the rate of pedestrian crashes decreased as pedestrian volume increased, a phenomenon that needs more understanding.

“Walkability Improvements: Strategies to Make Walking Convenient, Safe and Pleasant”

Transportation Demand Management (TDM) Encyclopedia

(Link: <http://www.vtpi.org/tdm/tdm92.htm>)

“Walking and Cycling Encouragement: Strategies That Encourage People To Use Nonmotorized Transportation”

Transportation Demand Management (TDM) Encyclopedia

(Link: <http://www.vtpi.org/tdm/tdm3.htm>)

US EPA, TRAQ Technical Overview Transportation Air Quality Center

“Transportation Control Measures: Bicycle and Pedestrian Programs”

(Link: <http://www.epa.gov/otaq/stateresources/rellinks/docs/S98002.pdf>)

Surface Transportation Policy Project

“From the Margins to the Mainstream: A Guide to Transportation Opportunities in Your Community”

(Link: http://www.transact.org/PDFs/margins2006/STPP_guidebook_margins.pdf – See especially *Livability Opportunity #3: Improve Multi-modal Transportation and Public Health through Bicycling and Walking*, pp. 53-55)

Surface Transportation Policy Project

“Americans' Attitudes toward Walking and Creating Better Walking Communities”

(Link: <http://www.transact.org/report.asp?id=205>)

PedSafe: Pedestrian Safety Guide and Countermeasure Selection System

US DOT, FHWA (FHWA-SA-04-003), September 2004

How to Develop a Pedestrian Safety Action Plan

US DOT, FHWA (FHWA-SA-05-12), February 2006

Center for Disease Control

“Urban Sprawl and Public Health”

By H. Frumkin, MD, DrPH (May-June 2002)

(Link: <http://www.cdc.gov/healthyplaces/articles/Urban%20Sprawl%20and%20Public%20Health%20-%20PHR.pdf>)

Improving Conditions for Bicycling and Walking: A Best Practices Report

Rails-to-Trails Conservancy and APBP for FHWA, January 1998

(Link: http://www.walkinginfo.org/task_orders/to_5/intro.pdf)

Pedestrian and Bicycle Information Center – bicyclinginfo.org

“Policy and Planning : Benefits of Bicycling”

(Link: <http://www.bicyclinginfo.org/pp/benefits/printerversion.cfm>)

Pedestrian and Bicycle Information Center – walkinginfo.org

“Policy and Planning : Benefits of Walking”

(Link: <http://www.walkinginfo.org/pp/benefits/printerversion.cfm>)

Factsheet: The Economic Value of Active Transportation

By Ryan Snyder Associates (RSA), LLC

(Link: <http://www.rsa.cc/images/EconomicValueOfActiveTransportation.pdf>)

League of American Bicyclists

Action Plan for Mayors of Bicycle-friendly Communities

(Link: http://www.bicyclefriendlycommunity.org/symp_actionplan.htm)

British Medical Journal (BMJ) – Articles on Cycling and Health

(Link: <http://www.bmj.com/cgi/content/full/320/7239/888>)

**Toronto, Ontario – York University, Faculty of Environmental Studies
“The Bicycle and Urban Sustainability (2003)”**

(Link: http://www.yorku.ca/fes/research_pub/pubs/pdf/david_tomlinson.pdf)

**University of Minnesota – Hubert Humphrey Institute of Public Affairs
Comprehensive Bibliography of Bicycle Benefit and Cost Research**

(Links: <http://www.hhh.umn.edu/centers/slp/bike/index.html> and
<http://www.hhh.umn.edu/centers/slp/bike/bibliography.html>)

**University of Minnesota – Hubert Humphrey Institute of Public Affairs
“The Benefits of Bicycling in Minnesota”**

(Link: <http://www.lrrb.org/pdf/200450.pdf>)

“Analysing the Benefits and Costs of Bicycle Facilities via Online Guidelines”

By K. Krizek, G. Poindexter, G. Barnes & P. Mogush

(Link: <http://carbon.cudenver.edu/~kkrizek/pdfs/Benefits%20costs%20via%20guidelines.pdf>)

Online Tool: Benefit-Cost Analysis of Bicycle Facilities

<http://www.bicyclinginfo.org/bikecost/>

“The Economic and Social Benefits of Off-Road Bicycle and Pedestrian Facilities”

National Bicycle and Pedestrian Clearinghouse Technical Brief

(Link: http://www.imba.com/resources/science/econsoc_benefits.html)

LOCAL PROGRAMS (EXAMPLES/SAMPLES):

City of Chicago (Bicycle and Pedestrian)

- Bike 2015 Plan (2006) – <http://www.bike2015plan.org/>
- Chicago Bike Map – <http://www.cityofchicago.org/Transportation/bikemap/keymap.html>
- Bike to Work Manual – http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/BTWmanual-1.pdf
- Safe Bicycling in Chicago Brochure – http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/Safe_Bicyclin_in_Chicago_1.pdf
- Chicago Bike Lane Design Guide – http://egov.cityofchicago.org/webportal/COCWebPortal/COC_EDITORIAL/bike_lane.pdf
- Bikes on CTA – <http://transitchicago.com/downloads/brochures/biketran.pdf>
- Complete Streets Policy Statement – http://egov.cityofchicago.org/city/webportal/portalContentItemAction.do?BV_SessionID=@@@1329603158.1179242691@@@&BV_EngineID=ccceaddkl efefjhcefcclldffhdfn.0&contentOID=536948233&contentType=COC_EDITORIAL&topChannelName=SubAgency&blockName=Chicago+Bike+Program%2FComplete+Streets+Policy%2FI+Want+To&context=dept&channelId=0&programId=0&entityName=Chicago+Bike+Program&deptMainCategoryOID=536884032

- Chicago Bike Parking Program –
http://egov.cityofchicago.org/city/webportal/portalDeptCategoryAction.do?BV_SessionID=@.@.@1329603158.1179242691@@@@&BV_EngineID=ccceaddklefefjhcefecelldffhdfn.0&deptCategoryOID=-536884025&contentType=COC_EDITORIAL&topChannelName=SubAgency&entityName=Chicago+Bike+Program&deptMainCategoryOID=-536884025
- City of Chicago Department of Transportation Pedestrian Program –
<http://www.chicagowalks.org/pfc.shtml>
- Walking Magazine's 'Best Walking Communities' (2000)
http://www.active.com/story.cfm?story_id=96

Schaumburg (Bicycle)

- Schaumburg Bikeways Plan Map (2000) –
http://northwestsuburbs.us/gwdb/gov/Community/Schaumburg/VillageofSchaumburg/Schaumburg-BikewaysMap_2000.pdf
- Online (GIS) Map (including bikeways layer) –
<http://vhiis.ci.schaumburg.il.us/website/external/index.aspx>
- Bicycle Friendly Community Award –
http://www.bicyclefriendlycommunity.org/press_schaumburg.htm
- From Village of Schaumburg's Community Profile (2006):
"85 miles of on-street and off-street bike paths exist within the Village."

and,

"In addition to its fine roadway and mass transit systems, Schaumburg has perhaps the most extensive bikeways network in the Chicago metropolitan region. This system currently contains approximately 85 miles of bike paths for the enjoyment of village residents. Approximately half of the total bikeway miles are Class I off-street paths and the other half are Class II on-street bike paths.

The bikeways network will further increase in future years, providing residents with an alternative form of transportation for travel to shopping and employment areas, or to simply relax and enjoy. To ensure the safety, and to maximize the enjoyment of bicyclists, over one-half of this network is to be comprised of off-street pathways that separate bicycle and motor vehicle traffic.

Naperville (Pedestrian and Bicycle)

- Bicycle and Pedestrian Transportation --
http://www.naperville.il.us/index_template.aspx?id=221
- Bicycle Implementation Plan –
http://www.naperville.il.us/dynamic_content.aspx?id=1463#Background
- Bicycle Implementation Map (2006) –
<http://www.naperville.il.us/emplibrary/BPACMapAugust0406.pdf>
- School Walk Routes (and Maps) –
http://www.naperville.il.us/dynamic_content.aspx?id=283#Maps
- Naperville Strategic Plan Initiatives – Transportation
http://www.ci.naperville.il.us/dynamic_content.aspx?id=779#Transportation
- Walking Magazine's 'Best Walking Communities' (2000)
http://www.active.com/story.cfm?story_id=96

DuPage County (Bicycle)

- Bikeways and Trails Website -- <http://www.dupageco.org/bikeways/>
- DuPage County Regional Bikeway Plan and Summary –
http://www.dupageco.org/bikeways/generic.cfm?doc_id=446

- DuPage County Trail System Improvement Plan – <http://www.dupageco.org/emplibrary/trailplanfinal2003.pdf>
- Du Page County Bikeways Map – <http://www.dupageco.org/emplibrary/TempBikewayMap.pdf>
- Du Page County Multi-use Trail System Map – <http://www.dupageco.org/bikeways/trailGuide.pdf>

Lake County (Bicycle)

- Lake County Year 2020 Transportation Priority Plan: Regional Bicycle Priorities Map – http://www.co.lake.il.us/dot/images/20year/Poster_p4.pdf
- Lake County Bikeway Map – http://www.co.lake.il.us/dot/maps/Lake02_back_Final.pdf

PROGRAMS FROM AROUND THE COUNTRY (EXAMPLES/SAMPLES):

Berkeley, CA:

Bike Plan –

<http://209.232.44.21/transportation/Bicycling/BikePlan/Introduction.html>
<http://webserver.ci.berkeley.ca.us/transportation/Bicycling/BikePlan/plan.pdf>
<http://www.bfbc.org/about/about.php>

QUOTE:

Bicycling benefits everyone

Making Berkeley more bicycle-friendly is in the best interests of everyone:

- *Merchants benefit because bicyclists are regular loyal customers who shop locally. People don't bike to Costco. Bicycles require only one-tenth the parking space of cars, enabling more customers to access stores.*
- *Children benefit from the freedom and independence to travel safely to school, a friend's house, everywhere.*
- *Parents benefit knowing their children are on safe bike routes.*
- *Residents benefit from quieter, safer, friendlier streets.*
- *Bicyclists benefit from their healthy, low-impact, inexpensive mode of transportation.*
- *Disabled people benefit from streets that are friendlier to nonmotorized traffic.*
- *Motorists benefit from reduced traffic congestion and easier-to-find parking. Every bike on the road is one less car on the road to compete with.*
- *EVERYONE benefits from cleaner air, reduced solid waste, reduced noise pollution, and reduced toxic runoff into our creeks and bays.*

Some 15,000 people use bicycles for transportation in Berkeley, making about 100,000 trips each week that might otherwise be made by car. Surveys indicate that more people would switch from cars to bicycles if secure bike parking and safer bike routes were provided.

Madison, WI:

Bike Program –

<http://www.cityofmadison.com/trafficEngineering/bicycling.cfm>

Madison Transportation Plan --

<http://www.madisonareampo.org/Plan%20Elements/bike.pdf>

Madison Plan: Bicycling Benefits –

<http://www.ci.madison.wi.us/transp/Bicycle/sept2000/chapt2.pdf>

Wisconsin State Bicycle Guidance –

<http://ntl.bts.gov/DOCS/wbpg.html>

<http://www.dot.state.wi.us/projects/bike.htm>

QUOTE:

Why Encourage Bicycling

Bicycling is one of the most popular forms of recreation in America - in fact, it's number two over all. It's also one of the best types of aerobic exercise. According to the Bicycle Federation of America, more than 80 million Americans ride bicycles. Further, the bicycle is an economical non-polluting energy efficient means of transportation. Some communities have worked hard to support bike use and, as a result, significant percentages of their work forces commute by bike.

For example, more than 10% of the commute trips in Madison, Wisconsin are made by bike. Other big bicycle cities around the country include Palo Alto, California, Eugene, Oregon, Boulder, Colorado, Missoula, Montana and Gainesville, Florida. By encouraging bicycle use, these cities have reaped benefits, such as improved air quality, reduced traffic congestion, and a healthier citizenry. While some projects they have completed have been expensive, others have not. This brochure is about those mostly inexpensive - but good - ideas.

Portland, OR:

Statewide and Regional –

<http://www.oregon.gov/ODOT/HWY/BIKEPED/planproc.shtml>

http://www.oregon.gov/ODOT/HWY/BIKEPED/docs/or_bicycle_ped_plan.pdf

<http://www.metro-region.org/article.cfm?articleid=121>

<http://www.walknbike.org/site/why.html>

Portland Bicycle Master Plan --

<http://www.portlandonline.com/transportation/index.cfm?a=hbied&c=deibc>

<http://www.portlandonline.com/shared/cfm/image.cfm?id=40414><http://>

QUOTE:

Why a bicycle-friendly community?

- Health and Physical Activity
- Improved Safety
- Reduced Traffic Congestion
- Affordable Mobility

- Improved Quality of Life
- Reduced Auto Dependency
- Conserve Fossil Fuels
- Increased Economic Vitality
- Connect the Community
- Bikes are FUN!

New York, NY:

New York City Bicycle Master Plan –

<http://www.nyc.gov/html/dcp/html/bike/mp.shtml>

<http://www.nyc.gov/html/dcp/html/bike/home.shtml>

Transportation Alternatives Bicycle Blueprint –

<http://www.transalt.org/blueprint/>

<http://www.transalt.org/blueprint/chapter1/chapter1g.html>

Davis, CA:

Davis Bike Plan –

http://www.cityofdavis.org/pw/pdfs/2006_BikePlan_withMaps.pdf

Davis Bike Program –

<http://www.cityofdavis.org/topic/bicycles.cfm>

Paper – “The Davis Model” (by David Takemoto-Weerts)

<http://www.bicyclefriendlycommunity.org/davis1.htm>

Davis: The Best Bicycle Town in North America

<http://www.worldchanging.com/archives/004676.html>

Bike Signals in Davis –

<http://www.bicyclefriendlycommunity.org/davis7.htm>

Palo Alto, CA

<http://www.city.palo-alto.ca.us/transportation-division/bike-trans-plan.html>

<http://www.city.palo-alto.ca.us/transportation-division/bike-index.html>

Other Bike-friendly U.S. Cities:

Eugene, OR

Corvallis, OR

San Francisco, CA

Boulder, CO

Tucson, AZ

INTERNATIONAL PROGRAM (EXAMPLES/SAMPLES):

Muenster, Germany

<http://www.geo.sunysb.edu/bicycle-muenster/index.html>

QUOTE:

Why should a city or suburb encourage bicycle use?

- **Reduce Production of CO₂ the anthropogenic greenhouse gas.** "Covering just 2 percent of the Earth's surface, cities account for roughly 78 percent of the carbon emissions from human activities." http://www.enn.com/enn-news-archive/1999/06/062899/cities_4026.asp
- **Reduce Brown Smog.** [Cyclists plug Santiago streets to protest smog](#)
- **Reduce Traffic.** [Bogota breathes easy on a car-free day](#)
- **Improve Physical Fitness and Health** [An argument for bicycle commuting](#)

What does a city need to do to encourage bicycle use?

- [Provide Separate Bike Paths and an Extensive system of Bike Lanes along Major Streets](#)
- [Place Informative Signs along Bike Ways](#)
- [Have Bike Safety Education and Bike Promotion Programs](#)
- [Provide Bike Racks or other Secure Bike Storage Spaces](#)
- **Vigorously Enforce** [Well Thought Out Laws and Regulations Regarding Bicycle Use](#) **on both Bicycles and Motorized Vehicles**

AGENCIES AND ORGANIZATIONS IN THE CHICAGO REGION INVOLVED IN BICYCLE FACILITY PLANNING, PROMOTION, CONSTRUCTION, AND MAINTENANCE.

Primary:

1. Chicagoland Bicycle Federation
2. League of Illinois Bicyclists
3. Chicago Metropolitan Agency for Planning and the sub-regional Councils of Mayors
4. County and municipal Departments of Transportation, Planning, Public Works, Engineering, Community Development, and Police.
5. Illinois Department of Transportation
6. Illinois Department of Natural Resources
7. Forest Preserve and Conservation Districts
8. State/regional Safe Routes to School Program (and Coordinators)

Secondary:

9. Metropolitan Planning Council
10. Center for Neighborhood Technology
11. Congress for New Urbanism
12. Sierra Club
13. Openlands Project
14. Friends of the Parks
15. Break the Gridlock
16. Transit agencies/providers and railroad companies
17. Chicago Area Runners Association
18. Consortium to Lower Obesity in Chicago Children
19. Environmental Law and Policy Center
20. Chicago Conservation Corp
21. Clean Air Counts
22. Delta Institute
23. Local First Chicago
24. Midwest Energy Efficiency Alliance