

Appendix A Back-Up Data and Information

Appendix A

Appendix A contains background resources to support the assertions in Montpelier in Motion and other useful information of links. These are short summaries of various studies and other on-line info. These short summaries are followed by a few select articles.

ECONOMIC BENEFITS OF WALKING & BICYCLING

WALKING & CYCLING CAN SAVE EUROPEANS OVER \$88 BILLION/YR

-> Active transport makes sense – in today's congested, polluted, and over-priced cities, walking and cycling offer a simple, cheap, and time-effective means of transport. And yet, a recent study by the Centre for Economics and Business Research has found that 1 in 4 adults across Europe is insufficiently physically active, as are 4 out of 5 adolescents. This cannot go on – physical inactivity is costing the European economy over €80 billion (US\$88 billion) per year □ in other words, €5 billion (US\$5.5 billion) more than the world spends on cancer drugs in a year. Not only that, the report reveals that physical inactivity could become a bigger risk to public health than smoking.

The study (The Economic Cost of Physical Inactivity in Europe: <http://bit.ly/1M6DTl6>), commissioned by the International Sport and Culture Association (ISCA) shows that half a million Europeans die every year as a result of being physically inactive. The most common causes of death are diseases linked to a lack of physical exercise, such as coronary heart disease, type II diabetes and colorectal and breast cancer. <http://bit.ly/1IVTsKn>

STREETS AS PUBLIC SPACES AND DRIVERS OF URBAN PROSPERITY

-> A key finding of the "Streets as Public Spaces and Drivers of Urban Prosperity" report is "prosperous cities are those that recognize the relevance of public spaces (with proper layouts) and those which have allocated sufficient land to street development, including sufficient crossings along an appropriate lengthy network. Those cities that have failed to integrate the multi-functionality of streets tend to have lesser infrastructure development, lower productivity and a poorer quality of life." <http://bit.ly/1uXDBmx>

BIKE INFRASTRUCTURE LOWERS CONGESTION & STRETCHES TRANSPORTATION \$

-> USDOT: Many communities across the U.S. have embraced an approach that reduces roadway congestion and stretches our transportation dollars: bicycle

infrastructure. Even better, improving bicycle infrastructure boosts economic growth.

In Texas, for example, the City of Austin estimates that a planned protected bike lane network will increase the city's traffic capacity by 25,000 trips a day (<http://bit.ly/1GKk38q>). And, a report from the New York City DOT shows that installation of protected bike lanes on Columbus Avenue actually led to a 35 percent decrease in vehicle travel time (<http://bit.ly/1yeUe19>)...

Bicycle infrastructure can be a significant contributor to economic growth... a Furman University study "reported increases in commerce ranging from 30 percent to 80 percent for businesses within 250 yards of a greenway, and linked more than 75 percent of Saturday business and 40 percent of weekday business to greenway use."... [<http://1.usa.gov/1dyqZh5>]

MI DOT: ECONOMIC BENEFITS OF BICYCLING STUDY

-> The Michigan Department of Transportation released the second phase of "Community and Economic Benefits of Bicycling in Michigan" (<http://1.usa.gov/1CdfOjQ>) The report, funded by Federal and State planning and research funds, is the second phase of a larger report describing the economic benefits that bicycling events bring to the economy. The new report finds that out-of-state participation in organized bicycling events contributes an estimated \$21.9 million to the State economy.

ANALYSIS OF FISCAL IMPLICATIONS OF MUNICIPAL DEVELOPMENT PATTERNS

-> Over the past 40 years research has shown that low-density, unconnected, development is more costly to the public sector than compact, urban development. Every municipality considering new development should understand the financial implications of these options. How much will it cost to support that new development in coming years? Would the development bring more net revenue if designed differently? These are potentially multi-million dollar questions that no municipality can afford to ignore.

Smart Growth America, a national non-profit, and RCLCO, a national real estate advisory firm, have created a new model designed to help municipalities understand the financial performance of development patterns, and what strategies could generate better returns in the future. They consider a variety of public costs and revenues to help municipal leaders understand how a smart growth approach to development could help improve their bottom line. SGA has used its new model to analyze the fiscal implications of development patterns (The Fiscal Implications of Development Patterns: A Model for Municipal Analysis: <http://bit.ly/1eOCrpF>) in Macon, GA; Madison, WI and West Des Moines, IA. For instance, In Macon, smart growth would generate 4.7 times the fiscal impact as development on the edge of town. [<http://bit.ly/1Ibt7pu>]

UNDERSTANDING SMART GROWTH ECONOMIC SAVINGS & BENEFITS

-> How communities develop can have many direct and indirect impacts. Smart growth policies, which result in more compact, multimodal development, reduce per capita land consumption and the distances between common destinations, which reduces the costs of providing public infrastructure and services, improves accessibility and reduces per capita motor vehicle travel, which in turn provides economic, social and environmental benefits. A new report (Understanding Smart Growth Savings: Evaluating Economic Savings and Benefits of Compact Development, and How They Are Misrepresented By Critics: <http://bit.ly/1FsMq9I>) examines these impacts. It defines smart growth and its alternative, sprawl, summarizes current research concerning their costs and benefits, investigates consumer preferences, and evaluates smart growth criticisms.

STUDY: QUEBEC CYCLE TOURISTS SPEND MORE, STAY LONGER, COME MORE OFTEN

-> Cycle tourists spend more, take frequent trips and travel for longer periods of time than the typical leisure tourist. And because they schedule their trips as early as June and as late as September, cycle tourists are helping to extend Quebec's tourist season. These are some of the highlights of a study released by UQAM's Transat Chair in Tourism. (Study Highlights: <http://bit.ly/1Jkrl8s>)

This study shows that cycle tourists spend 6% more than other leisure travelers, all markets combined, or an average of \$675 per cycling trip in Quebec. The presence of the Route Verte also seems to encourage tourists to cover more distance and/or stay for a longer period of time, thus emphasizing the importance of ongoing development, maintenance and promotion efforts. The connectivity afforded by the Route Verte between the various regions constitutes its key strength. <http://bit.ly/1JpODbw>

ECONOMIC BENEFITS OF NONMOTORIZED TRANSPORTATION

-> White Paper: Evaluating the Economic Benefits of Nonmotorized Transportation (<http://bit.ly/1EUQkYr>) examines potential methods for evaluating the economic benefits from nonmotorized transportation investments: commute cost savings for bicyclists and pedestrians, direct benefits to bicycle and tourism-related businesses, indirect economic benefits due to changing consumer behavior, and individual and societal cost savings associated with health and environmental benefits. This report reviews potential methods for analyzing these different economic benefits at the project, neighborhood, and larger community scale.

REALTORS: WALKABLE COMMUNITIES 4X MORE TAX REVENUE, 41% HIGHER GDP

-> Realtors® from across the country gathered today to learn about the importance and benefits of walkable urban communities in real estate development during a panel organized by the REALTOR® University Richard J. Rosenthal Center for Real Estate Studies. Residential walkable communities generate four times the tax revenue compared to regional and business malls, bringing more value to the area, according

to panelists. "Walkable urban regions in the U.S. have a 41 percent higher Gross Domestic Product over non-walkable regions," said Christopher Leinberger, professor at George Washington University School of Business and president of Locus, a national coalition of real estate developers and investors who advocate for sustainable, walkable urban development in metropolitan areas. [<http://bit.ly/1Gluu5W>]

PARKLET IMPACT ON SIDEWALK VITALITY & LOCAL BUSINESSES

-> The University City District (Philadelphia, PA) published a briefing on "The Case for Parklets: Measuring the Impact on Sidewalk Vitality and Neighborhood Businesses" (<http://bit.ly/1HPTzEb>). This publication examines the economic benefits of converting parking spaces into temporary inviting public spaces with seating and bicycle racks. [<http://1.usa.gov/1L8Te0p>]

ROADS DEPEND ON BUS RIDER, CYCLIST & PEDESTRIAN HANDOUTS

-> The road system used to be largely funded by the gas tax. Gas taxes, tolls, and other fees on driving account for only about half the money spent on the U.S. road system, according to a new report (Who Pays for Roads? How the "Users Pay" Myth Gets in the Way of Solving America's Transportation Problems: <http://bit.ly/1E7nXa2>). [<http://bit.ly/1EWCcCs>]

[See also: A financial analysis by the Center for American Progress found that about four out of 10 U.S. highways don't carry enough traffic to generate sufficient revenue to pay for their maintenance - let alone construction. (Advancing a Multimodal Transportation System by Eliminating Funding Restrictions: <http://ampr.gs/1zLF9Wn>).]

BIKE/PED INVESTMENTS NEAR SCHOOLS REDUCE TRANSPORT COSTS

-> Costs of School Transportation: Quantifying the Fiscal Impacts of Encouraging Walking and Bicycling for School Travel: assesses the potential economic benefits of Safe Routes to School programs in the US context by estimating the annual costs of using motorized transport for short trips to schools, examining real-world examples of the costs savings of SRTS programs, and evaluating land use impacts on school transportation costs using a simulation analysis of school bus routes. Authors found there is potential for school districts and families to reduce transport expenditures through public sector investments in walking and biking infrastructure near schools. We also find that land use context matters and the most cost-effective investments would benefit schools where large numbers of children live within walking distance. [<http://bit.ly/1zzuuxL>]

BIKENOMICS

<http://www.earthshare.org/2014/03/bikenomics.html>

Short interview with Elly Blue about the economics of bicycling. Elly Blue is the author of *Bikenomics*

HEALTH BENEFITS OF WALKING & BICYCLING

DUTCH CYCLING: HEALTH AND RELATED ECONOMIC BENEFITS

-> The famous Dutch obsession with bicycles is clearly paying off – a recent study (Dutch Cycling: Quantifying the Health and Related Economic Benefits: <http://bit.ly/1HYUXXm>) has found that, due to cycling, about 11,000 deaths are prevented each year in the Netherlands and Dutch people have half a year longer life expectancy than the average European. Most importantly, the study clearly shows that Dutch investments in bicycle-promoting policies, such as improved bicycle infrastructure and facilities, are likely to yield a high cost-benefit ratio in the long term.

Health benefits translate into economic benefits of over 5% of Dutch GDP. To calculate the economic health benefits of cycling, HEAT (Health Economic Assessment Tool: <http://bit.ly/1HDgBfi>) uses a standard value of a statistical life (VSL) to monetize the number of deaths per year prevented by cycling. With a Dutch VSL of €2.8 million (US\$3 million) per prevented death, investment in cycling is an extremely wise economic investment. The €0.5 billion (\$.55 billion) per year spent by the Dutch government on road and parking infrastructure for cycling is estimated to yield total economic health benefits of €31 billion (US\$34.13 billion) per year. <http://bit.ly/1K20u1E>

RECREATION FACILITIES NEAR WORK LINKED W/ ACTIVE COMMUTING

-> The recent study "Choice of commuting mode among employees: Do home neighborhood environment, worksite neighborhood environment, and worksite policy and supports matter?" (<http://bit.ly/1Ld5YFG>) bolsters the findings of previous studies, linking residential proximity to transit stops and employer-provided free or reduced-price transit passes to commuters' likelihood of choosing transit, and linking shorter commuting distances and the availability of bike parking at workplaces to commuters' decisions to bike or walk to work.

One new takeaway from the study is the link between active commuting and the availability of free or low-cost recreation facilities in the worksite neighborhood. Facilities like parks, walking trails, bike paths, and recreational centers near worksites could provide an added incentive for commuters to choose active transportation modes by giving them recreational opportunities before or after work. The results of the study can also be used to support arguments that relatively low-cost investments in transportation demand management—such as subsidized transit passes or bicycle parking at worksites—can pay big dividends in both lowering the need for parking and relieving peak-hour congestion. <http://bit.ly/1HEK8FB>

THE PROBLEMS WITH INACTIVITY PASSED TO NEXT GENERATION

"In most developed economies, physical inactivity is so deeply entrenched that it has become the norm. Emerging economies are following fast. The problem is much bigger and its consequences are far more radical than people may realize. Perhaps

most alarming is the fact that the problem, its costs and its consequences are passed forward across generations, creating a cycle of poor physical and emotional health, and tragically wasted human potential." From Designed to Move: A Physical Activity Action Agenda <http://bit.ly/1Oau2c7>

JOURNAL OF PHYSICAL ACTIVITY AND HEALTH: SPECIAL WALKING SUPPLEMENT

-> The Special Supplement to the Journal of Physical Activity and Health: "Walking and Walkability: Approaches to Increase Physical Activity and Improve Health" (<http://bit.ly/1BWvJbm>) highlights approaches to increase population levels of physical activity through walking and improved walkability. The articles focus on 1) improving the physical environment to support walking, such as having safe streets with sidewalks and crosswalks or attractive areas to walk, including nearby trails or parks; and 2) the role of personal motivation for walking which may include walking the dog or walking to nearby destinations, such as public transit, stores, or schools. The entire supplement is available open access: all 18 articles are available free to read and download. For example: "Walking for Transportation: What do U.S. Adults Think is a Reasonable Distance and Time?" (<http://bit.ly/1dw019g>) and "Active Transportation in Kingston, Ontario: An Analysis of Mode, Destination, Duration, and Season Among Walkers and Cyclists" [<http://bit.ly/1ei1wZu>]

AMERICAN JOURNAL OF PREVENTIVE MEDICINE: BUILT ENVIRONMENT, OBESITY

-> "Built Environment Assessment and Interventions for Obesity Prevention: Moving the Field Forward" is the theme for 5 articles in the May 2015 American Journal of Preventive Medicine. They are the result of the 2013 Built Environment Assessment Training Institute (BEAT) Think Tank, which brought together thought leaders in obesity, built environment, nutrition and physical activity and related fields, to discuss the state of the science and practice and identify areas for future research, intervention development and training. (<http://bit.ly/1CIms1H>)

- Introduction (<http://bit.ly/1Nw89TR>)
- Advances in Physical Activity and Nutrition Environment Assessment Tools and Applications Recommendations (<http://bit.ly/1LTWBt0>)
- Food and Physical Activity Environments: An Energy Balance Approach for Research and Practice (<http://bit.ly/1FQ1I8g>)
- Technologies to Measure and Modify Physical Activity and Eating Environments (<http://bit.ly/1LC6dug>)
- Physical Activity and Food Environment Assessments Implications for Practice (<http://bit.ly/1HtH4Ai>)

7 STUDIES: ACTIVE TRANS SATISFACTION, OBESITY, DIABETES & CHRONIC DISEASE IMPACTS

-> It seems that not driving has all sorts of positive health benefits. A recent Canadian study (The Happy Commuter: A Comparison of Commuter Satisfaction across Modes: <http://bit.ly/1EhfoIN>) sorted people by mode of travel — walking,

biking, driving, bus, intercity train, and intracity metro — and found that people who walk, bike, or take the intercity train are more satisfied with their commutes than others.

A 2010 study conducted in Hamilton, Ontario (Enjoyment of Commute: A Comparison of Different Transportation Modes: <http://bit.ly/1JWV841>), found that bikers and walkers were more satisfied with their commutes than anyone else, as did a nationwide Canadian survey (Commuting to Work: Results of the 2010 General Social Survey: <http://bit.ly/1dhpqED>) done the same year.

A British study (Associations between Active Commuting, Body Fat, and Body Mass Index: Population Based, Cross Sectional Study in the United Kingdom: <http://bmj.co/1edalUD>) found that people who walk, bike, or take any form of public transit have lower rates of obesity than people who drive, after controlling for other forms of exercise and socioeconomic factors.

People who walk or bike to work also have lower rates of diabetes (Active Travel to Work and Cardiovascular Risk Factors in the United Kingdom: <http://bit.ly/1Jwnh3R>) and cardiovascular disease (Active Commuting and Cardiovascular Disease Risk: <http://bit.ly/1EhgF2o>). [Biking or Walking to Work will Make you Happier and Healthier by Joseph Stromberg: <http://bit.ly/1AiukLq>] Impact of Changes in Mode of Travel to Work on Changes in Body Mass Index Survey: evidence from the British Household Panel (<http://bmj.co/1JwmIXS>) found that workers who switched from driving to walking, bicycling or taking public transportation had a significant average reduction in body mass index equal to about 2.2 pounds per person. [<http://bit.ly/1c2mRon>]

FHWA INFORMATION

Federal Highway administration page with links to information on the environmental and health benefits of walking & Bicycling.

http://www.fhwa.dot.gov/environment/bicycle_pedestrian/resources/data/benefits_research.cfm

OTHER BENEFITS OF WALKING & BICYCLING

REDUCING CONGESTION VIA FASTER, GREENER & CHEAPER OPTIONS

-> A recent study found that the expansion of alternative modes of transportation could lead to reduced congestion and other benefits, and identified the types of transportation suited to a city or suburb. (Smart Mobility: Reducing Congestion and Fostering Faster, Greener, and Cheaper Transportation Options: <http://bit.ly/1MqkZmk>) Instead of examining the most common alternative to driving — public transit — the study looked at ridesharing services (carpooling), bike commuting, carsharing, and on-demand ride services. The study uses geospatial analytics, such as coupling location data with existing government data, to examine

the potential congestion reduction benefits in major metropolitan areas across the U.S. Congestion reduction could result from the expansion of alternative modes of commuting. <http://bit.ly/1HZrcWx>

MAKING WALKING AND CYCLING ON EUROPE'S ROADS SAFER

-> The European Transport and Safety Council has released a report (Making Walking and Cycling on Europe's Roads Safer) that details data and information about deaths of pedestrians and cyclists on European Union roads between 2001 and 2013 and describes recommended countermeasures. [<http://bit.ly/1IKzzBA>]

IMPACT OF SRTS PROGRAMS ON WALKING AND BIKING

-> The "Impact of Safe Routes to School Programs on Walking and Biking" (<http://bit.ly/1Mk419h>) research review highlights findings from studies conducted in several states and cities that have examined walking or biking rates, safety, and economic issues associated with Safe Routes to School. There is consistent evidence that implementation of SRTS programs is associated with more children walking and biking safely to and from school in a cost-effective manner. Moreover, each additional year of SRTS participation leads to more students walking and biking. While evaluations of SRTS are limited and based on selected states and cities, the evidence from multiple large studies supports continued SRTS programs.

PEOPLE FOR BIKES

Resource page on the various benefits of bicycling and walking
<http://www.peopleforbikes.org/statistics/category/economic-statistics>

DESIGN RELATED INFORMATION

COSTS FOR PEDESTRIAN AND BICYCLE INFRASTRUCTURE IMPROVEMENTS

-> "Costs for Pedestrian and Bicycle Safety Infrastructure: A Resource for Researchers, Engineers, Planners, and the General Public" (<http://bit.ly/1h4fika>) (and its associated database) provides meaningful estimates of infrastructure costs by collecting up-to-date cost information for pedestrian and bicycle treatments from states and cities across the country. . <http://bit.ly/1Daal2Y>

DESIGNED TO MOVE GUIDE TO CREATE ACTIVE CITIES

-> Designed to Move: Active Cities provides evidence of the economic, safety, environmental, health, and social benefits to active cities, as well as proven interventions, and the resources needed for creating them. More than 80 organizations from around the world support Designed to Move, a collaborative framework for action that outlines an approach to increasing physical activity levels globally. [<http://bit.ly/1LeVx5R>]

NINE PUBLIC SPACES LESSONS FROM COPENHAGEN

-> Almost everywhere you look in Copenhagen, you see individuals spending time in public spaces, taking in the delights of their city - including informal public spaces (which are often neglected in other parts of the world)! So what is the secret to their success? Slow Streets shares 9 lessons learned from Copenhagen. [Source: <http://bit.ly/1d0tkR2>]

WIDER LANES MAKE STREETS MORE DANGEROUS

-> A new study (Narrower Lanes, Safer Streets: <http://bit.ly/1AJVv2q>) reinforces the argument that cities need to reconsider lane widths and redesign streets accordingly. In a paper to be presented at the Canadian Institute of Traffic Engineers annual conference, author Dewan Masud Karim presents hard evidence that wider lanes increase risk on city streets. Looking at the crash databases, Karim found that collision rates escalate as lane widths exceed about 10.5 feet. Roads with the widest lanes — 12 feet or wider — were associated with greater crash rates and higher impact speeds. Karim also found that crash rates rise as lanes become narrower than about 10 feet, though this does not take impact speeds and crash severity into account. He concluded that there is a sweet spot for lane widths on city streets, between about 10 and 10.5 feet. [<http://bit.ly/1eOgWVR>]

NEW FROM FHWA: SEPARATED BIKE LANE PLANNING AND DESIGN GUIDE

-> Yesterday FHWA guidance released its Separated Bike Lane Planning and Design Guide (<http://1.usa.gov/1PVn0Y2>). It is the result of two years of research into numerous modern protected bike lanes around the country, in consultation with a team of national experts. Among the many useful images and ideas in the 148-page document is a spectrum of comfortable bike lanes, starting with bike infrastructure that will be useful to the smallest number of people and continuing into the more broadly appealing categories. [<http://bit.ly/1rW2snN>]

DESIGNING ACCESSIBLE PEDESTRIAN FACILITIES

-> The NJ Division of the Federal Highway Administration created a slide presentation on pedestrian accessibility on transportation-related facilities and rights-of-way. [Designing Pedestrian Facilities for Accessibility: <http://bit.ly/1FqbcLR>] Curb cuts and street crossings are covered in detail, with extensive photos marked up with dimensions and critical points. The appropriate laws and guidance are cited and explained for various facilities. [<http://bit.ly/1LfO6s5>]

[See also APBP's Designing Pedestrian Facilities for Accessibility Course: <http://bit.ly/1FlgcAd>]

RESEARCH SYNTHESIS: MAKING THE CASE FOR DESIGNING ACTIVE

-> If you ever spent hours digging for the scientific research supporting livable communities, Active Living Research has synthesized 418 findings from high-quality journal articles and other sources to document the features that are related to physical activity, mental health, social, and environmental benefits. (Making the Case for Designing Active Cities: <http://bit.ly/1F53J6I>) The findings are organized into

five general sections (parks/open space/trails, urban design, transportation, schools, and workplaces/buildings) and include a section on disparities. [Source: <http://bit.ly/1Ifdm3k>]

MORE BIKING W/ NO BIKE LANES MAKES CONGESTION WORSE

-> More bicycle trips mean fewer car trips, which can mean less congestion for people in cars and buses. But a recent study shows that when bicycle use rises but cities don't add bike lanes, traffic congestion actually gets worse. (Quantifying the Total Cost of Infrastructure to Enable Environmentally Preferable Decisions: The Case of Urban Roadway Design: (<http://bit.ly/1JPrhO2>)[<http://bit.ly/1ckQQc9>]

NEW YORK CITY PED INJURIES DOWN 61% AFTER ROAD DIET

-> As in Sunset Park, the Fourth Avenue road diet has yielded impressive street safety dividends for Park Slope, including a 61 percent drop in pedestrian injuries. Now, DOT is moving forward with plans to cast its changes in concrete. Between Atlantic Avenue and 15th Street, the road diet widened medians, shortened crossing distances, and trimmed the number of car lanes from three in each direction to two along most of the street (the northernmost blocks retained the same number of lanes). The changes were implemented using paint and flexible bollards.

After the redesign, pedestrian injuries on this stretch of Fourth Avenue fell 61 percent, total crashes dropped 20 percent, and crashes with injuries were reduced by 16 percent, according to DOT, which compared one year of post-implementation crash data to the prior three-year average (See PowerPoint project report with before and after photos, cross-sections, outcomes: <http://on.nyc.gov/1DgRJZD>). The improvements were especially dramatic at 3rd Street, where crashes fell 41 percent, and at 9th Street, where they fell 59 percent. [<http://bit.ly/1QfyLvp>]

CHICAGO, IL SHARED STREET—NO CURBS, LANE MARKINGS, SIGNAGE

-> To create a safer, more inviting environment for walkers and bicyclists, Chicago is constructing its first “shared street” project. Shared streets, also known as woonerfs or living streets, erase boundaries between uses and question the hard and fast rules that govern driver behavior. The goal is to create a pedestrian and bike-friendly environment by forcing drivers to slow down and pay closer attention to other road users. Rather than using curbs to separate pedestrians from cars, shared streets may use planters, trees, benches, or bollards to reserve portions of the street for pedestrian use. [<http://bit.ly/1K3wAGT>]

WHICH MATTERS MORE—BIKE NETWORK'S CONNECTIVITY OR DENSITY?

-> A pair of researchers at the University of Minnesota recently set out to test the theory that a connected bike network — where bike lanes provide continuous routes between many possible destinations — is a major determinant of how many people bike. What they actually found was a little unexpected. Connected bike infrastructure matters, according to the study, but not as much as the density of bike infrastructure.

(The Missing Link: Bicycle Infrastructure Networks and Ridership in 74 US Cities: <http://nexus.umn.edu/papers/MissingLink.pdf>) “These findings suggest that cities hoping to maximize the impacts of their bicycle infrastructure investments should first consider densifying their bicycle network before expanding its breadth,” the authors concluded. [<http://bit.ly/1E7302A>]

DRIVERS OVER 30 MPH MORE LIKELY TO IGNORE CROSSWALKS

-> A new study (Driver Approach Speed and Its Impact on Driver Yielding to Pedestrian Behavior at Unsignalized Crosswalks: <http://bit.ly/1bsCvtO>) published by TRB, reveals that drivers are nearly four times more likely to yield for pedestrians at travel speeds around 20 miles per hour than at 40 mph. These findings bolster the case for more stringent speed enforcement. However, Tom Bertulis, the study’s lead author, says this work can also improve the way designers deal with unsafe crossings. [<http://bit.ly/1GgI2Ko>]

EVALUATION

BICYCLING PARTICIPATION BENCHMARKING STUDY REPORT

-> People for Bikes’ “U.S. Bicycling Participation Benchmarking Study Report” (<http://bit.ly/1IbDiub>) provides a standard methodological approach for quantifying and tracking bicycle use over time and projected returns on investments to increase bicycle use

CENSUS UNDERCOUNTS WALKING AND BIKING

-> The U.S. Census is the most widely cited source of data about how Americans get around, but it only asks about commute trips, and commuting only accounts for about 16 percent of total household travel. What happens when you measure the other 84 percent? Researchers at the University of Minnesota set out to design a better way to track how people move around the Twin Cities region.

The UMN team found that driving decreased in the region between 2000 and 2010, while biking and walking grew. Cycling rose over that period from 1.4 to 2.2 percent of trips. That’s about 190,000 daily trips, or a 58 percent increase. Meanwhile, walking grew from 4.5 to 6.6 percent of trips, a 44 percent increase, or almost three quarters of a million daily trips. Residents of the Twin Cities region typically make about 12 million total daily trips. What’s especially interesting is that the share of biking and walking trips in the UMN survey is much bigger than what the Census indicates — about two to three times larger. [<http://bit.ly/1rW2snN>]

ONLINE TOOLS

STANFORD HEALTHY NEIGHBORHOOD DISCOVERY TOOL

-> The Stanford Healthy Neighborhood Discovery Tool uses a computerized, tablet-based participatory tool that helps community members identify neighborhood elements that affect active living opportunities. [<http://bit.ly/1QDC81O>]

COMPLETE STREETS TOOLKIT

-> CMAP (Chicago Metropolitan Agency for Planning), in collaboration with the National Complete Streets Coalition and Active Transportation Alliance, has produced a Complete Streets Toolkit. (<http://1.usa.gov/1DgbK2B>) Complete Streets is a transportation policy and design approach that requires streets to be planned, designed, operated, and maintained to enable safe, convenient, and comfortable travel and access for all anticipated roadway users, regardless of their age, abilities, or mode of travel. The Toolkit is intended to serve as a guide for incorporating a Complete Streets approach into local planning, design, and construction processes and documents. [<http://1.usa.gov/1GgUrle>]

CARFREEATOZ APP CONSIDERS MONEY, TIME, HEALTH, ENVIRONMENT

-> A new app is trying to get traffic-weary Washington DC-area travelers to think more holistically about their trips. It's called CarFreeAtoZ.com (<http://bit.ly/1dMRe3C>), the creation of Arlington County Commuter Services, Mobility Lab, and the transit-tech firm Conveyal. The idea behind the website is that saving time and money are only two pieces of a successful commute. What about the effect on your health? On the environment? (Listen to a related 1:11 WAMU news feature: <http://bit.ly/1QINeFc>) [<http://bit.ly/1znB1LY>]

EVERY BODY WALK! MESSAGE TOOLKIT

-> Every Body Walk! is collaborating to develop an engaging consumer message to motivate more people to walk. We identified audience priorities based on health disparities, as well as these audiences' need for more information: low-income White, low-income Latino, low-income Black and people ages 60+. (Also see related PowerPoint presentation: <http://bit.ly/1ziBiQh>) [<http://bit.ly/1KyGVer>]

WHAT'S YOUR LIVABILITY SCORE?

-> Find the Livability Score (<http://bit.ly/1KLi7zG>) of any U.S. address, zip code, town or city name in the AARP Livability Index, a new online tool that calculates a score based on the latest data and indicators about an area's housing, economy, transportation, community services and more. The index is customizable so users can find scores based on the features that matter to them most. [<http://bit.ly/1zA2CcJ>]

ACTIVETRANS PRIORITY TOOL RANKS PED & BIKE IMPROVEMENTS

-> TRB's National Cooperative Highway Research Program (NCHRP) Report 803:

Pedestrian and Bicycle Transportation Along Existing Roads—ActiveTrans Priority Tool Guidebook (<http://bit.ly/1HsqlNb>) presents a tool and guidance to help prioritize improvements to pedestrian and bicycle facilities, either separately or together as part of a “complete streets” evaluation approach. Download a CD-ROM with a programmed spreadsheet to use the ActiveTrans Priority Tool, and a final report documenting the research approach, findings, and conclusions. [\[http://bit.ly/1aQrd1o\]](http://bit.ly/1aQrd1o)

OTHER INFORMATION

HOW TRANSPORTATION CAN CREATE A SENSE OF COMMUNITY

-> For our streets to fulfill the critical "town square" function that is missing in most communities today, they need to be planned and designed appropriately using three essential guidelines: design for appropriate speeds; plan for community outcomes; and think of streets as public spaces. The Project for Public Spaces has identified ten qualities that, in conjunction with the principles described above, contribute to the success of great streets. Check out the descriptions of Attractions & Destinations; Identity & Image; Active Edge Uses; plus 7 other qualities. <http://bit.ly/1K1woeQ>

BIKE SHARING: EVIDENCE ON IMPACTS + REVIEW OF IMPLEMENTATION & OPERATION

-> A recently published report, "Bike Sharing: A Review of Evidence on Impacts and Processes of Implementation and Operation" (<http://bit.ly/1gAnpEK>), reports on the analysis of existing studies and surveys for evidence that supported claims that bike-share shifts people’s mode-share choices, creates new cyclists and diversifies cycling, has economic and health impacts, reduces congestion and single-occupancy vehicle use, and reduces carbon emissions. It also considers the processes by which cities set up and operate bike-share systems. <http://bit.ly/1CF07HF>

HOW SRTS & SAFETY INITIATIVES CAN OVERCOME VIOLENCE & CRIME

-> Another new report from the Safe Routes to School National Partnership, "Taking Back the Streets and Sidewalks: How Safe Routes to School and Community Safety Initiatives Can Overcome Violence and Crime," provides a primer for Safe Routes to School professionals looking to address community safety threats that may discourage or endanger students walking or bicycling to school. In addition, the report is intended to be a reference for those working on violence prevention who are seeking new allies, resources, and approaches in the Safe Routes to School movement. The report examines ways in which Safe Routes to School and community safety efforts overlap and complement each other. The report primarily focuses on approaches to support personal safety for children and teens during the trip to and from school, but broader community strategies are also discussed in the course of providing background and exploring more comprehensive solutions to violence in communities. The report’s overall goal is to increase the safety and health

of children and youth, and ensure that communities become more equitable places. <http://bit.ly/1Ms2aiF>

SEATTLE, WA: POSITIVE REINFORCEMENT TO INCREASE PED/BIKE SAFETY

-> For a few days last week, Seattle DOT staffers, police officers, and local street-safety advocates used positive reinforcement to reward drivers (and bicyclists) who did the right thing and stopped to let people on foot cross the street. They handed out \$5 Starbucks gift cards at an elementary school, a busy bridge crossing, and a protected bike lane downtown. The giveaways were part of Seattle's Vision Zero initiative to reach zero traffic fatalities by 2030. They were funded by a state grant aimed at increasing safety for pedestrians and bicyclists. [<http://bit.ly/1dcBjuH>]

PLANNING POLICY REQUIREMENTS TO OPTIMIZE WALKING OUTCOMES

-> An Australian study is the first to empirically identify a mix of specific and distinguishing planning policy neighborhood design requirements to optimize walking outcomes. These findings will assist in the assessment of urban plans for greenfield suburban developments designed to promote walking and physical activity. (Are we developing walkable suburbs through urban planning policy? Identifying the mix of design requirements to optimize walking outcomes from the "Liveable Neighborhoods" planning policy in Perth, Western Australia: <http://bit.ly/1QD9gH9>)

REALTORS' PLACEMAKING RESOURCES

-> The National Association of Realtors has published a Placemaking Guide that focuses on the details of Placemaking; the kinds of projects Placemaking entails; how to plan and organize projects; and where to go for assistance and more resources. (Placemaking for REALTOR® Associations: Guide to Transform Public Spaces to Community Spaces: <http://bit.ly/1HIjIHI>) Check out NAR's archived Placemaking webinar series. (<http://bit.ly/1JSxWWu>), plus their Placemaking Micro-grants (up to \$2,500, <http://bit.ly/1JPmKLZ>) and Smart Growth Grants (<http://bit.ly/1HII1Xb>).

AUSTIN, TX: MOTIVATIONAL INTERVIEWING GETS DRIVERS TO TRY ALTERNATIVES

-> Movability Austin is a transportation management association that works with downtown employers and employees to promote alternative transportation. They're in the midst of a unique pilot project that uses a decades-old counseling technique called motivational interviewing that's helped people deal with overeating, cigarette and drug addiction, and other problems where will power or logic often isn't enough to change behavior.

Motivational interviewing centers on the idea that every behavior comes with trade-offs. The interviewer asks leading questions to try and get the interviewee to think about and articulate what they're doing now, think about the pluses and minuses of that choice, and consider alternatives. In a month and a half of interviews,

Movability has gotten around 200 people to agree to try a different way of commuting— about 35 percent of the people who've stopped and talked to them. [<http://bit.ly/1KheN1Y>]

QUOTE

"We've got it all wrong, by providing free housing for cars, and expensive housing for people." - Donald Shoup in the most retweeted topic at this year's American Planning Association Conference, <http://bit.ly/1Pok06mM>

BICYCLING TO SCHOOL TOGETHER, A BIKE TRAIN PLANNING GUIDE

-> The National Center for Safe Routes to School and Schwinn's Helmets on Heads program have published "Bicycling to School Together, A Bike Train Planning Guide" (<http://bit.ly/1Kgb4hB>). It provides how-to information and tips on planning a bike train: picking a route, setting a schedule, e

LIABILITY ASPECTS OF PEDESTRIAN FACILITIES

-> Liability Aspects of Pedestrian Facilities (<http://bit.ly/1Kgu3IU>) addresses legal claims that relate to pedestrian facilities, such as sidewalks and crosswalks, and focuses on allegations of violations of the Americans with Disabilities Act (ADA) and lawsuits alleging that a government agency has been negligent in maintaining its facilities. [<http://bit.ly/1GOoYEK>]quipment, bicycling safety skills and more. [<http://bit.ly/1KgbdBd>]

TOP TEN RESOURCES

Top ten resources for walking & bicycling
<http://www.bikewalk.org/links.php>

Appendix B: Bibliography

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Economic Benefits of Bicycle Infrastructure Investments

[AARP Livable Communities](#), June 5, 2013

Overview

The national bicycle industry contributes approximately \$133 billion annually to the U.S. economy by supporting over 1 million jobs, generating nearly \$18 billion in federal, state, and local taxes, and providing nearly \$47 billion for meals, transportation, and lodging purchases during bike trips and tours.

The League of American Bicyclists produced this report to examine the positive impact the bicycle industry and bicycle tourism can have on state and local economies. Additionally, the report discusses the cost effectiveness of investments for bicycle infrastructure, analyzes the cost savings associated with bicycling, and identifies the benefits of bike facilities for local business districts and neighborhoods. The evidence provided in this report demonstrates that investments in bicycle infrastructure may be an effective way to generate tourism, support economic activity, and enhance communities as a whole.

Key Points

Bicycling is a healthy, inexpensive, and environmentally-friendly alternative to driving that can have a substantial impact on state and local economies. Though the automobile is still responsible for the majority of trips made in the U.S., there is increasing attention being paid by citizens and policymakers to bicycling as a viable, cost-effective mode of transportation.

Other report highlights include:

- After investing in proper bicycle infrastructure, North Carolina's Outer Banks region generates \$60 million annually in economic activity through bicycle tourism.
- A 2009 study of a commercial street in Toronto, Ontario demonstrated that promoting bicycling is good for business. According to the study, people who biked or walked to the area reported they spent more money in the area per month than those who drove to the area. Three-quarters of merchants surveyed for the same study believed that business activity would improve or stay the same if a bike lane replaced half of the on-street parking.
- The Texas Transportation Institute states that, "Gridlock costs the average peak period traveler almost 40 hours a year in travel delay, and costs the United States more than \$78 billion each year...traffic jams are wasting 2.9 billion gallons of gas every year."

Full Report

[Economic Benefits of Bicycle Infrastructure Investments \(PDF – 13 MB\)](#)

How to Use

This report makes a strong case for the economic impact the bicycle industry and bicycle tourism can have on state and local economies. Government officials, local leaders, and active transit advocates can use this report as a resource when educating their own locality on the importance of bicycle infrastructure investments. When negotiating for investments in bicycle infrastructure, the “Savings” section of the report, found on page 6, should be used to emphasize the impacts in savings on health, road construction, congestion, and environmental remediation. As examples in the U.S. and abroad demonstrate, a modest shift from driving to bicycling is possible. However, it is unlikely without federal, state, and local investments in bicycle facilities.

View Full Report: [Economic Benefits of Bicycle Infrastructure Investments \(PDF – 13 MB\)](#)



Economic Benefits of Bicycling in Urban Environments

www.marinbike.org

Relevance to the Marin Bicycle Network

Marin County, California is home to some of the best bicycling in the country. Over the past ten years, the Marin County Bicycle Coalition has been working to expand and enhance the bicycle network within the County. Marin County has seen a 118%-125% increase of bicycling over the last 10 years due to bicycle infrastructure improvements such as pathways, bike lanes, shared use lanes, intersection improvements and bicycle parking. It is well documented through research that improved infrastructure results in new riders, and an increase of bicycle traffic near local businesses brings additional customers that may not previously have been on the road in that area due to poor or non-existent bicycling infrastructure.

Reduced Health Costs/Increased Health Benefits

The positive effects of bicycling are well known and have been extensively documented, especially within the public health sector. Health professionals tout that regular bicycling can have significant impacts on a person's well being, leading to weight loss, lowered blood pressure, increased strength and mobility, and ultimately lower healthcare costs both to individuals and society.

Bicyclists Spend Money

In addition, research on economic benefits, by Rutgers Universityⁱ, University of California Davisⁱⁱ, University of Minnesotaⁱⁱⁱ, University of Colorado^{iv}, University of Michigan^v, the National Bicycle Tour Directors Association^{vi}, Local Government Commission^{vii} and numerous state Departments of Transportation^{viii, ix, xi} all echo these basic findings: bicyclists riding through a town will stop and spend money. The Rails-to-Trails Conservancy (www.railstotrails.org) has demonstrated that re-purposing abandoned rail lines into bicycling and walking trails increases tourism dollars spent in each community through which the trail passes^{xii, xiii, xiv}. In addition, the International Mountain Biking Association (IMBA) (www.imba.org), and the Bikes Belong Coalition (www.bikesbelong.org) have both conducted studies concluding that are positive economic impacts to communities when bicycling increases^{xv}.

For example, the Rails-to-Trails Conservancy cites many examples from all over the country, such as:

- Trails and bikeways in Pittsburgh, PA contributing significantly to downtown revitalization, including millions of dollars in economic development.
- After opening of a bikeway in Leadville, CO, the city reported a 19% increase in sales tax revenue.
- The average cyclist that stops to eat spends nearly \$18 in Ohio, \$23 in Colorado, and \$34 in California.
- A study^{xi} of property values along the Mountain Bay Trail in Brown County, Wisconsin shows that lots adjacent to the trail sold faster and for an average of 9 percent more than similar property not located next to the trail.

One factor repeatedly cited by studies is that bicycling is an activity that occurs on a “human scale” – that is, at a speed that allows the cyclists to take in their surroundings and interact with their environment. Within an urban area, this means that cyclists will frequently stop to shop, investigate, and/or discover the area that they are in. Inevitably, this leads to more money being spent within a community.



For example, in communities that have bicycle facilities within a commercial area, the types of establishments that could experience financial benefits include:

- Convenience and drug stores where commuters can pick up items on their way to and from work, or while running errands
- Entertainment establishments within a couple miles of the main bicycle route – such as movie theaters or venues with live music
- Food and drink establishments, especially those offering quick and nutritious meals
- Coffee houses and bakeries for quick and pick-me-up snacks
- Bicycle retail outlets for sales and repairs
- Lodging facilities within two miles of the main bicycle route, through bicycle tourism
- Boutique stores

Communities such as Portland Oregon, Madison Wisconsin, and Davis California have all seen the economic benefits of bicycling.

- In Portland OR, cyclists spend more time and money in the downtown area, as noted by the Bicycle Transportation Alliance. Downtown shoppers report

- feeling less pressed for time due to worries about time remaining on parking meters or hourly rates at parking garages.
- Madison, WI strategically placed bike racks outside many of their businesses in the downtown area and saw a 3% overall increase in sales tax revenues in the areas where they deployed the new bike racks.
 - Davis CA shops command a rent premium along major cycling routes because they bring in so much business.
 - In a 2002 survey of recent homebuyers sponsored by the National Association of Realtors and the National Association of Home Builders, trails ranked as the second most important community amenity out of a list of 18 choices.^{xi}

In conclusion, bicyclists, like motorists, need good infrastructure to help support them. The types of needs include adequate bicycle parking, and safe and convenient roadway infrastructure to create an interconnected bicycle network of bike lanes, paths and routes. Creating such a system will result in economic benefits for local communities in the form of increased customers for businesses, higher sales tax revenues from new purchases, and increases in property values. As such, when decisions need to be made about land use and transportation infrastructure, it's important to note that bicycling brings business.

End Notes

ⁱ "Socioeconomics of Urban Travel: Evidence from the 2001 National Household Travel Survey," Transportation Quarterly, Vol. 57, No. 3, summer 2003, pp. 49-78. (with John Renne).

ⁱⁱ <http://stc.ucdavis.edu/research/>

ⁱⁱⁱ <http://www.lrrb.org/pdf/200450.pdf>

^{iv} <http://www.americantrails.org/resources/economics/biketourismcolo.html>

^v Antonakos, Cathy. (1993). Environmental and Travel Preferences of Cyclists. University of Michigan Doctoral Thesis.

^{vi} Personal conversations between 2004 and 2005.

^{vii} Better Models For Development in California: Ideas for Enhancing Small Towns and Suburban Communities, By: Edward T. McMahon with Shelly Mastran; Published by The Conservation Fund and Local Government Commission

^{viii} http://www.ncdot.org/transit/bicycle/safety/safety_economicimpact.html

^{ix} www.dot.wisconsin.gov/business/econdev/docs/impact-bicycling.pdf

^x www.maine.gov/mdot/opt/pdf/biketourismexecsumm.pdf

^{xi} http://www.railstotrails.org/resources/documents/resource_docs/tgc_economic.pdf

^{xii} Economic Benefits of Trails and Greenways, published by the Rails to Trails Conservancy

^{xiii} http://www.railstotrails.org/resources/documents/whatwedo/TrailLink%2007%20program_Economic%20Develop.pdf

^{xiv} <http://www.railstotrails.org/whatwedo/trailadvocacy/ATFA/index.html>

^{xv} <http://www.bikesbelong.org/economicstats>

Economic Benefits of Bicycling

🕒 Last Updated on Friday, 15 May 2015 10:13



Links to articles and resources that detail the many economic benefits of incorporating bicycling infrastructure and bike-friendly policies in our communities.

- [Economic Factsheet on Bicycling in Georgia](#) (America Bikes/League of American Bicyclists)
 - For a breakdown by Georgia Congressional district, visit <http://americabikes.org/resources/>
- [Economic Impact Assessment of GA's Silver Comet Trail](#) (GDOT, ALTA Planning+Design)
- [Economic Benefits of Bike Trails](#) (Rails-to-Trails Conservancy)
- [Economic and Health Benefits of Bicycling in Iowa](#) (University of Northern Iowa)
- [Nine Reasons to Create a Bicycle Friendly Business District](#) (Transportation Issues Daily)
- [Emerging Trends for Bicycle Friendly Business Districts](#) (Transportation Issues Daily)
- [Americans want more walkable, bikeable neighborhoods](#) (National Real Estate Association)

- [Assessing the Economic Impact of Bicycle Facilities](#)
- [Benefits of Recreational Facilities and Walkable Community Design](#)
- ["The Bicycle Dividend"](#) (excellent summary of benefits from U Mass economics professor)
- [Bicycle-Related Economy Report](#) (Portland, OR)
- ["Bikenomics" series](#) from Grist.org
- ["Complete Streets" development retains value](#) (National Real Estate Association)
- [Economic Benefits of Bicycling & Bicycling Facilities](#)
- [Economic Impact of Bicycling in Colorado](#)
- [Economic Impact of Bicycling in Pikes Peak, CO](#) (March 2015)
- [Bicycles Are Business: What Research Says About Bicycling's Economic Benefits](#) (Summary of current research by Bicycle Coalition of Greater Philadelphia)
- [Estimating the Employment Impacts of Pedestrian, Bicycle, and Road Infrastructure](#) (Case Study: Baltimore)
- [Pedestrian and Bicycle Infrastructure: A National Study of Employment Impacts](#) (U Mass)
- [Are pro transit/bike/ped policies effectively a "war on cars"? Absolutely not.](#) (Victoria Transport Policy Institute)



Another excellent resource is the [home page](#) of Rutgers University professor [Dr. John Pucher](#). His site lists a wide

Advisory Bike Lanes

More in this Section...

Advisory Bicycle Lanes

This article is based on a March, 2009 APBP ListServe thread. Roger Geller, Portland's (Ore.) Bicycle Coordinator, asked about this type of facility because Portland contemplates installing perhaps as much as 42 miles of advisory bike lanes. Thanks to APBP members Tom Bertulis, John Ciccarelli, Peter Furth, and Dwight Kingsbury for their contributions.

What's an advisory bicycle lane? Also called a "non-compulsory bicycle lane" or "suggestion lane" (translated from the Dutch "suggestiestrook"), it's a bicycle lane into which motor vehicles may legally encroach. Therefore, the line demarcating the lane is dashed instead of solid. An advisory bicycle lane is often—but not always—used in conjunction with centerline removal.

Generally, a mandatory bicycle lane is preferable; an advisory bicycle lane should only be used when a mandatory lane cannot be used. Advisory bicycle lanes should be considered 1) when street width is inadequate for mandatory bike lanes or 2) where cars are likely to encroach on a bike lane as it approaches a bike box. Advisory bike lanes should not be used where they are likely to be blocked by parked motor vehicles.

Advisory bike lanes in conjunction with centerline removal on roads with substandard width are common across Europe and are generally well received by cyclists. For example, a 24-foot roadway with a center stripe may be re-stripped to provide two six-foot advisory bike lanes and a 12-foot center travel lane (the stripes are dashed). Motorists may enter the bicycle lanes in order to negotiate oncoming traffic, but only when the lanes are not occupied by cyclists.



In Suffolk County, England, re-stripping a substandard road with advisory bike lanes resulted in reduced car traffic and increased cycling. From 2005 to 2006, ADT decreased from 5,600 cars per day to 4,500 cars per day while bike usage rose from 150 cyclists per day to 183 cyclists per day. There has been only one crash in the last four years (it involved a motorcyclist going too fast and no other vehicles were involved).

Advisory lanes may also be used on multi-lane streets and streets with centerlines. Tom Bertulis points out one issue with these applications: "I worked in Glasgow for three years, and even though Glasgow has an impressive 120 km cycle network, all the bike lanes are advisory bike lanes. There are no mandatory bike lanes in that city. That means cars can—and do—park in the lanes, which is a hassle for cyclists. A sharrow is preferable if the car parking can't be removed."

Commenting on the recommended width for advisory bicycle lanes, Bertulis notes: "I must say I take issue with the size of the advisory lane in some studies. One study showed advisory bike lanes whose width varied from 3.7 to 4.3 feet and the study from Denmark [[Narrow cross sections without centre line markings - "2 minus 1" rural road; Trafitec, June 2007](#)] shows that only 85 cm (2.8 feet) are left on the side for cyclists. Motorists tend to hug white lines, and if 85 cm are left for the cyclist, the motorist will try to pass at that distance. In Scotland we discussed this issue at length. It turns out that the Cyclist Dynamic Envelope (CDE) is 2.5 feet and Dutch studies conducted by CROW have shown that cyclists need a buffer of 2.5 feet minimum to sustain levels of comfort. Consequently, five feet (1.5 m) is the minimum width we would recommend for advisory cycle lanes. The cars can still encroach on the lanes if there are no cyclists, but when there are cyclists they will give the full five feet of space."

There is as yet little data on the crash rates for advisory bicycle lanes. A [four-year study](#) from Wiltshire County (England) showed a 35 percent drop in motor vehicle crashes along the roadways where the centerline was removed. Discussing an evaluation of a German application, Dwight Kingsbury says, "Crash results didn't show any strong advantage or disadvantage; annual cyclist crash rates were low at test and comparison sites with or without the marking of advisory lanes."

References and resources:

View Tom Bertulis' photos and comments on advisory lane applications [here](#). More photos of advisory lanes in Europe can be found at <http://www.cyclingscotland.org/imagegallery.aspx>

In his paper *Bicycle Priority Lanes: A Proposal for Marking Shared Lanes* (January 2009), Peter Furth discusses "negotiating for the bike zone boundary" and proposes the use of sharrows in conjunction with advisory bike lane striping. https://myfiles.neu.edu/xythoswfs/webui/xv-5474320_1-t_9UyJB6TN

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van der Kooi, R.M. and A. Dijkstra. *Some Behavioural Effects of Non-Compulsory (Bicycle) Lanes on Narrow Rural Roads*. SWOV (Netherlands), 2003. (In Dutch, with English language summary). <http://www.swov.nl/rapport/R-2003-17.pdf>

The UK's Local Transport "Note" on Cycle Infrastructure Design describes advisory cycle lanes in section 7.3. <http://www.dft.gov.uk/pgr/roads/tpm/tnotes/tn208.pdf>

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