

Using the Health Economic Assessment Tool for cycling in the US: Experiences from the Evaluation of 4 Pilot Projects



Co-Benefits

- The Federal Highway Administration (FHWA) wanted to examine increases in walking and cycling but also examine the multiple co-benefits of active transportation
 - Air Pollution
 - Injuries
 - Fatalities

Nonmotorized Transportation Pilot Project

- FHWA allocated \$100 million dollars to 4 pilot communities
 - Marin County, CA
 - Minneapolis, MN
 - Columbia, MO
 - Sheboygan County, WI
- The communities were selected by congress with input from bike and pedestrain advocates as well as communnity leaders
- Several factors were used to pick the communities including demographics, level of readiness and level of urbanization

4 Pilot Communities

- Each community selected different projects and had varied ability to implement new projects

Marin County

- Significant topography separating communities from one another
- Rail with trail project
- Share the Road
- Safety Campaigns
- Bicycle Repair
- Riding with Youth
- Way to Go! (Personal Travel Planning)
- Engineer's bike/ped facility design training courses
- Informational Booths at Events
- Community Walking and Biking Maps
- Promotion of Health Benefits

Minneapolis

- Weather issues
- Maximize existing roadway
- Year-round
- Focus on transportation
- Key network connections
- Underserved populations
- Political leadership and transportation professionals
- Bike boulevards and bike signals
- Road diets



Columbia

- New Trails
- Drain and pumping system removes water and gravel
- Traffic calming
- Sharrows
- Street murals
- Green Bike lanes
- No parking in bike lanes



Sheboygan County

- Started with smaller scale projects such as sidewalks
 - Saw a 85% increase in walking
- However cycling decreased since counts were done during construction
- Before the NTPP there was
 - No structured nonmotorized network
 - Lack of awareness
 - No existing land use patterns
 - Distances between destinations
 - No congestion
 - Ample parking
 - Bicycling primarily recreational

Data Collection

- Followed the National Bicycle and Pedestrian Documentation Project
 - 2 hour counts
 - Pick one weekday and a Saturday preferably the 2nd week of September
 - Recommended times are from 5-7 pm on a weekday and 12-2 pm on Saturday
 - This represents peak periods for walking and cycling
 - 1 count location per 15,000 people

Data Collection

- Locations should
 - Be activity corridors
 - Represent urban, suburban and rural locations
 - Key corridors for future improvements
 - Previous count locations
 - High collision areas

Economic Savings

- HEAT was used to estimate cost savings for reduced mortality for those who cycled to work
- These cost savings do not include morbidity or the cost savings due to increased walking



Nonmotorized Transportation Pilot Project

- As of 2013 the communities spent \$88.5 million dollars with \$78.9 million for infrastructure, \$7.5 million in outreach education and marketing and \$1.3 million in bicycle parking.
- They were also able to leverage \$59 million dollars in other Federal, State, local and private funds.



Overall Results: Increases in Walking and Cycling

- 85.1 million vehicle miles traveled were averted
- Walking mode share increased 15.8% and cycling mode share increased 44%
- Trip counts increased 56% for pedestrian trips and 115% for cycling
- ¼ mile cycling access was expanded to 240,00 people, 160,00 housing units and 102,000 jobs
- 70% of projects connected to activity centers



Cycling Increases by City

- Columbia
 - 44% increase
- Minneapolis
 - 60% increase
- Sheboygan
 - 1% decline
- Marin
 - 66% increase

Economic Savings

- The number of lives saved per year is expected to be 8 for Minneapolis, 2 for Columbia, 7 for Marin County and 0 for Sheboygan County
- The investments in Minneapolis are projected to return \$19,028,000 per year, Columbia will save \$4,724,000, and Marin County will save \$16,525,000. With the small decrease in cycling in Sheboygan County, they are expected to lose \$135,000



Air Pollution

- Between 2009 and 2013 NTPP saved 3.6 million gallons of gasoline which is 34,629 tons of CO₂ emissions.
- Reductions in air pollution in 2013 alone:
 - 33 tons of hydrocarbons
 - 225 pounds of PM₁₀ and 241 pounds for PM_{2.5}
 - 23 tons of nitrogen oxides
 - 305 tons of carbon monoxide



Injuries and Fatalities

- There was a 20% decline in the number of pedestrian fatalities and a 29% reduction in cyclist fatalities.
- Reduction in pedestrian injuries ranged between 18% to 55%.
- Overall increases in total number of bicycling injuries in 3 of the 4 communities.
- However, reductions in bicycling injury rates ranged between 9% and 38%



Other U.S. Uses

- 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



Lessons Learned

- Comprehensive bike and pedestrian plans help to use funds effectively
- Leveraging funds expand program impact
- Developing selection criteria that reflect community goals helps guide project selection
- Outreach and collaboration across agencies, stakeholders and the community builds capacity for future projects
- NTPP funds helped nurture and seed longer term planning

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