

A photograph of a person riding a bicycle on a wet, reflective street. The person is holding a large umbrella with alternating red and black panels. The wet pavement creates a clear reflection of the bicycle and the umbrella. In the background, there is a sidewalk made of rectangular paving stones.

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

Mike Sallaberry, San Francisco MTA

ACTIA Conference - June 9, 2009



Pedestrian & Bike Council
INSTITUTE OF TRANSPORTATION ENGINEERS

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



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Two-Way Multi-Use Path (bicyclists, pedestrians, roller bladers, etc)



Anchorage, Alaska

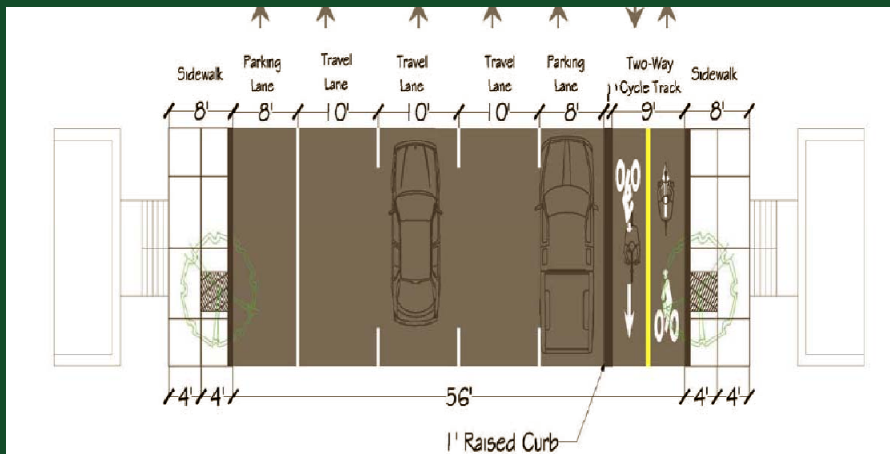
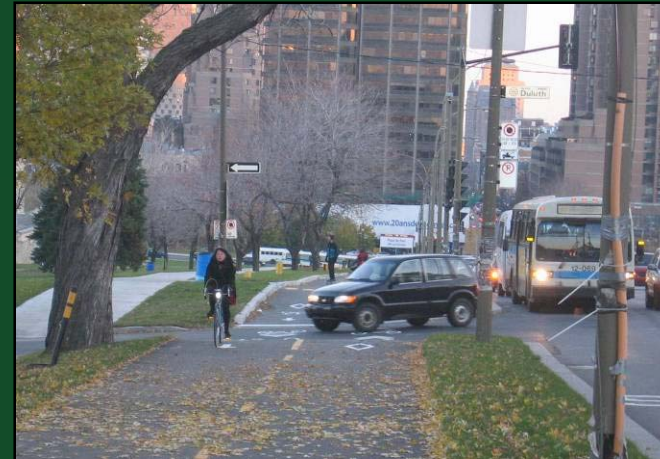


Ottawa, Ontario



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Two-Way Bicycle Paths



Washington, DC



Montreal, QC

One-Way Bicycle Paths



Cambridge, MA



New York City



Vancouver, BC



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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



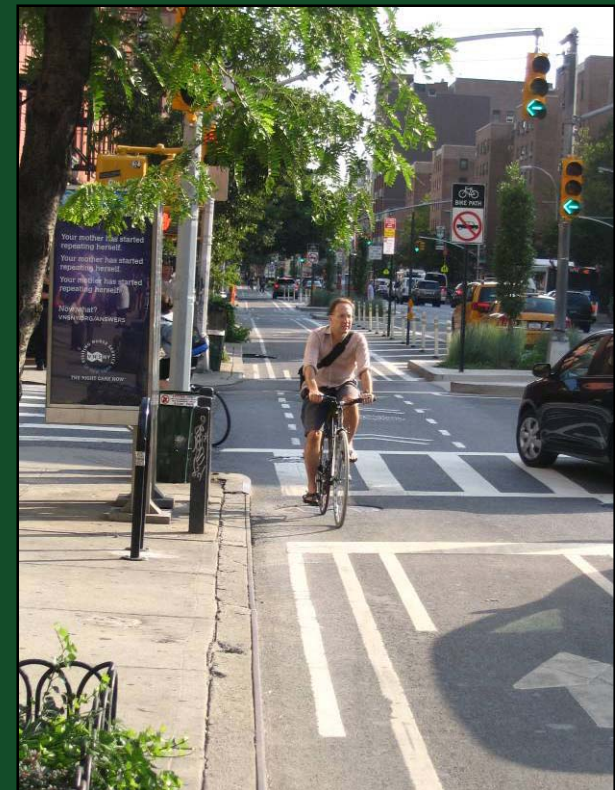
Potential Operational/Safety Challenges with Separated Bikeways - Midblock

Limited ROW:
Narrow and in
Door Zone

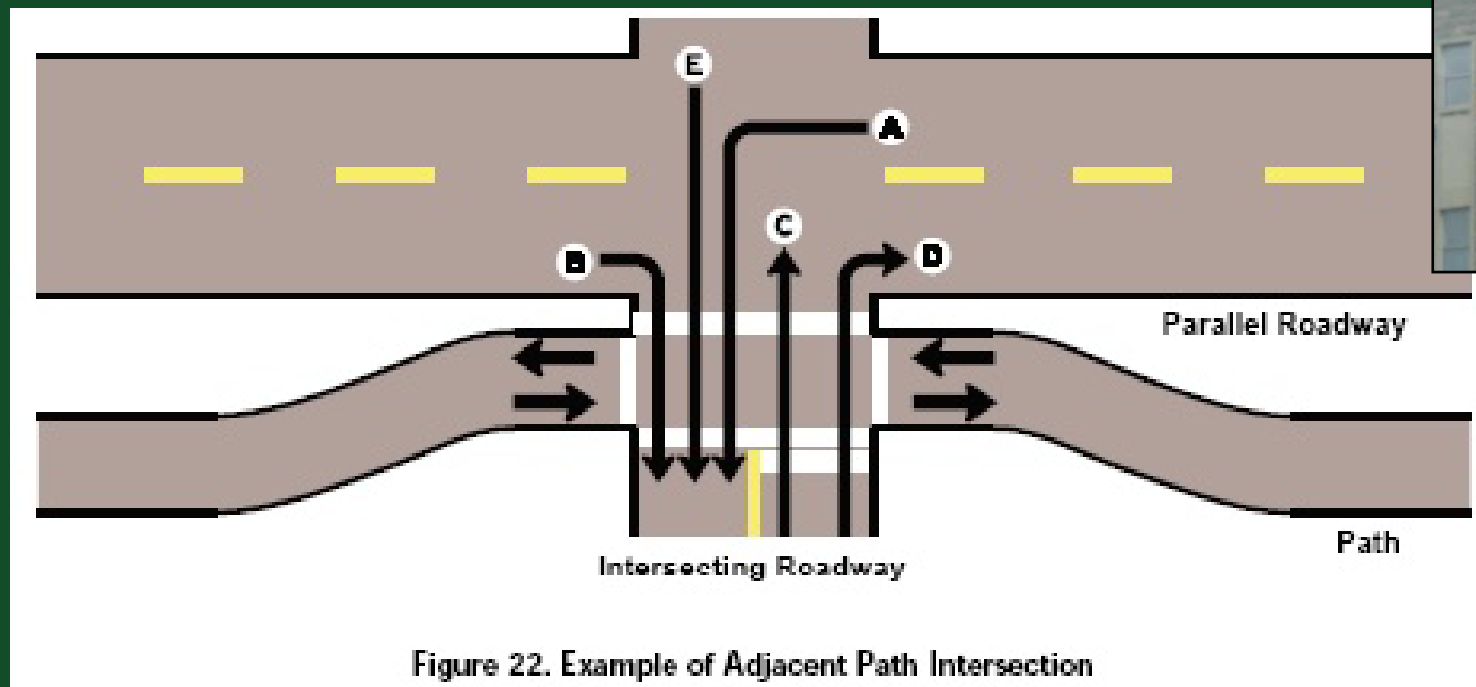


Pedestrian Usage

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



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Why Consider Separated Bikeways?

Comfort, especially on High Speed/Volume Roadways

From
London Cycling Design Standards

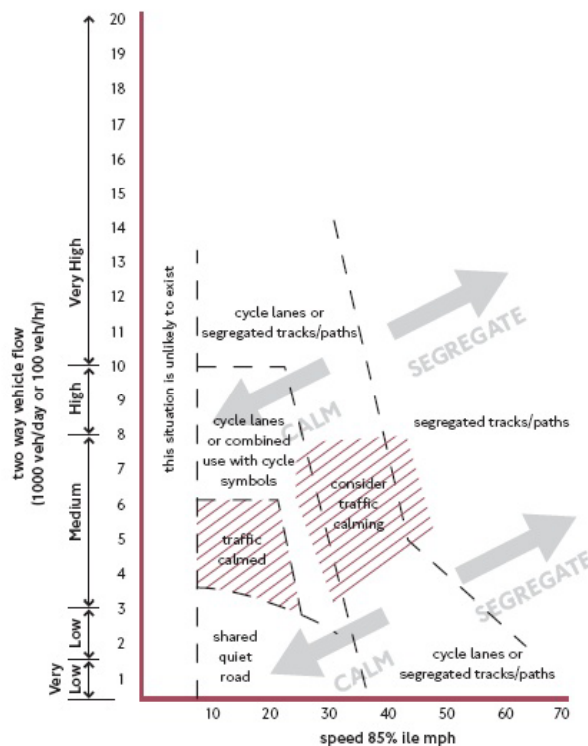


Figure 4.2
Diagram of cycle facility solutions based on motor traffic volume and speed

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

	85%ile Speed			
	<20mph Very Low	20-30mph Low	30-40mph Medium	>40mph High
Very High >10,000VPD	Lanes or Tracks/paths	Lanes or Tracks/paths	Lanes or Tracks/paths	Tracks/paths
High 8,000-10,000VPD 800-1,000VPH	Lanes	Lanes	Lanes or Tracks/paths	Tracks/paths
Medium 3,000-8,000VPD 300-800VPH	Lanes or combined use with cycle symbols	Lanes or combined use with cycle symbols	Lanes or Tracks/paths	Tracks/paths
Low 1,500-3,000VPD 150-300VPH	Combined use with cycle symbols	Combined use with cycle symbols	Lanes or Tracks/paths	Lanes or Tracks/paths
Very Low <1,500VPD <150VPH	Combined use – no symbols necessary	Combined use with cycle symbols	Combined use with cycle symbols	Lanes or Tracks/paths

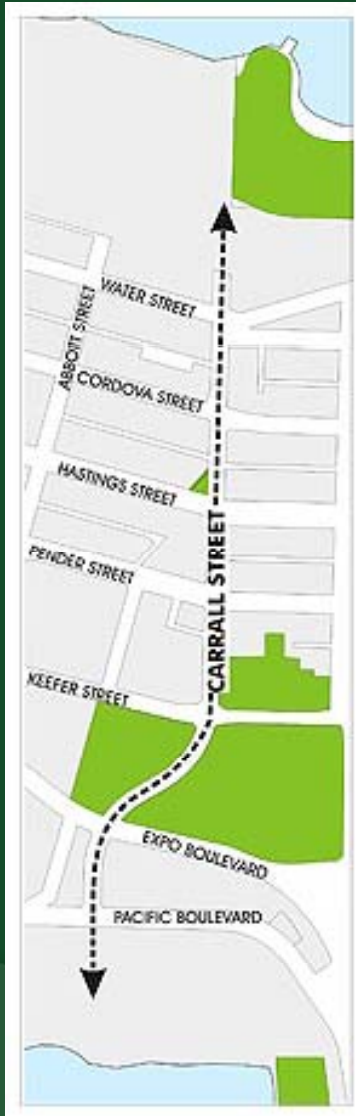
Notes:

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

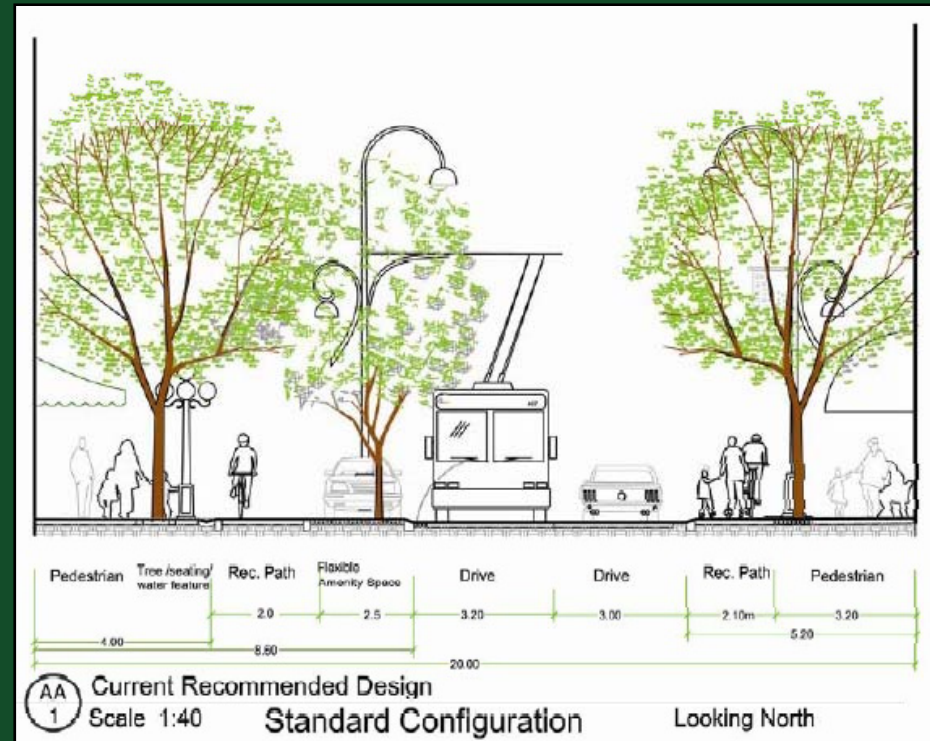


Why Consider Separated Bikeways?

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 Cyclists ¹ (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

¹ Selecting Roadway Design Treatments to Accommodate Bicycles (Publication No. FHWA-RD-92-073), Federal Highway Administration, January 1994.



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.”



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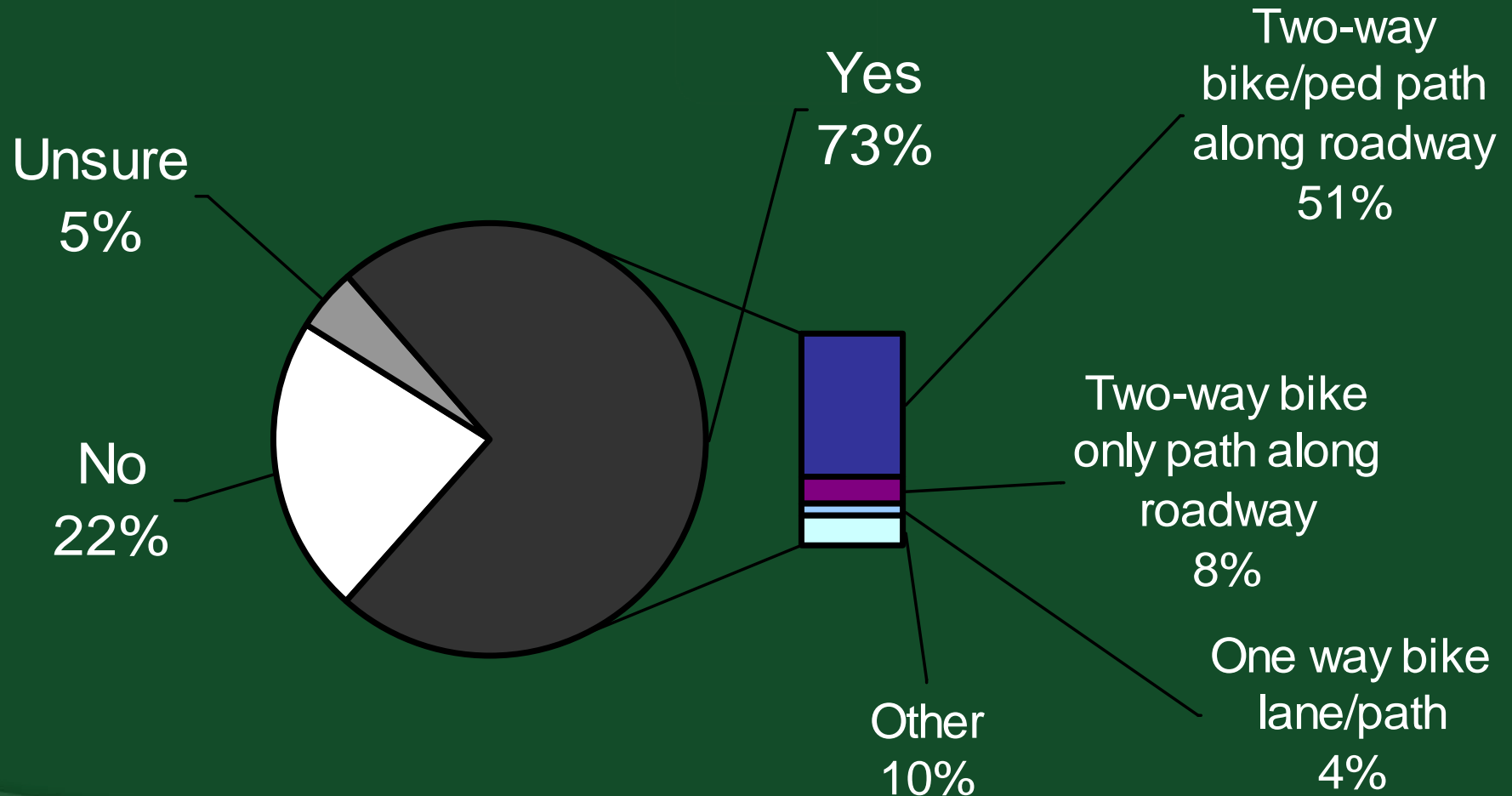
ITE Ped-Bike Council Informational Report Survey

- 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?



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Initial Survey Results

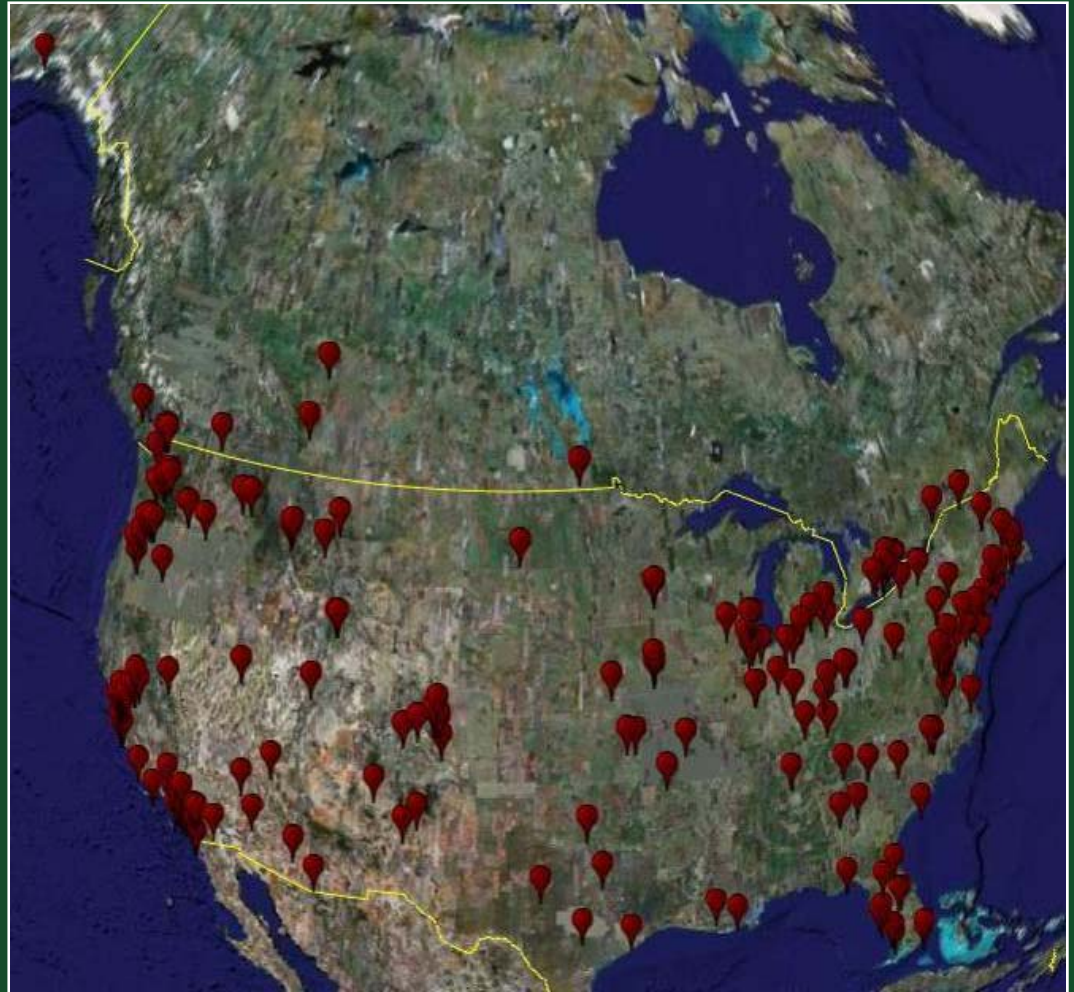
Geographic Location of Separated Bikeways

Total Coverage:

- 45 states
- 5 provinces

Highest Coverage (# cities):

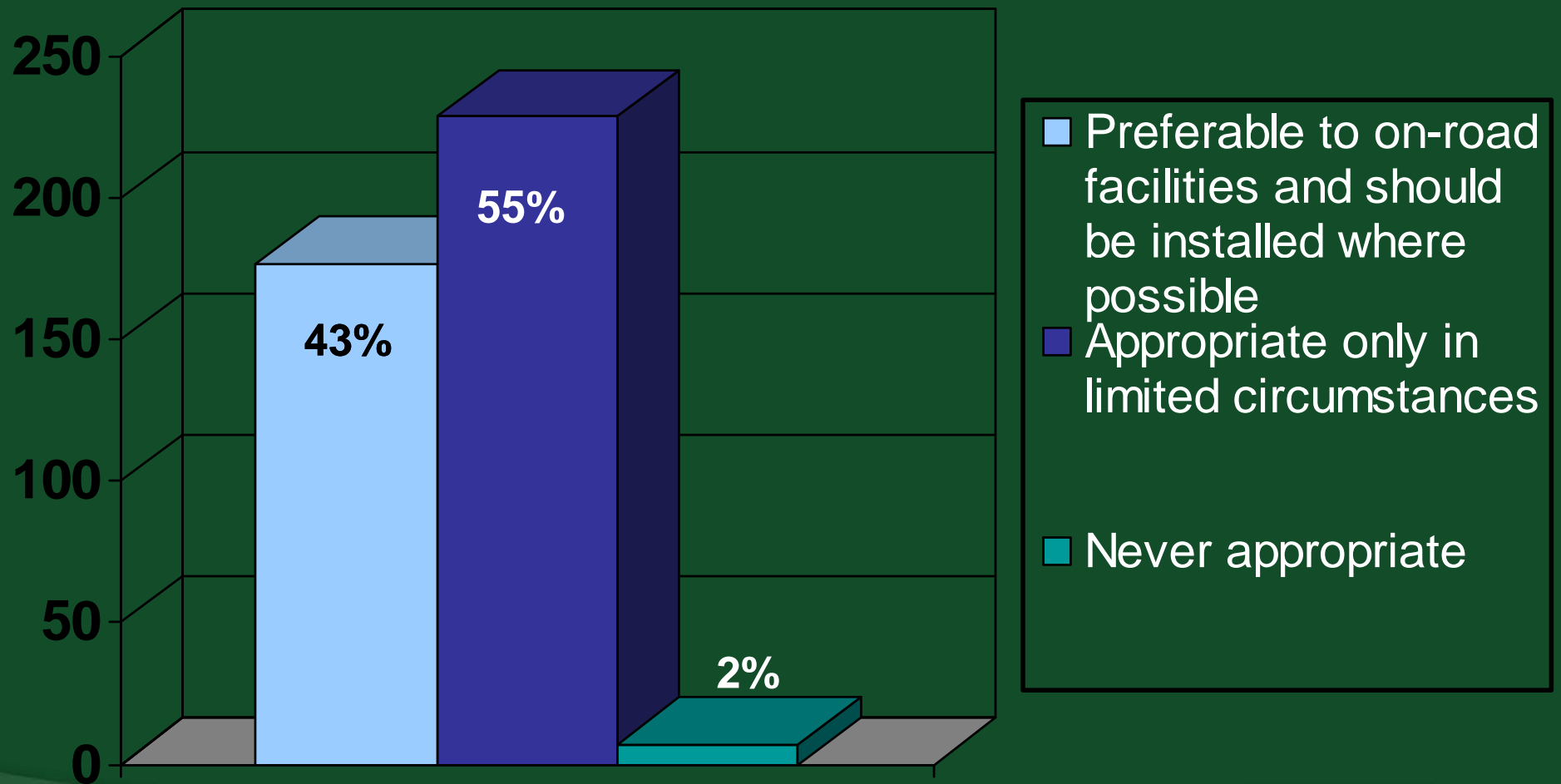
- California – 37
- Florida – 13
- Washington – 13
- Ontario – 10



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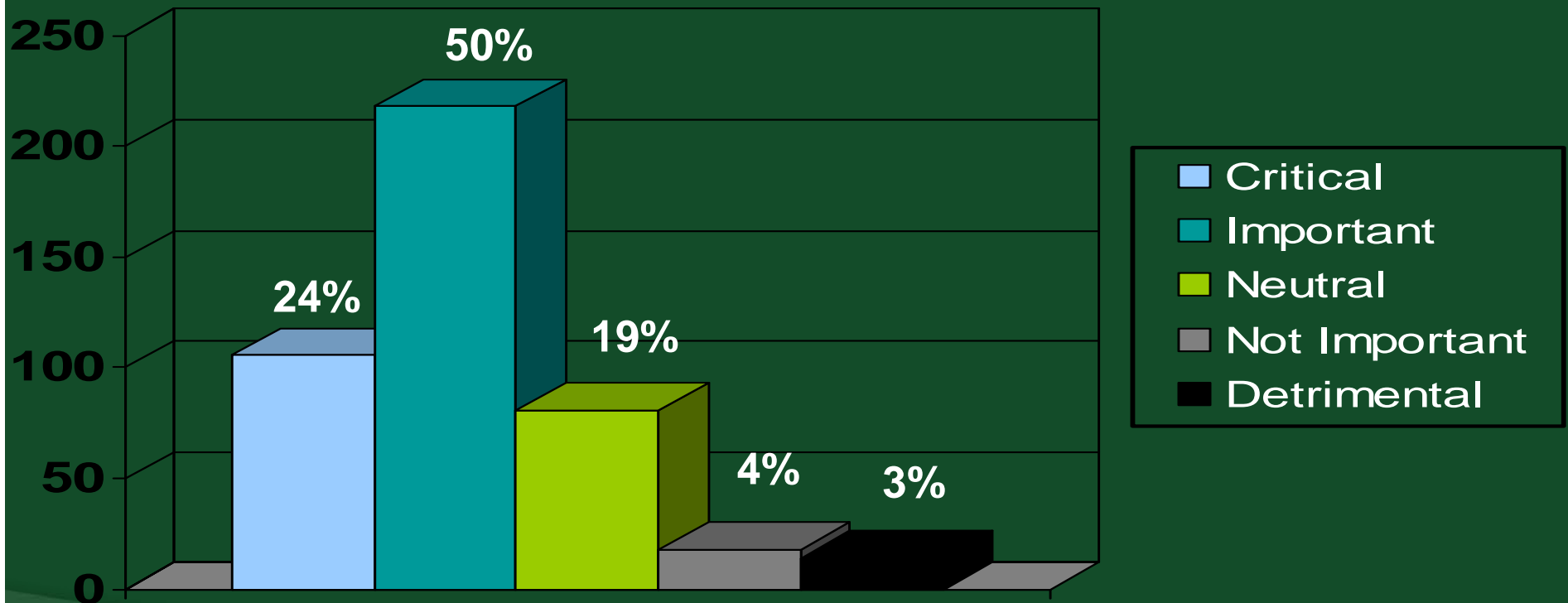
Initial Survey Results

What is your opinion on separated bikeways?



Initial Survey Results

How important a role do you think separated bikeways have or could have in making cycling more mainstream and popular?

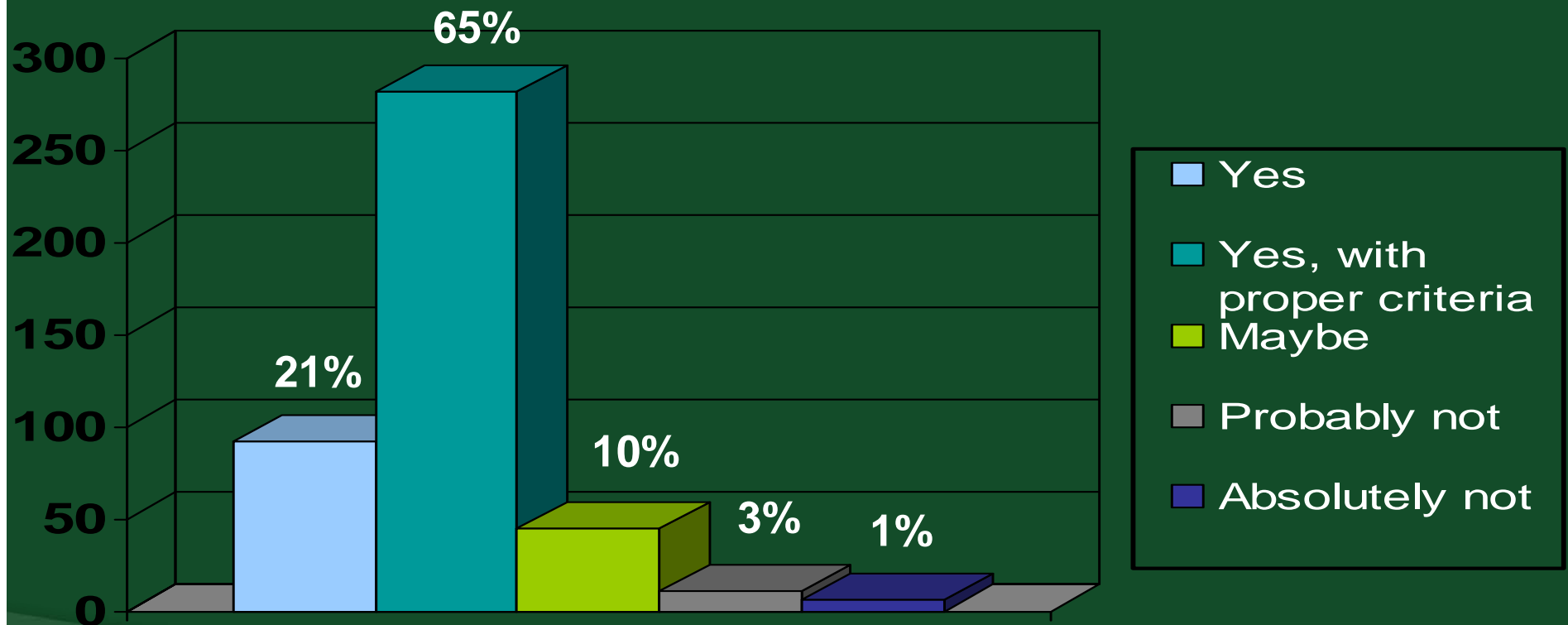


HC

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Initial Survey Results

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




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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.

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

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)



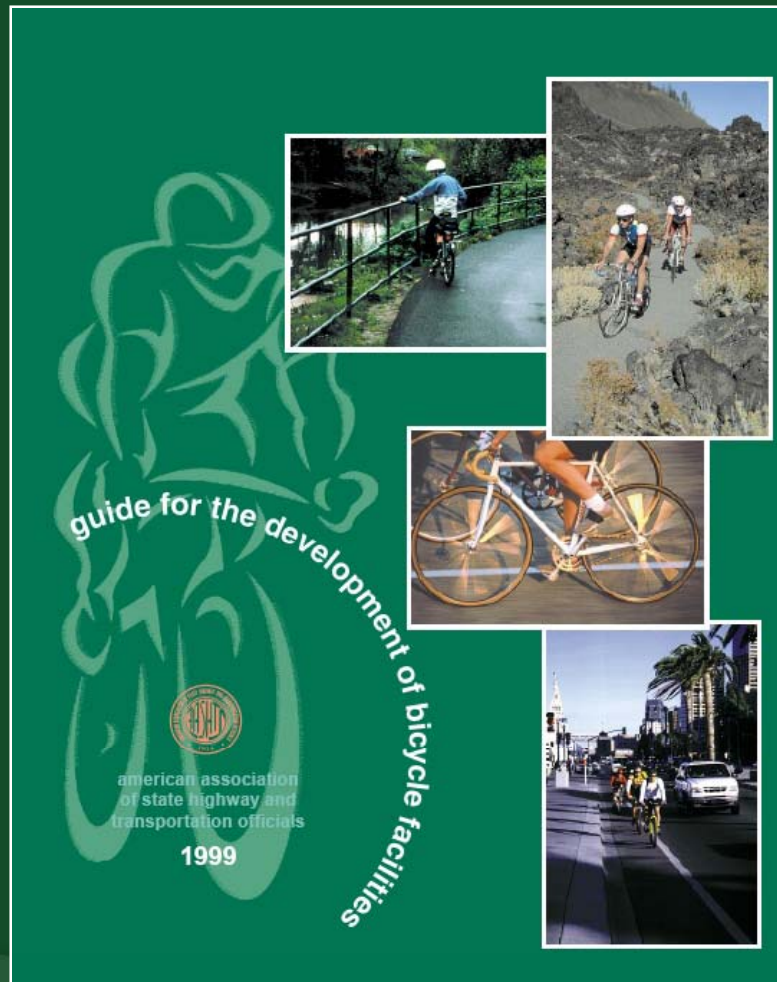
Follow-up Interviews:

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

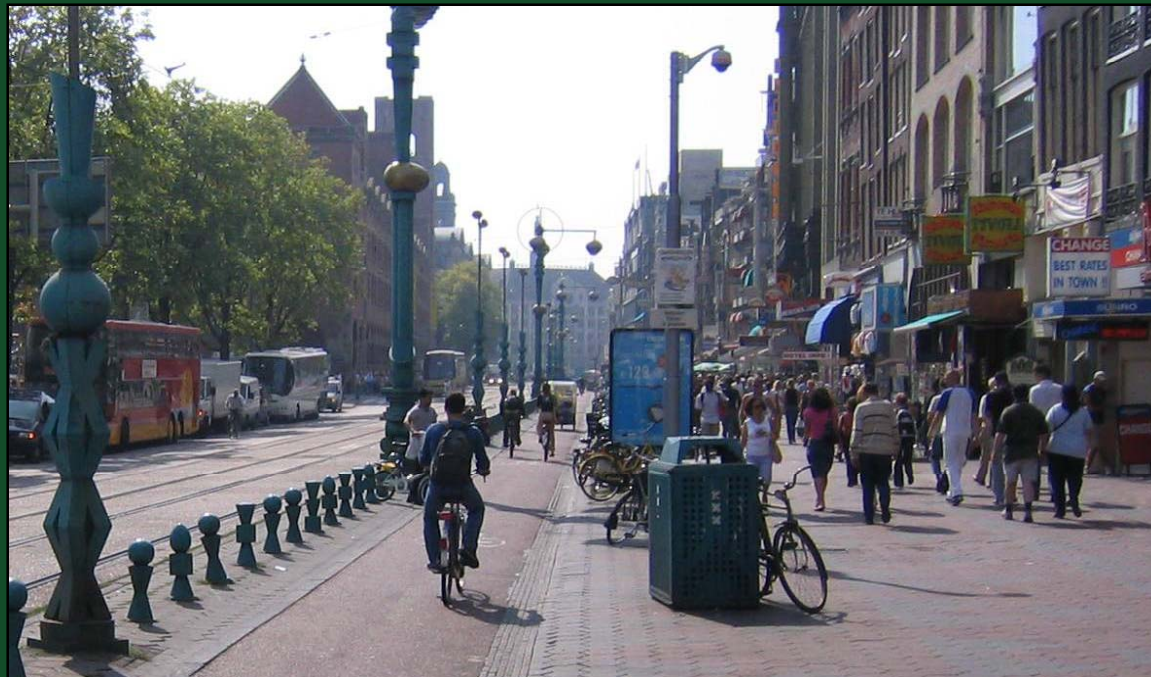


Separated bikeways are in demand and are being built. Without better guidelines and design standards, they are more likely to be used in the wrong situations and be poorly designed.



Goal

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



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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



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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



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Ultimate Goal?

Positive Cycle



A woman with long dark hair, wearing a brown tank top and dark pants, is riding a bicycle on a brick-paved city street. She is smiling and talking on a cell phone held to her ear. In the background, other cyclists and pedestrians are visible, along with multi-story buildings and storefronts. A white speech bubble is overlaid on the right side of the image, containing contact information.

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