Roundabouts and Bikes: Like Oil and Water or Fish and Tacos?

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Who’s Riding Bikes, and What’s Stopping Them?

» Almost 70% of people are interested in riding a bike

» Only 13% of people feel confident and comfortable riding their bikes to get around, under current conditions

» The largest user group (interested but concerned) prefers greater levels of protection and separation, especially on higher speed and higher volume streets

Recent Industry-Wide Bicycle Practice
Intersection Bicycle Design Principles

» Provide space for bicyclists
» Reduce conflict points
» Maximize bicyclist visibility
» Reduce speed differential
» Provide predictable and direct navigation
» Minimize stop-start maneuvers

Roundabouts are compatible with all of these principles!
Treating Bikes at Intersections
Protected Intersections

Credit: Nels Nelson
Figure 3.8.14. Recommended Intersection Design for Intersecting Arterial Roads with Bikeways on Each Road. Intersection is Asymmetrically Designed to Provide Bicycle Queue Area at the Entrance to the Crossings. (Reference 26, p. 23)
Offset Crossings -- Bicyclists are channeled onto the sidewalk area and to crossings of the intersecting streets just outside (farther from the center of the intersection) the normal pedestrian crosswalk area. In effect, a bikeway ring around the intersection is created.
Dutch CROW Manual
Bicycles and Roundabouts: Current Practice

» Low-volume: encourage bicycles to circulate with vehicles
» High-volume: provide separate bicycle path with bike ramps
» Give bicyclists option of either being vehicle or pedestrian

First Protected Intersections in the United States!?
Bicycles and Roundabouts: Current Practice

*Figure 30.11 Bike Ramp Entrance and Exit*
Bicycle Lanes in the Roundabout

MUTCD 9C.04 Markings for Bicycle Lanes

12 Bicycle lanes shall not be provided on the circular roadway of a roundabout.
Inman Square

» Known bicycle and pedestrian safety concerns at Inman Square

» Boston Cyclists Union engaged KAI to evaluate a roundabout option

» KAI and Boston Cyclists Union coordinated with the City of Cambridge
Design Priorities

Priority
» Identify a reasonable roundabout concept that provides a safe environment for pedestrians and bicyclists

Other Considerations
» Operates acceptably and minimizes queueing
» Avoids impacts to the Mayor Alfred E. Vellucci Community Plaza
» Considers access to and from the Inman Square Fire House
» Allows buses to go east-west/west-east on Cambridge Street and Hampshire Street, along with north-east/east-north on Springfield Street and Hampshire Street
» Allows WB-50 design vehicles to travel east-west/west-east on Cambridge Street and Hampshire Street
High-Level Roundabout Operations Analysis

An analysis of the existing configuration and other alternatives was not completed by KAI.

Based on observed existing queue lengths, roundabout operations appear to be an improvement.
Initial Design
Two-Way Cycle Track

Cycle & Moped track
Diameter: 25 (29) – 40 m
20,000 à 25,000 veh/day

Bertus Fortuijn
Summary

» Just like fish and tacos, roundabouts and bikes are compatible
» Design for all cyclists, not just those currently using the facility
» Bicycle facilities through the roundabout should be designed at similar “stress levels” as facilities on the approaches
» Innovation and creativity are great! Just make sure the design follows the principles

Five strategies to accommodate cyclists at roundabouts:
» Bicyclists share the circulatory roadway
» Bicyclists are provided a lane within the circulatory roadway
» Bicyclists are provided a ramp to a bidirectional shared-use path
» Bicyclists are provided a ramp to a separated bike lane around the roundabout
» Bicyclists are provided a two-way cycle track around the roundabout
Thank you.

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