The Challenge of Implementing Protected Bike Lanes
Delaware Avenue: A Case Study Demonstration

Presented by:

Presented to:

October 25, 2016
Presentation Outline

- FAST Act Impact on Bicycle Facilities Planning
- Potential Funding Sources
- Resources
- Choosing Locations
- Who Should be Involved in Planning SBLs
- Case Study: Planning the Delaware Avenue SBL
FAST Act Impact on Bicycle Facilities Planning
FAST Act

• $305 billion for FY 2016 – 2020 for surface transportation

• Authorizes $226.3 billion for road, bridge, bicycling, and walking improvements

• “Public involvement remains a hallmark of the planning process.”
Potential Funding Sources
<table>
<thead>
<tr>
<th>Funding Sources</th>
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<tr>
<td><strong>Federal</strong></td>
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<tr>
<td>- CMAQ</td>
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<td>- SHSP</td>
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<td>- STBG</td>
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<td><strong>State</strong></td>
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<tr>
<td>- Greenhouse Gas Reduction Grants</td>
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<td>- Recreational Trails Programs</td>
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Funding Sources

• Local
  o Development Impact Fees
  o Local Sales Tax Ordinance
  o Tax Increment Financing (TIF)
  o Infrastructure Impact Fees

• Private or Nonprofit Entities
  o BIDs
  o Private Donors
  o Health Organizations
Choosing Locations
“The practice of designing separated bike lanes is still evolving and until various configurations have been implemented and thoroughly evaluated on a consistent basis, design flexibility will remain a priority.” – FHWA
Identifying a Successful Location

- Network Effects
- Safety Improvements
- Connect Origin and Destinations
- Pedestrian Benefits
- Transit Stops
- On-street Parking
- Maintenance Capabilities
Who Should be Involved in Planning SBLs
Who Should be Involved?

SBL Outreach

Source: FHWA Separated Bike Lane Planning and Design Guide
Case Study: Delaware Avenue
Case Study Outline

- Project Overview
- Planning Process
- Challenges & Solutions
- Intersection Design
- Transitions
Project Overview
Where is Newark, DE?

Source: Google
Study Area
Project Overview

Crash History

- 10 year crash data analyzed (2005 – 2015)
- 45 reported crashes involving either a person on a bicycle or pedestrian
- Main contributing factors for bicycle crashes:
  - Bicycles being operated on the sidewalk
  - Contraflow bicycle traffic in the eastbound bike lane

<table>
<thead>
<tr>
<th>Vehicle/Pedestrian Crashes</th>
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<tr>
<td>Pedestrian Hit In Crosswalk</td>
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<tr>
<td>Other</td>
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<td>Cyclist Error</td>
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<tr>
<td>Riding on Sidewalk/Hit In Crosswalk</td>
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<td>Right Hook</td>
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<tr>
<td>Dooring</td>
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<td>Perpendicular Crash</td>
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Planning Process
Planning Process

2014

NEWARK BIKE PLAN

A two-way cycle track is proposed along Delaware Avenue.

NEWARK BIKE PLAN

University of Delaware Pre-Engineering Assessment

2015

FEASIBILITY STUDY COMPLETED

Preliminary corridor concepts developed.

2016

DETAILED CONCEPT PLAN

Anticipated to conclude by March 2017

2018

DESIRED CONSTRUCTION

Tentative
Planning Process

https://www.youtube.com/watch?v=mJaPsZYwYp0
Feasibility Study

- Literary Review
- Planning Analysis
- Public Involvement
- Preliminary Concepts
Planning Process

Literary Review

Source: Google
Planning Process

- Stakeholder Involvement
  - Steering Committee
Two-Way or One-Way?

- Roadway width 29’ – 40’
- Limited space for buffers
- Two-way allows built in space for passing

Two-Way
Challenges & Solutions

Will a Reduced Width Work?

Pop-Up Cycle Track

- 8’ wide two-way bike lane
- 1’ coned buffer
- 10’ travel lanes
Will a Reduced Width Work?

Survey Results

• Comfortable in reduced width but would prefer wider facility on north side of Delaware Avenue
Challenges & Solutions

Varying Roadway Width?

- Roadway Width Varies from 29’ to 48’
Challenges & Solutions

North or South Side Alignment?

- 22 Deciding Factors Reviewed
- Main Deciding Factors:
  - Safety
  - Right Turn on Red Light
  - Horizontal Clearance
  - Contra-Flow Buffering
  - More Right-Turning Motor Vehicles
  - Transit Stop Conflicts
  - Public Input

North Side
Challenges & Solutions

Pedestrian Activity
Midblock Design Challenges

- Major Driveway Crossings
Intersection Design
Signalized Intersections

- Evaluated Similar Projects in the U.S.
- Best Practices:
  - Actuated, Protected Bicycle Signals
  - Turn Queue Boxes
Signalized Intersections

- 4 of the 6 signalized intersections will share similar design
- Bicycle Signal Heads
- Green Pavement through Intersection
- Turn Queue Boxes Considered
Transitions
Transitions

Orchard Road

- Curb Extension to block westbound continuation
- Elephant Tracks to Direct westbound bikes onto Orchard Road
- Bicycle signals and signage
Transitions

Pomeroy Trail Crossing

• Modify trail crossing to accommodate bikeway transition
• Bicycle signals and signage
Lessons Learned

- Prioritize Decisions
- Location, Location, Location
- Involve Stakeholders Early
- Research Similar Projects
- Try Before You Buy
- Be Creative
Questions?