Welcome to our webinar series!

Economic Benefits

Safe Routes to School
Bicycling and Walking

Safe Routes to School National Partnership
Robert Ping
Technical Assistance Director

- Technical Assistance – CPPW, TARC, National Learning Network
- State Network Project - Policy Change in 20 States
- Congressional SRTS Task Force
- Portland SRTS Program Manager
- Oregon SRTS Technical Assistance
- Bicycle Safety Education - Oregon and CA Bay Area
- SF Bay Area: Policy, Bicycle Advocacy, Earn-a-Bike, Youth Mentoring, Youth Education, Environmental Advocacy
- Various committees: School Siting, Diversity, Childhood Obesity, National Physical Plan, Bicycle Education Network, Portland SRTS

http://www.saferoutespartnership.org/blog/date/all?
field_tag_state_tid=All&field_region_tid=All&term_node_tid_depth=140
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5. If you need technical help with this iLinc tool, please call 1-800-799-4510.
Jim Sallis  
Distinguished Professor of Family and Preventive Medicine  
Chief, Division of Behavioral Medicine  
Director of Active Living Research, UC San Diego

- His primary research interests are promoting physical activity and understanding policy and environmental influences on physical activity, nutrition, and obesity.  
- He is an author of over 500 scientific publications, co-author of several books, on the editorial boards of several journals, and one of the world’s most cited authors in the social sciences.  
- Dr. Sallis has received awards from the American College of Sports Medicine, Society of Behavioral Medicine, and American Psychological Association Division of Health Psychology and the President’s Council on Fitness, Sports, and Nutrition.  
- His current focus is using research to inform policy and environmental changes that will increase physical activity and reduce childhood obesity.  
- He is a frequent consultant to universities, health organizations, and corporations worldwide.
Dr. Candace Rutt received her doctorate in applied health psychology at the University of Texas at El Paso in 2003. Since finishing her doctorate she has been working at the Centers for Disease Control and Prevention focusing on built environment and Health Impact Assessment (HIA) research. She has been involved in numerous HIAs ranging from walk to school programs, farmers markets, urban redevelopment projects, and natural resource development projects. In addition to performing HIAs around the country Dr. Rutt received a grant from the Robert Wood Johnson Foundation in 2007 to develop and implement a US based HIA training course and has conducted over 30 trainings across the country.
Mounting health care spending is expected to reach $4.6 trillion dollars annually by 2020 and consume 19.8% of GDP.
What Makes Us Healthy

- Genetics 20%
- Environment 20%
- Healthy Behaviors 50%
- Access to Care 10%

What We Spend On Being Healthy

- Medical Services 88%
- Healthy Behaviors 4%
- Other 8%

Source: Derived from observations from the Behavioral Risk Factor Surveillance System (BRFSS).
Show Me the Money: Health

Cost of Obesity = $190 Billion/yr
Cost of Childhood Obesity = $3 Billion/yr

Perspective:
Smoking adds 20 percent/yr health costs
Obesity adds 50 percent/yr health costs

2012 Cornell University
June 2010 CDC Presentation: The Childhood Obesity Epidemic: Threats and Opportunities

March 2012 Mayo Clinic
March 2012 Mayo Clinic
**Health Benefits from Various Neighborhood Walkability Changes**

| Neighborhood Walkability Changes                          | Total Benefits |  |  |  |  |  |  |  |
|-----------------------------------------------------------|----------------|---|---|---|---|---|---|
|                                                           | Lower          |  |  |  |  |  |  |
| Increase number of intersections within ½ mile            | $2,255,107      |  |  |  |  |  |  |
| Increased retail employment density                       | $466,574        |  |  |  |  |  |  |
| Increased employment density                              | $155,525        |  |  |  |  |  |  |
| Increased population density                              | $1,555,247      |  |  |  |  |  |  |
| Distance from central business district                   | $4,510,215      |  |  |  |  |  |  |

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<th>Per Capita Benefits</th>
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<td>Lower</td>
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<td>Increase number of intersections within ½ mile</td>
<td>$451</td>
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<tr>
<td>Increased retail employment density</td>
<td>$93</td>
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<tr>
<td>Increased employment density</td>
<td>$91</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Increased population density</td>
<td>$311</td>
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<tr>
<td>Distance from central business district</td>
<td>$902</td>
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Cost-Benefit Analysis Framework
Per capita and total neighborhood estimates
Estimates are ranged from lowest possible benefit to highest

*(Boarnet, Greenwald and McMillan 2008)*
Show Me the Money: **Federal Funding**

+ Biking and walking make up **12 percent of all trips** in the US.

+ That is more than **4 billion bicycle trips and 40 billion walking trips** a year, including trips to work, school, shopping and for recreation and tourism.

+ But funding for biking and walking projects only accounts for about **1.5 percent of the federal transportation budget**.

+ And the new transportation bill **reduced** funding for bicycling and walking by **AT LEAST 30%**.
Source: Highway Statistics, forms HF-10 and HF-210, Federal Highway Administration. (Subsidyscope; Pew Charitable Trusts)
Show Me the Money: **Automobiles**

- Current evaluation practices focus on the costs of insufficient roadway capacity but lack a comparable vocabulary to describe the costs of **excessive roadway capacity, inadequate travel options, and underpriced road use.**

- Wider roads and increased vehicle traffic speeds tend to degrade walking and cycling conditions and therefore reduce mobility for non-drivers, increase impervious surface area and therefore stormwater management costs, and by **inducing additional vehicle travel and dispersed land use development it tends to increase total fuel consumption and pollution emissions.**

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**Smart Congestion Relief**

*Comprehensive Analysis Of Traffic Congestion Costs and Congestion Reduction Benefits*

25 May 2012

By Todd Litman

*Victoria Transport Policy Institute*
In urban areas, where cars and bicyclists travel at similar speeds, bike lanes can accommodate **7 to 12 times as many people per meter of lane per hour than car lanes** and bicycles cause less wear on the pavement.

The cost of a bike lane varies, but can cost **as little as $5,000 a mile**.

- $75 Million = Cost to repave 3 miles of California Interstate 710 ($25,000,000 per mile)
- $75 Million = Cost to stripe 1,250 miles of California bike lanes. ($60,000 per mile)

(That's more than the distance from Los Angeles to Seattle, Wash.)


City of Roseville, “Bicycle Master Plan” 2008 http://www.roseville.ca.us/transportation/bikeways/bicycle_master_plan/default.asp

Costs can be as high as $500,000 if the road needs to be widened. Lower costs are also estimated for signed-only routes and are higher costs are estimates for new, separate paths.
Show Me the Money: **Bicycling**

- In 2009 the national bicycling industry contributed an estimated **$133 billion** a year to the **U.S. economy**.
- It supported nearly **1.1 million jobs**
- It generated **$17.7 billion** in federal, state, and local **taxes**.
- Another **$46.9 billion was spent** on meals, transportation, lodging, gifts and entertainment during bike trips and tours.

*The Economic Benefits of Bicycle Infrastructure Investments*
League of American Bicyclists
Darren Flusche, Policy Analyst,
June 2009
Show Me the Money: Bicycling

Portland study found that people arriving at commercial districts by bicycle spend more per month at the studied retail establishments than do people arriving either by car, transit or foot.

Münster, Germany, Utrecht & Amsterdam, The Netherlands studies found that cyclists spent less per visit to a business but visited the business more frequently, which results in higher spending patterns over time.

June 2012, Business Cycles: Catering to the Bicycling Market, Portland State University


Show Me the Money: **Bicycling**

- **Outer Banks, North Carolina Tourism = $60 Million/yr, 1,400 jobs**
- **Wisconsin Recreation/Tourism = $1 Billion/yr**
- **Colorado Recreation/Tourism = $1 Billion/yr, 1,213 jobs**
- **Wisconsin Manufacturing = $556 Million/yr, 3,418 jobs**
- **Maine Bicycle Infrastructure = $66 Million/yr**

- **Portland Bicycle Economic Activity = $90 Million/yr**
- **Portland Jobs = 850-1,150**
- **Portland Green Dividend = $2.6 Billion/yr**

Portland’s Green Dividend
A White Paper from CEOs for Cities by Joe Cortright
(jcortright@impresaconsulting.com) July, 2007
In 2004, NC DOT invested $6.7 million in bicycling infrastructure which brings in $60 million annually from visitors.

Complete Streets Spark Economic Revitalization, National Complete Streets Coalition
Indianapolis = $140 Million increased property values from trails

Austin, Texas = $13.64 million increased property tax revenue from houses next to greenway

Dallas = 25 percent premium for properties adjacent to the Katy Trail
(Rails to Trails Conservancy)

**Perspective:**
- Trails ranked 2nd among 18 community amenities in a 2002 survey of home buyers
(National Association of Realtors/Nat. Assoc. of Home Builders)

1-3 Trails and Economic Development, Rails to Trails Conservancy

*Consumer’s Survey on Smart Choices for Home Buyers*, National Association of Realtors and the National Association of Home Builders, April 2002.
Show Me the Money: Housing

One study found that a 5 to 10 mph reduction in traffic speeds increased adjacent residential property values by roughly 20%.

Another study found that traffic restraints that reduced volumes on residential streets by several hundred cars per day increased home values by an average of 18%.

Perspective:
Homebuyers ranked community design with low traffic and quiet streets 1st out of 39 attributes used to select a home, and walking and biking paths 3rd out of 39 attributes.

The Economic Benefits of Walkable Communities, Physical Activity and Health Initiative, California Department of Health Services

The Economic Benefits of Walkable Communities, Physical Activity and Health Initiative, California Department of Health Services

Show Me the Money: Housing

Real estate values over the next 25 years will rise fastest in “smart communities” that incorporate traditional characteristics of successful cities including a mix of residential and commercial districts and a “pedestrian-friendly configuration.”

1998 analysis by ERE Yarmouth and Real Estate Research Corporation.
Medical costs of hospitalization, emergency room visits and treatment for children's bicycle and pedestrian fatalities and injuries totaled $839 million for 2005. This is more than 4.5 times what the federal government currently spends each year on the Safe Routes to School program.

Preventing just one death of a child while walking and bicycling is estimated to save approximately $1.1 million in lifetime medical and work-loss costs.
Show Me the Money: Driving to School

- Driving to school = 5-7 percent of miles traveled and 10-14 percent of road traffic.
- At $4 per gallon, parents spend $5 billion a year driving kids to school.
- 5 percent of today’s school busing costs are for hazard busing, SRTS could save $1 billion/yr.
- One percent reduction in driving = 300 million less miles of vehicle travel and $50 million in fuel savings each year.


Safe Routes to School: Helping Communities Save Lives and Dollars

2011 Policy Report
Thank You!
It is now time for questions.

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Closing Notes

1. You will receive an email survey following this webinar; your feedback about today’s session will help us to improve. Thank you!

2. You can obtain a recording and slides online in one week at:
   saferoutespartnership.org/resourcecenter/National-Partnership-Webinars
Safe Routes to School: For Health + Money

James F. Sallis, PhD
Active Living Research, UCSD
Economic Benefits of Safe Routes to School
Webinar
August 9, 2012
Endangered: Children Walking to School
also known as accelerometers). Data from these studies indicate that children who use active forms of transport to school accumulate approximately 20 additional minutes of moderate to vigorous physical activity (MVPA) per day on weekdays (8,11,13,15) and expend 33.2 to 44.2 kcal more per day than do youth who are driven to school (14). Links

That’s over 6300 kcal per school year for daily walkers
Walking and Biking to School Reduces Odds of Being Overweight

A Danish study found that adolescents (N=3847) who walked or cycled to school were less likely to be overweight than those who rode to school in motor vehicles (passive transport).

### Neighborhood Walkability and Active Commuting to School

- 201 parents of children aged 4 to 17
- Active commuting to school:
  - 25% in hi-walkable neighborhoods
  - 11% in lo-walkable neighborhoods
- Parent concerns, mostly about traffic, were higher in lo-walkable neighborhoods

- *Kerr, et al. MSSE, 2006*
Trend for a Walk X Income Interaction effect – might describe as...
For High Income neighborhoods, Hi/Lo Walk Diffs of 1.46 days  For Low Income neighborhoods, Hi/Lo Walk Diffs of 0.62 days
This research synthesis reviews the sizable body of peer-reviewed and independent reports on the economic value of outdoor recreation facilities, open spaces and walkable community design. It focuses on “private” benefits that accrue to nearby homeowners and to other users of open space. While parks may also generate “public” benefits to the whole community, these types of benefits is not reviewed.
Compact developments provide fiscal benefits to municipal governments

- Large-lot suburban development patterns require more roads, water supply and sewer services
- A half acre lot in a centrally located, compact development costs $198 less in annual water and sewer service and $72,000 less in additional costs over 30 years than a comparable lot in the suburbs.

Compact, walkable development, which preserves open space and concentrates development on smaller lots, also provides financial benefits to municipalities related to lower infrastructure costs. Large-lot suburban development patterns require roads, water supply and sewer services that become more costly when extended over greater distances. One study found that a half acre lot in a centrally located, compact development costs $198 less in annual water and sewer service and $72,000 less in additional costs over 30 years than a comparable lot in the suburbs.

Fiscal impact studies estimate the public costs and revenues associated with residential or nonresidential growth to determine the net fiscal impact of development. A review of fiscal impact analyses found that: Residential development typically resulted in a fiscal deficit; nonresidential development generated a fiscal surplus but attracted residential development; and open space was fiscally preferable to residential development and equal to or better than commercial and other nonresidential development.
Finally, real estate developers also benefits from neighborhoods that feature open spaces, parks and greenbelts. Developers who protect natural areas may spend less on marketing because such projects can have a high profile within the community, have community involvement in their development and design, and generate significant media interest. Compact developments featuring open space, trails and greenways have sold more quickly than similar properties elsewhere and often have a high rate of presold units. And finally, consumers are also willing to pay a premium to locate in walkable developments featuring open space - between 5 percent and 8 percent. A national survey of developers found that they have noted considerable consumer interest in alternatives to conventional, low-density, automobile-oriented suburban development — including support for higher density, mixed use, pedestrian-oriented places.

Table 8: Contribution of Walk Score to Housing Values

<table>
<thead>
<tr>
<th></th>
<th>Walk Score Median</th>
<th>75% Percentile</th>
<th>Estimated Housing Gain from Moving to 75% Percentile</th>
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</thead>
<tbody>
<tr>
<td>Arlington</td>
<td>71</td>
<td>82</td>
<td>19,028</td>
</tr>
<tr>
<td>Austin</td>
<td>62</td>
<td>74</td>
<td>24,871</td>
</tr>
<tr>
<td>Bakersfield</td>
<td>31</td>
<td>51</td>
<td>(2,242)*</td>
</tr>
<tr>
<td>Charlotte</td>
<td>54</td>
<td>71</td>
<td>33,763</td>
</tr>
<tr>
<td>Chicago</td>
<td>86</td>
<td>92</td>
<td>31,562</td>
</tr>
<tr>
<td>Dallas</td>
<td>46</td>
<td>51</td>
<td>4,278</td>
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</tbody>
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Adjusting for many other variables
Walk this Way:
The Economic Promise of Walkable Places in Metropolitan Washington, D.C.

Christopher B. Leinberger and Mariela Alfonzo

Brookings Institution, 2012

<table>
<thead>
<tr>
<th>Table 3. The Relationship between Walkability and Economic Performance</th>
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<tr>
<td>**1 IMI level increase (~20 pt. IMI)</td>
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<tr>
<td>-------------------------------------</td>
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<tr>
<td>Avg. office rent/square foot ***</td>
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<tr>
<td>Avg. retail rent/square foot **</td>
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<tr>
<td>Percent Retail sales**</td>
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<tr>
<td>Avg. residential rent/month ***</td>
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<td>Avg. for-sale home value/square foot ***</td>
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*p-values: ***<.001, **<.05, *<.01; ***<.001* IMI refers to observed level of walkability
Walk this Way: 
The Economic Promise of Walkable Places in Metropolitan Washington, D.C.

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Brookings Institution, 2012

3). Specifically, considering the magnitude of influence that walkability has on economic performance, a one-level (or approximately 20 pt) increase in walkability (out of a range of 94 points) translates into a $8.88 value premium in office rents, a $6.92 premium in retail rents, an 80 percent increase in retail sales, a $301.76/square foot premium in residential rents, and a $81.54/square foot premium in residential housing values.

is higher, facilitating private market financing (Figure 2). On average, before the recession (2000 to 2007), retail and office space in walkable urban places had a 23 percent premium per square foot valuation. During the recession (2008 to 2010) that premium nearly doubled to 44.3 percent.
In conclusion, in addition to providing opportunities for physical activity, recreation areas and parks located in metropolitan areas provide economic benefits to residents, municipal governments and private real estate developers.

- Parks tend to increase the value and sale price of homes and property located nearby.
- In addition, the amount of local tax dollars required to operate and service recreation areas may be less than for other types of land use, such as residential developments, further increasing the fiscal impacts they have on municipal governments.
- Neighborhoods designed to preserve open space through compact development patterns result in savings to private developers through reduced construction and maintenance costs, while communities designed for walkability can command price premiums in the marketplace.

The implications of these findings are important, and especially relevant as we work with policymakers, planners, and the public to find ways to build more areas for active living into our communities.
Resources at www.activelivingresearch.org
Quantification of Health Benefits for Cycling and Walking

Candace Rutt, Ph.D.
Often Urban Environments Favor Motorized Transportation.....
....and Hinder Walking and Cycling
However, there are Places that are Conducive to Active Transportation
Failure to anticipate the health effects of policy and planning decisions is apparent in examining the health of transportation infrastructure. The Interstate Highway Act of 1956 introduced the development of a transportation infrastructure that has had multiple implications for health, both favorable and unfavorable. Over the last several decades, the transportation infrastructure has focused on road-building, private automobiles, and transportation of goods and has resulted in “an unprecedented level of individual mobility and facilitated economic growth” (APHA 2010, p. 2). It has shaped land-use patterns throughout the U.S. and has implications for air quality, toxic exposures, noise, traffic collisions, pedestrian injuries, and neighborhood physical and social features potentially linked to health (Frank et al. 2006).

Often the issues we face when making built environment decisions are complex (multifactorial) and interrelated. It’s important to note that different sectors of society will have different value systems and simply identifying “What the problem(s) is/are?” can be quite challenging. Therefore, **defining key concepts** will be crucial for managing the process:

- Necessary for communicating across sectors
- Ensure clarity and consistency in communications
- Provide an opportunity to educate stakeholders about HIA and key concepts
Total health care spending in the U.S. is already astronomical, and increasing rapidly, with estimated spending of $2.4 trillion in 2008, $3.1 trillion in 2012, and $4.3 trillion by 2016.¹ The health impacts of traffic crashes, air pollution, and physical inactivity alone add hundreds of billions of dollars in costs—costs of health care, lost work days and productivity, and pain, suffering and premature death. The costs of obesity account for approximately nine percent of total U.S. health care spending, and add an estimated additional $395 per year to per-person health care expenses.²

A portion of these costs are attributable to auto-oriented transportation and land use development that inadvertently limit opportunities for physical activity and access to healthy food. Traffic crashes cost us $180 billion yearly,\(^1\) and the health costs of transportation-related air pollution are between $50 and $80 billion.\(^2\) Most often, these potential health costs are not included in the transportation decision-making process and policy framework. These “hidden” health costs of transportation decisions are stacking up to a level that can no longer be ignored. If they are not factored into the decision-making process, these costs will continue to grow and undermine the country’s economic health and our quality of life.


**Chronic Disease and Risk Factors**

- 7 out of 10 deaths in the U.S. are from chronic diseases such as heart disease, cancer and stroke
- These chronic diseases are primarily related to four risk behaviors
  - lack of physical activity
  - poor nutrition
  - tobacco use
  - excessive alcohol consumption

Source: http://www.cdc.gov/chronicdisease/overview/index.htm
Current Health Care Spending

$2.2$ Trillion

- Prevention, $4\%$
- Medical Services, $96\%$

Factors Influencing Health
- Behaviors & Environment, $70\%$
- Genetics, $20\%$
- Medical Care, $10\%$

National Health Expenditures

SOURCE: Centers for Disease Control and Prevention, Blue Sky Initiative, University of California at San Francisco, Institute of the Future, 2000
“Get more exercise”...

Transportation, Land Use and Obesity

### Why Walking and Cycling?

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<tr>
<td>- Reduce inactivity</td>
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<td>- Reduce congestion</td>
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<td>- Improve road safety</td>
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<tr>
<td>- Improve air quality and noise</td>
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<td>- Reduce energy consumption and CO₂</td>
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<td>- More livable communities</td>
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Why Guidance on Economic Assessment?

- Economic evaluation is a standard tool of transport planners so it can help the health sector to speak “their” language.
- Public health benefits are likely to be great, esp. if inactive persons can be reached.
- Need for a transparent robust methodology.
HEAT

- Developed by the WHO with international experts
- Economic tool to estimate reductions in mortality due to cycling (transportation) and walking (recreation and transportation)
- Very conservative and does not include morbidity
- Currently for adults only
HEAT

- Can be used for planning new infrastructure, evaluate current or future levels of walking and cycling or even for Health Impact Assessments

- Data inputs for the model:
  - Average amount of time spent walking or cycling
    - Number of people walking and cycling and average distance of trips
    - Average number of steps (walking model only)
HEAT

- How to get the need inputs
  - Route user surveys
  - Travel surveys
  - Destination based surveys
  - Traffic counts
  - Pedometers
HEAT

- Outputs of the model
  - Number of lives saved
  - Annual benefit
Uses in Other Countries

- Austria: USD: $570 million per year
- Pilsen, Czech Republic: $1.2 million if 2% of population took up regular cycling
- UK/Scotland: $1.5-3 billion per year if modal share goal of 13% reached
- New Zealand: adding cycling and pedestrian facilities to the Auckland Harbour Bridge for a savings of $900,000 per 1000 regular bike commuters
Challenges to Adapting to U.S.

- US is much larger and heterogeneous
- Travel data only collected nationally every 5 years
- Very few local regions collect transport related data
- Hard to find good data on bike lanes and sidewalks
U.S. Uses

- **HEAT cycling tool has adapted**
- **Paper by Götschi (2012) examined cycling in Portland**
  - By 2040, investments in the range of $138 to $605 million will result in health care cost savings of $388 to $594 million, fuel savings of $143 to $218 million, and savings in value of statistical lives of $7 to $12 billion.
  - The cost-benefit ratios for healthcare and fuel savings are between 3.8 and 1.2 to 1
U.S. Uses

- Analysis for FHWA on 4 separate communities which ended up in a congressional report
  - Over the span of 4 years $25 million was split among four pilot communities: Marin County, CA, Columbia, MO, Minneapolis, MN and Sheboygan County, MI
  - The total number of new bicycling trips that were made in 2010 were compared to the expected number of bicycling trips that would have been made in 2010 given 2007 bicycling rates
  - The expected reduction in economic cost of mortality were predicted to be $6.9 million per year
U.S. Uses

- Still need to adapt the HEAT walking tool
- Funding proposal submitted to DNPAO
WHO Guidance and Tool

Download the guidance document and user guide from
www.euro.who.int/transport/policy/20070503_1
Additional Resources


- *Transport, Health and Environment Pan European Programme (THE PEP)* [www.thepep.org](http://www.thepep.org)

- *HEPA Europe (European network for promotion of health-enhancing physical activity)* [www.euro.who.int/hepa](http://www.euro.who.int/hepa)
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