Roadway Separated Bikeways in the US and Canada: Past, Present, & Future

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Proposal for ITE Informational Report

The purpose of this report is to determine the current and potential utility of separated bikeways (bikeways within or adjacent to the roadway and separated from moving traffic by barriers/curbs, parking lanes, striped buffers, etc) in the United States and Canada. The goals of this effort are to:

(1) Identify the locations and design attributes of facilities already constructed, potentially including examples from Europe and/or Asia as comparison,
(2) Summarize any studies that have been conducted on these facilities, and
(3) Develop a research statement for a larger effort that would develop guidelines and standards for the construction of these facilities where appropriate.
Types of Separated Bikeways

Multiple Types of “Separated Bikeways”:
- Two-Way Multi-Use (Bicycle+Pedestrian) Paths
- Two-Way Bicycle Paths
- One-Way Bicycle Path

Opportunities and Challenges Differ for Each
Two-Way Multi-Use Path
(bicyclists, pedestrians, roller bladers, etc)

Anchorage, Alaska
Ottawa, Ontario
Two-Way Bicycle Paths

Washington, DC

Montreal, QC
One-Way Bicycle Paths

Cambridge, MA

Vancouver, BC

New York City
Potential Operational/Safety Challenges with Separated Bikeways

Midblock

- Driveway Conflicts
- Use by Pedestrians

Intersection

- Conflicts Due to Unexpected Movements by Cyclists (primarily with two-way bikeways)
- Sightline Issues
Potential Operational/Safety Challenges with Separated Bikeways - Midblock

Limited ROW: Narrow and in Door Zone

Pedestrian Usage

Red Light Running, Wrong Way Riding
Potential Operational/Safety Challenges with Separated Bikeways - Intersection

Multiple Unexpected Conflict Points, Sightline Degradation
Why Consider Separated Bikeways?

- Bike Lane/Shared Lane Obstructions
- Comfort, especially on High Speed/Volume Roadways
- Continuity of Pathway Experience
- To attract new riders – the “Interested but Concerned”
Why Consider Separated Bikeways?

On Road Bikeway Obstructions

New York City
Why Consider Separated Bikeways?

Comfort, especially on High Speed/Volume Roadways

From London Cycling Design Standards

Figure 4.1 Matrix of cycle facility solutions based on motor traffic volume and speed

<table>
<thead>
<tr>
<th>85%ile Speed</th>
<th>&lt;20mph</th>
<th>20-30mph</th>
<th>30-40mph</th>
<th>&gt;40mph</th>
</tr>
</thead>
<tbody>
<tr>
<td>Very Low</td>
<td>Veh Low</td>
<td>Low</td>
<td>Medium</td>
<td>High</td>
</tr>
<tr>
<td>&lt;1,500 VPD</td>
<td>Combined</td>
<td>Combined</td>
<td>Combined</td>
<td></td>
</tr>
<tr>
<td>1,500-3,000 VPD</td>
<td>Combined</td>
<td>Combined</td>
<td>Combined</td>
<td></td>
</tr>
<tr>
<td>3,000-8,000 VPD</td>
<td>Combined</td>
<td>Combined</td>
<td>Combined</td>
<td></td>
</tr>
<tr>
<td>8,000-10,000 VPD</td>
<td>Combined</td>
<td>Combined</td>
<td>Combined</td>
<td></td>
</tr>
<tr>
<td>&gt;10,000 VPD</td>
<td>Combined</td>
<td>Combined</td>
<td>Combined</td>
<td></td>
</tr>
</tbody>
</table>

Notes:
1. Each route will need to be judged in the light of its specific situation
2. Cycle lanes or tracks will not normally be required in traffic-calmed areas
3. Congested traffic conditions may benefit from cycle lanes or tracks
4. Designs should tend to either calm traffic or segregate cyclists

Figure 4.2 Diagram of cycle facility solutions based on motor traffic volume and speed
Why Consider Separated Bikeways?

Continuity of Pathway Experience

Vancouver, BC
Why Consider Separated Bikeways?

To Attract New Riders

Strong & Fearless

Interested but Concerned

No way No How

Enthused & Confident

Courtesy of Roger Geller, Portland
Why Consider Separated Bikeways?

Three Types of Cyclists¹ (FHWA)
- Advanced or experienced riders
- Basic or less confident adult riders
- Children

“…basic riders are comfortable riding on neighborhood streets and shared use paths and prefer designated facilities such as bike lanes or wide shoulder lanes on busier streets.”

- AASHTO Guide for the Development of Bicycle Facilities

ITE Ped-Bike Council
Informational Report

“Informational Reports contain information and data on actions or options for use relevant to particular transportation engineering procedures or equipment applications. Content of the report is based on the experiences of practicing transportation professionals and on research. Such reports are prepared for information purposes only and do NOT include Institute recommendations on the course of action or the preferred application of the data contained therein.”
ITE Ped-Bike Council Informational Report

Survey

- Surveys sent to:
  Full ITE Email List and Association of Pedestrian and Bicycle Professionals (APBP) listserv
- Survey Respondents: 445
- Allowed for Follow-up Interview: 347 (81.8%)
Initial Survey Results

Does your city/jurisdiction have any separated bikeways adjacent to roadways?

- Yes: 73%
  - Two-way bike/ped path along roadway: 51%
  - Two-way bike only path along roadway: 8%
- No: 22%
- Unsure: 5%
- Other: 10%

Other: 4%
Initial Survey Results

Geographic Location of Separated Bikeways

Total Coverage:
- 45 states
- 5 provinces

Highest Coverage (# cities):
- California – 37
- Florida – 13
- Washington – 13
- Ontario – 10
Initial Survey Results

What is your opinion on separated bikeways?

- Preferable to on-road facilities and should be installed where possible: 55%
- Appropriate only in limited circumstances: 43%
- Never appropriate: 2%
How important a role do you think separated bikeways have or could have in making cycling more mainstream and popular?
Initial Survey Results

Should separated bikeways be included in design manuals in the US and Canada?

- Yes: 65%
- Yes, with proper criteria: 21%
- Maybe: 10%
- Probably not: 3%
- Absolutely not: 1%
## Initial Survey Results

**Reasons why SBs are not more common in your city**

13. Of the following, choose/rank the most important reasons why separated bikeways are not a more common practice in your city/jurisdiction.

<table>
<thead>
<tr>
<th>Reason</th>
<th>Major Concern</th>
<th>Minor Concern</th>
<th>Not a Concern</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of support in guidelines/manuals</td>
<td>21.8% (89)</td>
<td>38.0% (155)</td>
<td>40.2% (164)</td>
<td>408</td>
</tr>
<tr>
<td>Safety concerns</td>
<td>36.4% (147)</td>
<td>33.4% (135)</td>
<td>30.2% (122)</td>
<td>404</td>
</tr>
<tr>
<td>Limited right of way</td>
<td>75.4% (315)</td>
<td>20.6% (86)</td>
<td>4.1% (17)</td>
<td>418</td>
</tr>
<tr>
<td>Cost concerns</td>
<td>65.9% (273)</td>
<td>29.0% (120)</td>
<td>5.1% (21)</td>
<td>414</td>
</tr>
<tr>
<td>Not appropriate for local context</td>
<td>13.2% (52)</td>
<td>38.2% (151)</td>
<td>48.6% (192)</td>
<td>395</td>
</tr>
<tr>
<td>Lack of demand for separated bikeways</td>
<td>11.6% (47)</td>
<td>41.9% (170)</td>
<td>46.6% (189)</td>
<td>406</td>
</tr>
<tr>
<td>Lack of demand for any bikeways</td>
<td>9.0% (36)</td>
<td>30.1% (120)</td>
<td>60.9% (243)</td>
<td>399</td>
</tr>
<tr>
<td>Other (please specify)</td>
<td></td>
<td></td>
<td></td>
<td>85</td>
</tr>
</tbody>
</table>
Follow-up Interviews:
Thoughts on Separated Bikeways

• Are a great idea…they provide safety and generate more users (Traffic Engineer, DOT – Colorado Springs, CO)

• Various types are needed… one type of facility does not serve all purposes (Traffic Engineer, DOT - Anchorage, AK)

• If the separated bikeway is along the street, it should be used only when there is limited access, driveways, cross-streets (Transportation Planning Engineer, Public Works Dept – Springfield, MO)
Follow-up Interviews:
Thoughts on Separated Bikeways

• **Bicycle commuters tend to use on-street facilities**
  (Transportation Planning Engineer, Public Works Dept – Springfield, MO)

• **Two main problems: (1) right-turning motorists cannot see bicyclists (2) difficult for bicyclists to make a left turn**
  (Bike/Ped Program Manager – Missoula, MT)

• **Problems with crashes at driveways led to removal of a separated bikeway**
  (Bike/Ped Program Manager – Missoula, MT)

• **The configurations generate more accidents at intersections while offering no other safety advantage**
  (Secretary, Pennsylvania Pedalcycle & Pedestrian Advisory Committee)
Existing Guidelines

- List of nine problems with separation focuses on two-way shared use paths
- Discusses three types of path-roadway intersections: Midblock, Adjacent, and Complex
- Provides limited design guidance
- Does not prohibit separated bikeways
Prevention of Poor Designs

Separated bikeways are in demand and are being built. Without better guidelines and design standards, they are more likely to be used in the wrong situations and be poorly designed.
Goal

“Develop a research statement for a larger effort that would develop guidelines and standards for the construction of these facilities where appropriate.”
Possible Research Statement Ideas

Build upon existing FHWA documents to help practitioners to select appropriate facility for given corridor conditions?

- Bicycle Compatibility Index Report: FHWA-RD-98-095
- Selecting Roadway Design Treatments to Accommodate Bicycles: FHWA-RD-92-073
Possible Research Statement Ideas

Develop toolbox with corresponding crash reduction factors for addressing conflict points?

Intersection movements:
- Bikes with peds
- Bikes with motorists
- Bikes only
Possible Research Statement Ideas

Determine what package of policies work together for the successful use of separated bikeways?

Best practices for:
- Placement guidelines
- Design standards
- Enforcement policies
- Educational programs
- Encouragement efforts
Ultimate Goal?
Positive Cycle

More accommodation ➔ More demand (for bicycle accommodation)

MORE CYCLISTS

More awareness of cyclists ➔ More safety
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