Active Transportation Through Innovative Intersections

Smith Siromaskul, PE
Will Hume, PE
Ellie Simpson, PE
HDR
Presentation Overview

- Innovative Intersection Types
- Bicycle and Pedestrian treatments
- Case Studies
Multimodal Settings

• Roadway context drives the solution for multimodal travel:
  • Surrounding land use
  • Roadway speed
  • User age
Bicycle Solutions

- Capacity constrained roadways will typically warrant separated bicycle facilities.
- Shared use paths can be created by widening existing sidewalks.
Current Bicycle Treatments

- Multiuse paths
- Buffered bike lanes
- Protected intersections
CASE STUDY: Franklin Boulevard
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Accessible Facilities

• Question: how do people navigate an unfamiliar intersection if they have a visual or auditory impairment?
It’s All About the Turns

Quadrant Road

Diverging Diamond Interchange

Continuous Flow Intersection/
Displaced Left Turn Intersection

Restricted Crossing U-Turn
Left Turn Removal – Quadrant Road

• Main signal is two-phase
Protected Intersections

- Bike approaches are typically one-way physically separated cycleways
- Approaches are outside of turn bays or turn bays are removed
- Effectively a signalized bicycle rotary within a typical intersection
- Bikes do not use pedestrian crosswalks
Comparison of Bicyclist Exposure at Intersections

Design Principles:

- Minimize exposure to conflicts
- Reduce speeds at conflict points
- Communicate right-of-way priority
- Provide adequate sight distance

Conventional Bike Lanes or Shared Lanes

Protected Intersection

Source: MassDOT Separated Bike Lane Planning & Design Guide
Left Turn Displacement – CFI

• Distinguishing feature of a continuous flow intersection (CFI)
• Note displaced left conflicts with right turn
• Significant access impacts is quadrants with displaced lefts
CASE STUDY: Dale Mabry Blvd/Hillsborough Avenue
Bicycle Treatments at DDIs

• Separated multiuse path
• Separated bike lane
• Shared cross walk
• On street bike lanes
Case Study: Strathpine Rd/Gympie Arterial Rd
Bald Hills, QLD, Australia
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Left Turn Diversion – MUTs and RCUTs

- Removal of left turns from main intersection
- Replace with some combination of through, right turns, and u turns
- RCUTs also divert through movements
CASE STUDY: OR99W Fischer Road to Beef Bend Road
Case Study: Leroy Fowler
RCUTs and Bikes State of the Practice

- Major Street through bikes use bike lanes
- Major Street turns and Minor Street throughs and lefts use pedestrian crosswalks
Protected RCUT with Separated Cycleway
Protected RCUT with On-Road Bike Lane
Protected RCUT with On-Road Bike Lane
• Innovative intersections are more and more common

• Multimodal treatments spread benefits to all modes