Advancing Non-motorized Transportation in Vermont

A reply from the university point of view
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Infrastructure and Programs

- On-route Facilities (lanes, paths, tracks, pavement markings, traffic calming)
- Destination Facilities (parking, lockers, showers)
- Integration with Transit (parking, racks, bikes on board)
- Shared/rental bicycle programs
- Training
- Laws (helmets, traffic, speed limits)

What does the data say?

- Lanes and paths
  - 40 studies reviewed by Pucher, Dill and Handy “International Review of Cycling Interventions” 2010
  - Mixed results
  - 1 mile of lane per square mile increase bike to work by 1%
  - Paths more likely to ride once per week

Figure 4 from Pucher, John and Ralph Buehler (2006): Why Canadians Cycle more than Americans: A Comparative Analysis of Bicycling Trends and Policies
What does the data say?

- Provision of parking and integration with transit increases bicycling up to 1%
- Limited evidence suggest only some promotional programs have a modest impact
- City bike programs (of late) are increasing bicycling
- Helmet laws reduce cycling

Comprehensive Programs

- Berlin, Germany (3.4M)
- London, UK (7.6M)
  - 2X 2000-2008
- Paris, France (2.2M)
  - 1% to 2.5% 2001-2007
- Barcelona Spain (1.6M)
  - 0.75% to 1.8% 2005-2007

Comprehensive Programs

- Amsterdam (735,000)
  - 25% to 37% 1970-2005
- Portland OR (576,000)
  - Bike commuting 1.1% to 3.9% 1990-2007
- Copenhagen Denmark (500,000)
  - Bike trips up 70% 1970-2006
- Freiburg Germany (228,000)
  - Bike share 15% - 27% 1982 - 2007

Comprehensive Programs

- Davis CA (63,000)
  - Bike commutes 28% - 15% 1980 – 2000
  - Gradual decrease in bicycle programs in mid 1980s
  - Land use development changes

1. Case studies by Pucher, Dill and Handy (2010)
What does the data say?

• There is not some inherent difference between Europe and the US (we could create the culture they have)
• City size does not matter
• Comprehensive city-wide programs are required
• It takes time
  – Note the education programs are mandatory in the European examples

What about Canada?

Bicycle Commute Share

<table>
<thead>
<tr>
<th>Bicycle Commute Share</th>
<th>United States</th>
<th>Canada</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>0.4%</td>
<td>1.2%</td>
</tr>
<tr>
<td>1-2 Million Population</td>
<td>0.3%</td>
<td>1.9%</td>
</tr>
<tr>
<td>0.5-1 Million Population</td>
<td>0.3%</td>
<td>1.3%</td>
</tr>
</tbody>
</table>

• Canada is not doing as well as Europe
• But they are doing better than the US (on safety too)!

Canada / US Differences

• Federal, state versus city role
  – virtually no federal involvement
  – beyond Quebec little provincial involvement
  – it is all local!
• Lots of bike parking
  – Toronto 15,000 and Ottawa 10,000 racks
  – Chicago 9,200; Seattle 2,300; & New York 1,800
• 3 times the bike paths and lanes per capita
Canada / US Differences

- US minimum parking requirements are 3X that of Canada (for cars 😊)
- Canada has 2/3rd the car parking/job
- Canada has 41% fewer cars per capita
  - Lower income and cost of owning is higher
  - Gasoline 50% higher
  - Car costs = 29.1% of income in Canada and 18.6% in US

From Pucher, John and Ralph Buehler (2006)

Density

- 127% more dense in city cores
- 152% in inner city
- 111% in suburbs
- Aside: weather not a factor!

From Pucher, John and Ralph Buehler (2006)

Policies that will Create Change

- More Infrastructure alone is not enough
  - Triple our bikepaths and lanes just to get to Canadian level of infrastructure
- Moving to 20+% mode share
  - We have to use the stick policies not just the carrot policies
  - We have to use the land use / car policies not just the bicycle policies

11/15/09
Transportation Research Center Mission

- to conduct innovative interdisciplinary research, education and outreach programs that advance sustainable transportation systems.
- Research – Education - Outreach

TRC Outreach Programs

- Clean Cities Coalition (VPS& DOE)
- Workforce Development (USDOT)
  - Transportation Systems Institute
  - Second Careers in Transportation Program
  - Transportation Systems Academy
  - National Transportation and Community College Summit
- Summer Transportation Institute (VTrans/FHWA)
- Seminars, Brown Bags, Conferences

TRC Research Focus Areas

- Land use and transportation modeling
- Tailpipe emissions
- Tourism travel
- Seasonal patterns in mobility
- Transportation energy and system efficiency
- NEW DATA!
Current TRC Research Projects in Non-motorized Transportation

• Seasonality
  – Weather and season impact on volume levels
  – Focus groups and survey of bicycle commuters
• Bicycle and pedestrian level of service in tourist / leisure locations including national parks
• Spatial sampling techniques for non-motorized counts
• Economic impacts of paths
• Measuring the effect of incentives
• System efficiency

Joint Vision of Future Transportation System

• More Infrastructure alone is not enough
  – We each play a role
• Moving to 20+% mode share
  – We have to use the stick policies not just the carrot policies
  – We have to use the land use / car policies not just the bicycle policies