

Roundabouts in the Proposed MUTCD

January 27, 2009

Lee A. Rodegerdts, P.E.



KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Roundabouts in the Proposed MUTCD

- Fundamental principles
- Markings
- Signing
- Next steps

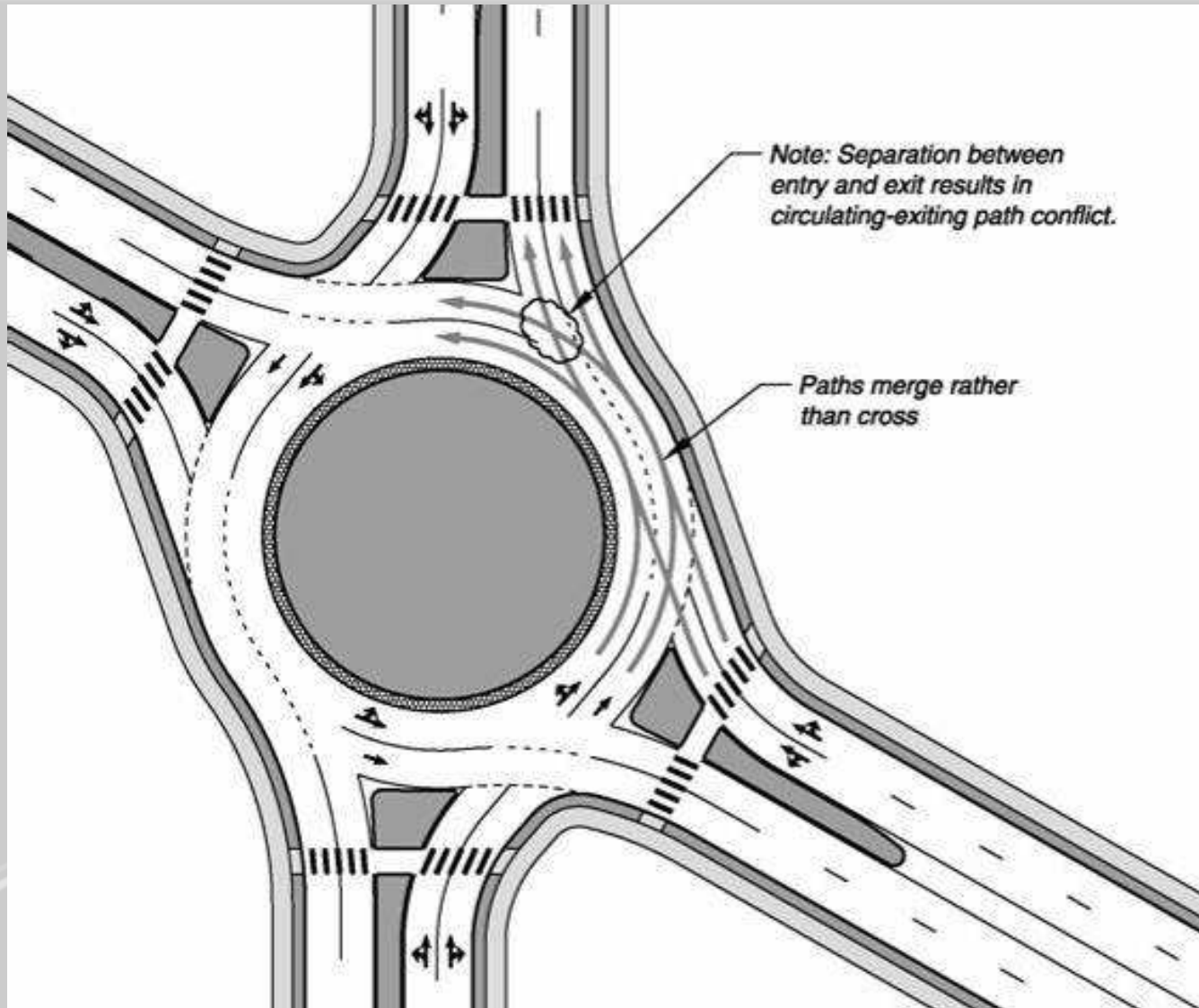


Photo: Casey Bergh

Fundamental Principles

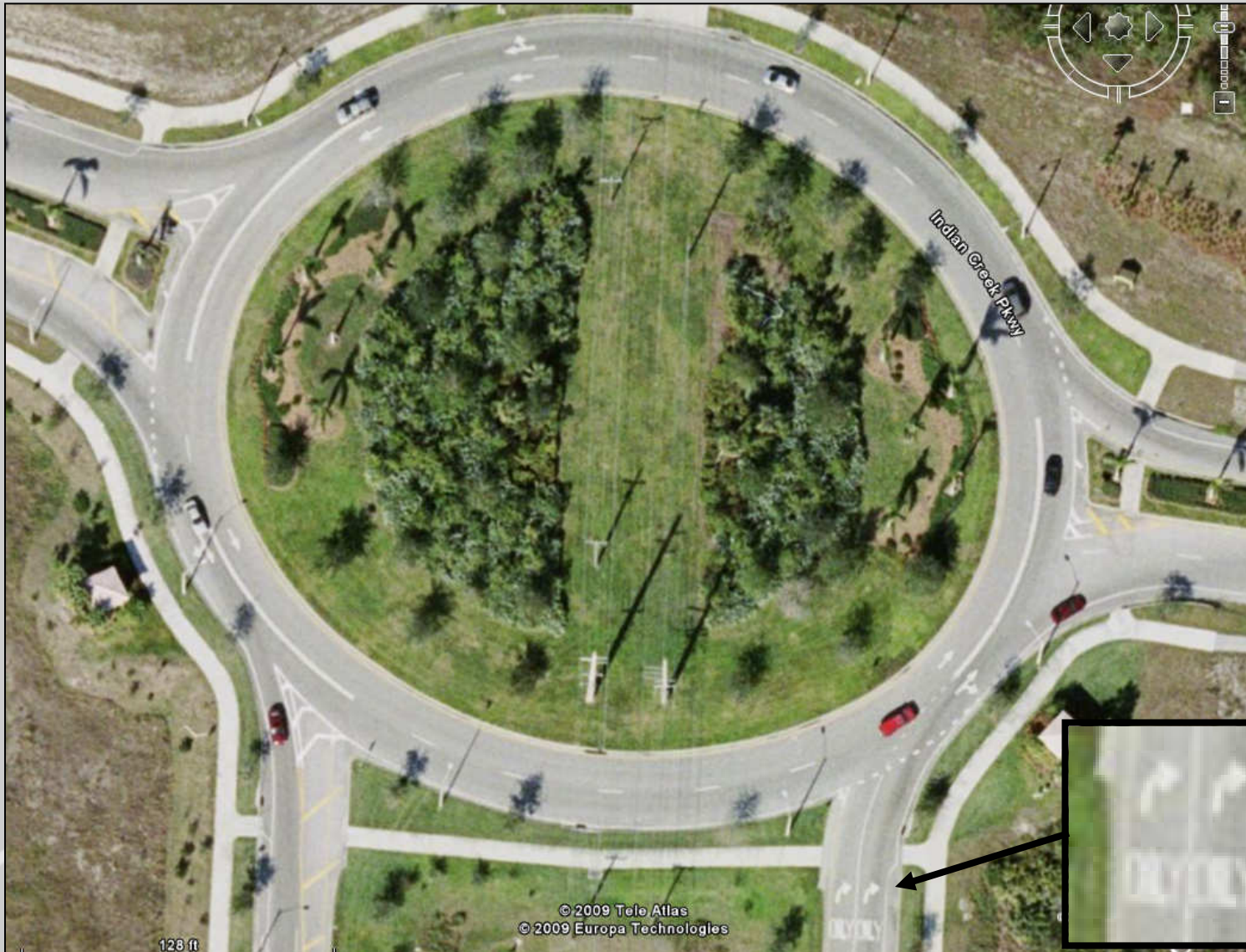
- Signing and pavement markings are integral to the design of a roundabout
- Geometric design does most of the work
 - Speed control
 - Vehicle alignment
 - Conflict point elimination
- Signing and pavement markings help with lane use decisions and legal definitions
- They cannot completely fix geometric design problems
 - Overly large diameters
 - Large separation between adjacent legs

Managing Exit-Circulating Conflicts



Source: Caltrans Report, Fig. 22

Poor markings can make things worse...



Roundabouts in the Proposed MUTCD

- Fundamental principles
- Markings
- Signing
- Next steps

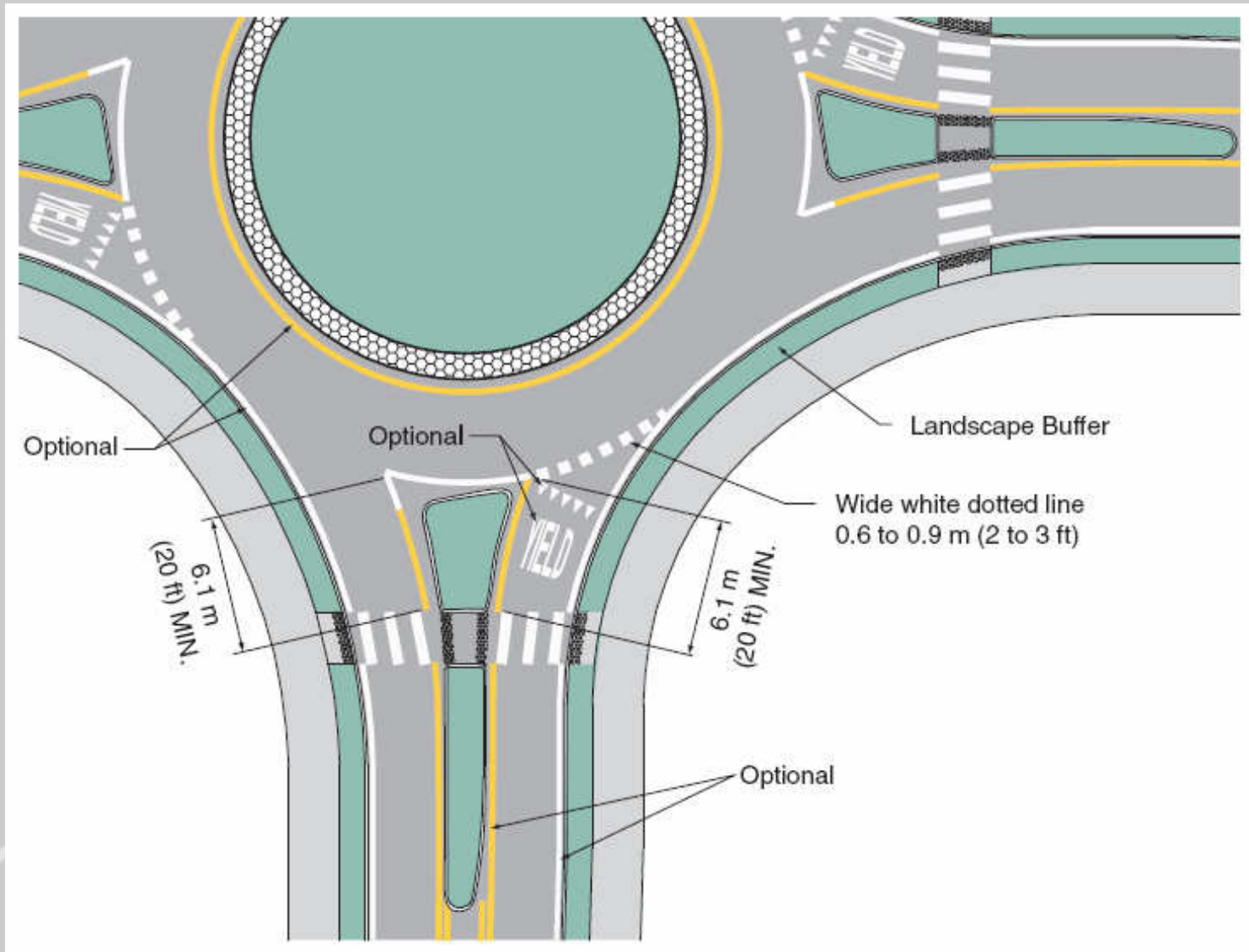


Photo: Casey Bergh

Background

- June 2003 – Barry Crown presents fundamental principles of markings to NCUTCD Council and roundabout task force
- 2003-2004 – Markings development
- 2004-2005 – Signing development
- January 2006 – NCUTCD Council approves material for markings, regulatory/warning & guide signs
- January 2007 – FHWA releases Notice of Proposed Amendments
- Today – FHWA incorporating comments

Example: Single-Lane Roundabout

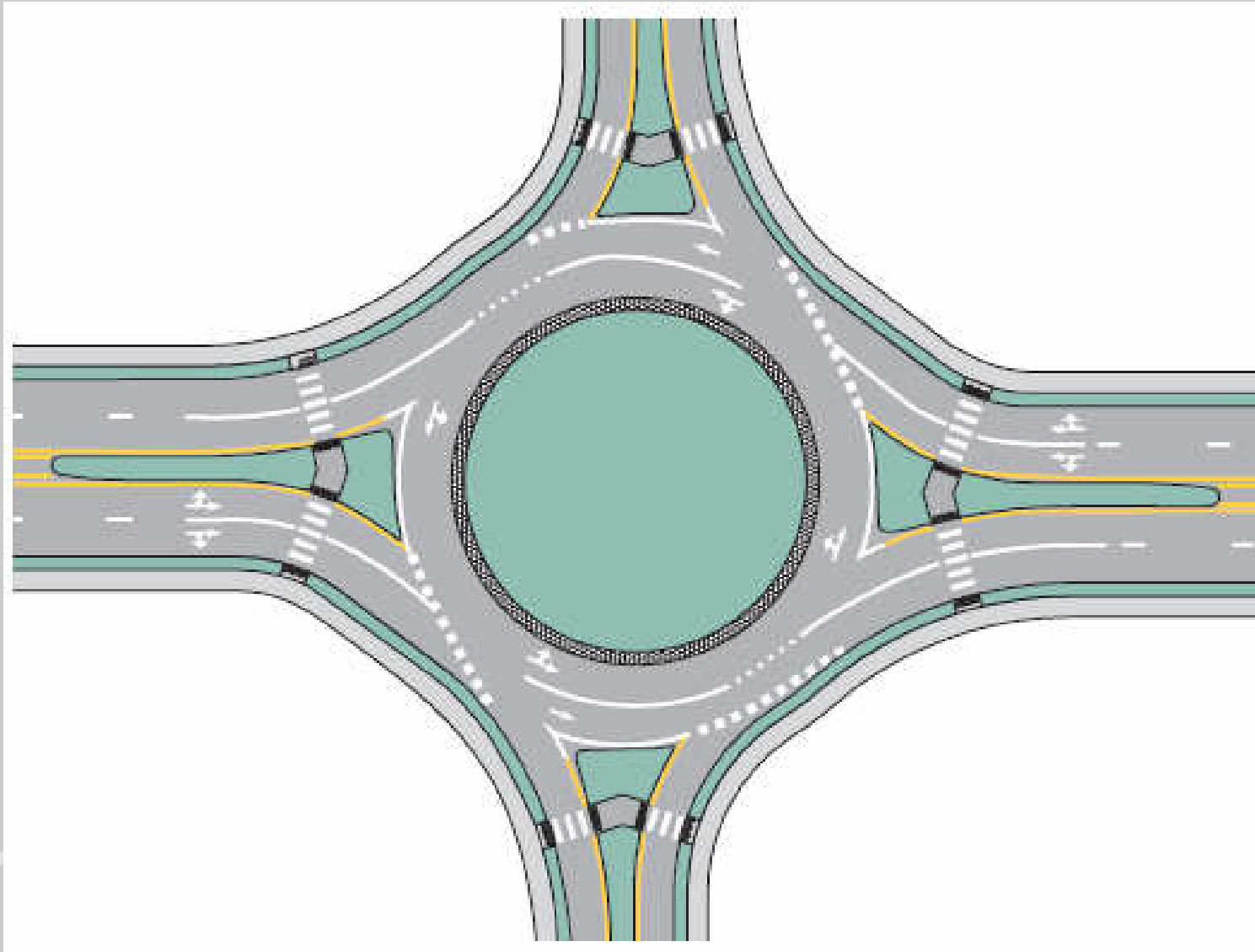


Multilane Marking and Signing

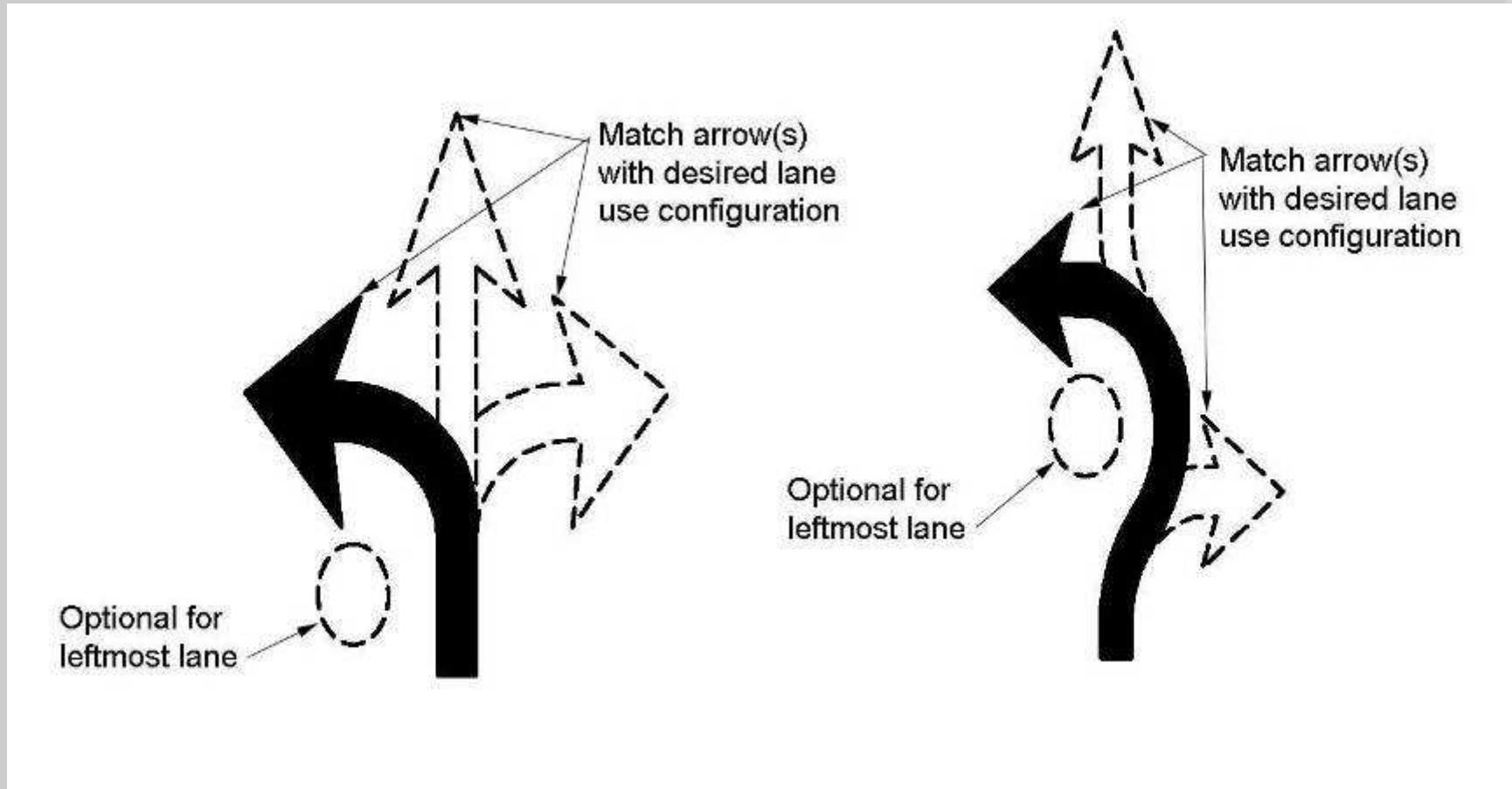
- More complex than for single-lane, but more critical to get right!
- Markings, geometric design, and operational analysis must be integrated for efficient and safe operation
- Key principles:
 - Position vehicle in proper lane in advance of roundabout
 - Facilitate movement through roundabout without requiring lane changes
 - Consistent markings and signs throughout



Example: 2x1 Roundabout



Pavement Arrow Options



Fishhook or not?

- Concern over potential wrong way movements



Photo: Lee Rodegerdts

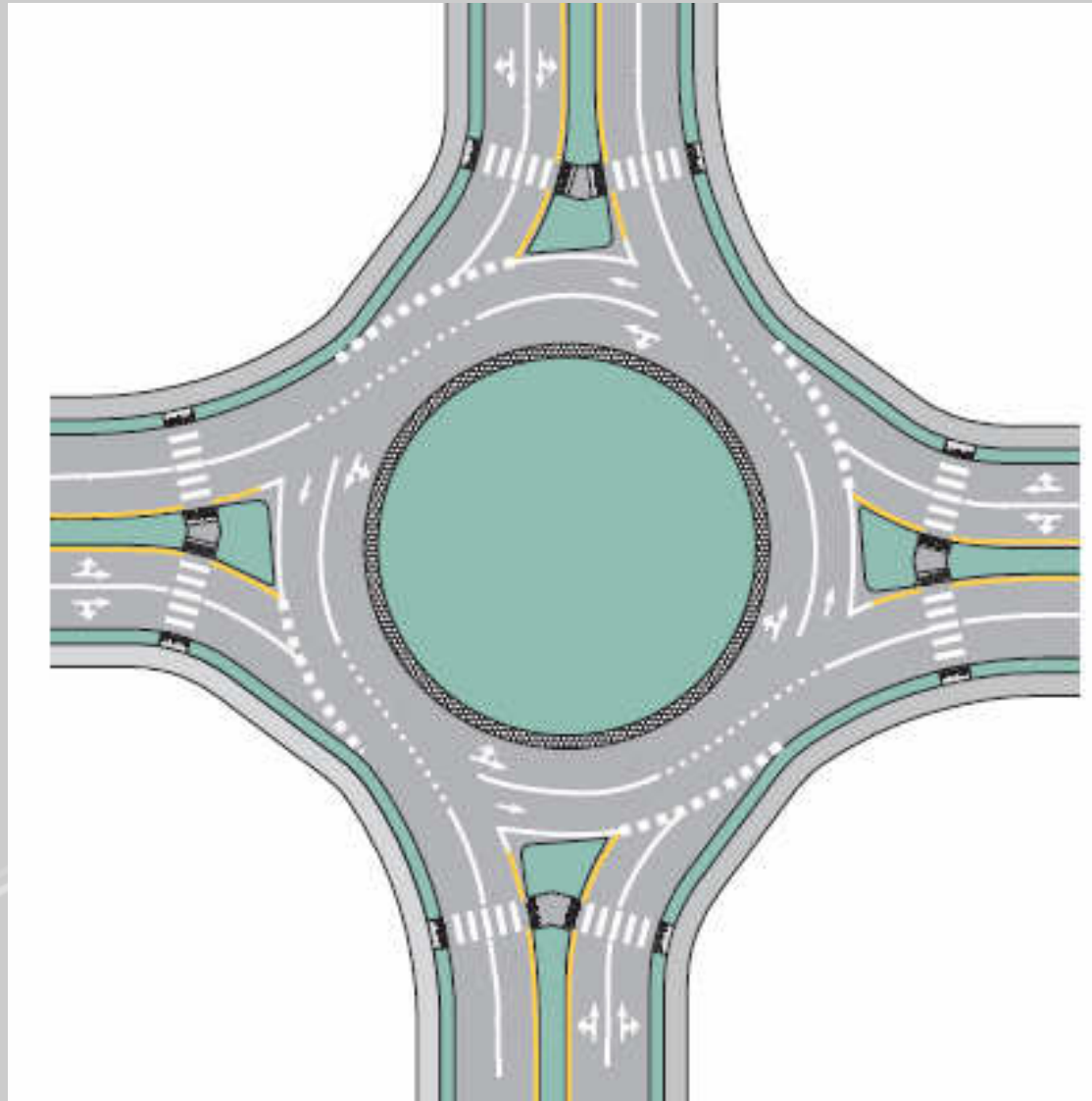
- Debate on whether hooked arrow will solve problem, to the extent it needs addressing
- Ongoing experimentation in some states
- 2009 MUTCD proposed to allow either style for now

Example: 2x1 with hatched spiraling

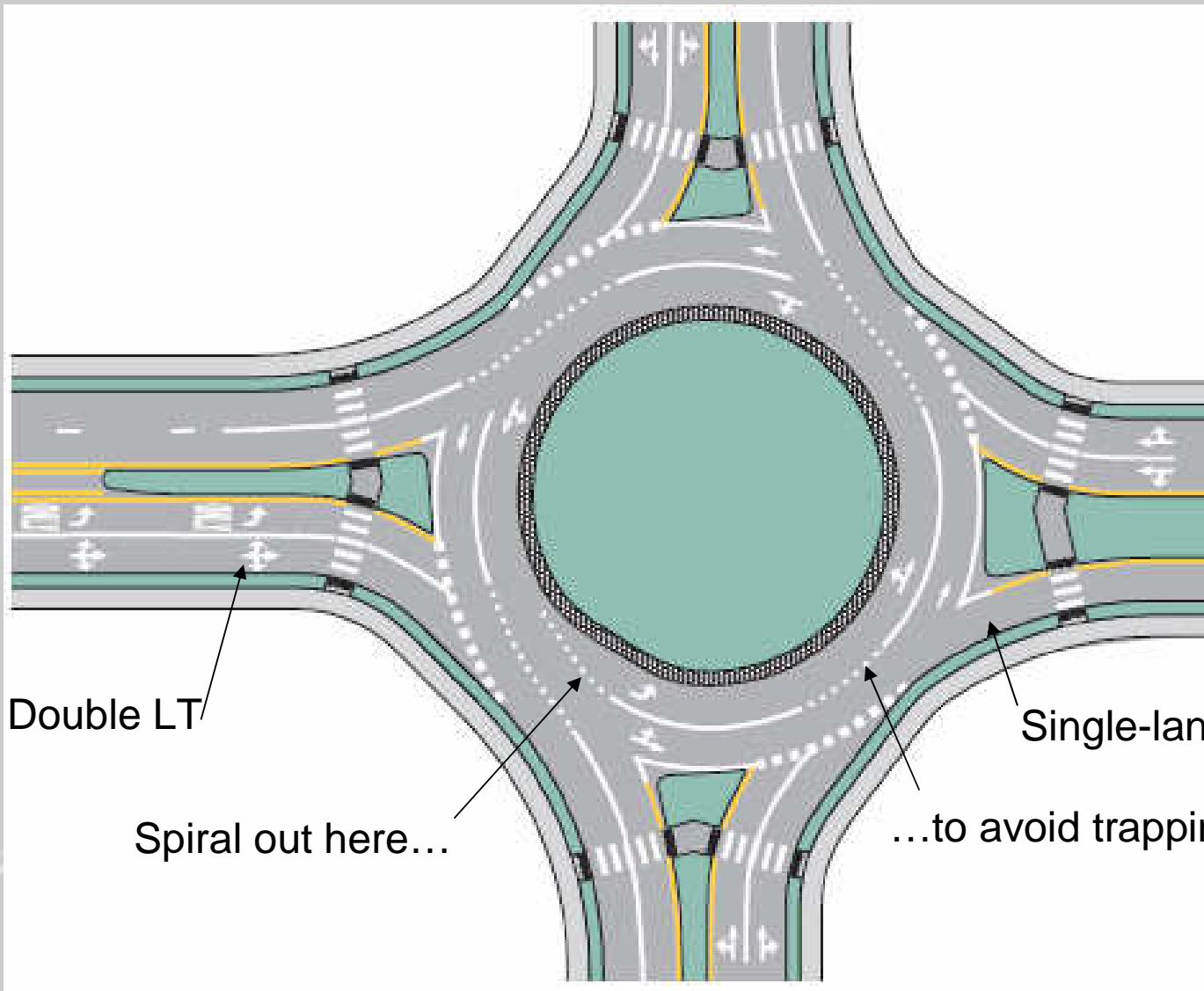


**Muirfield Dr. & Brand Rd.
Dublin, Ohio**

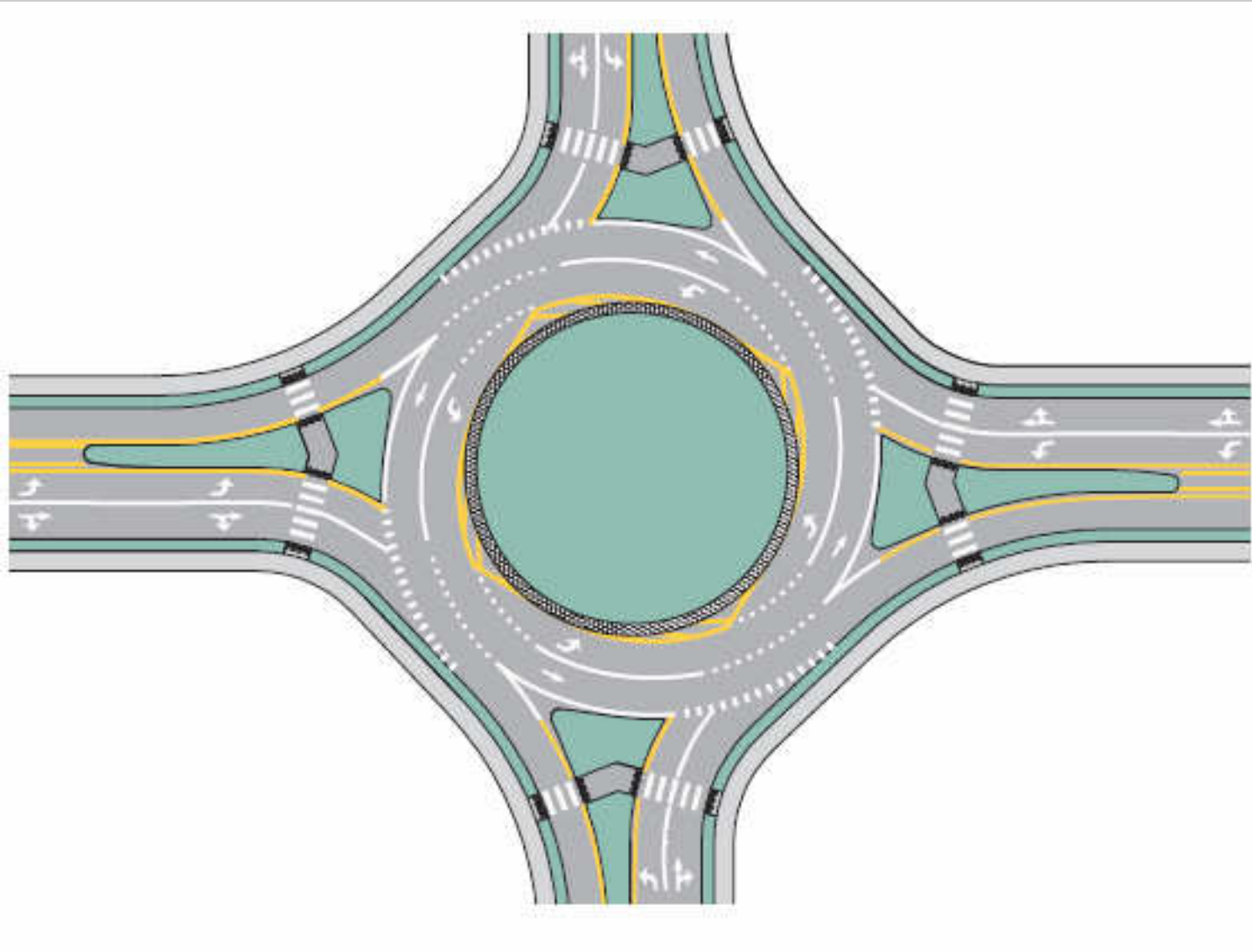
Example: 2x2 Roundabout



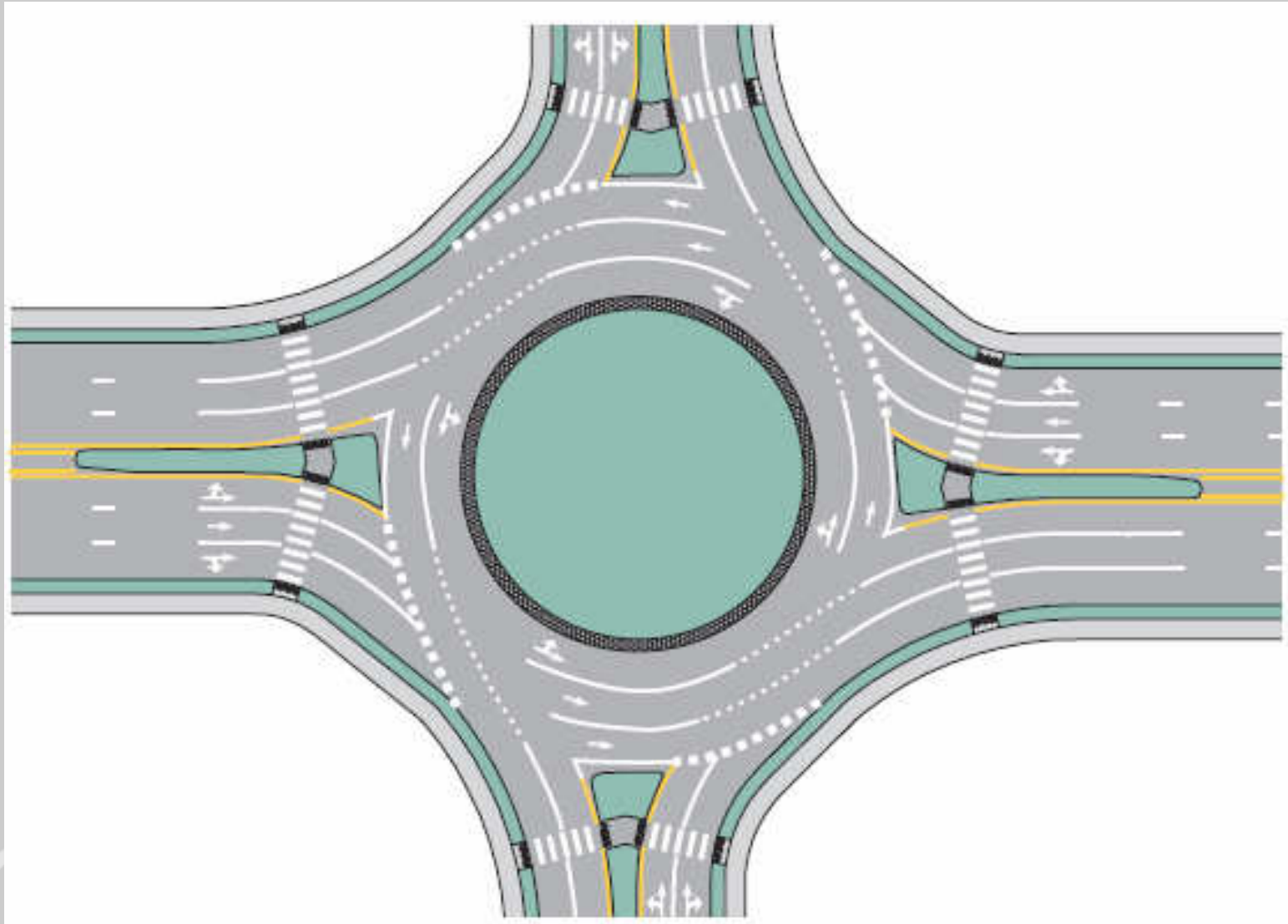
2-Lane Rbt with Double-Left Turn



Example: 2x2 with Exclusive Left-Turn Lanes

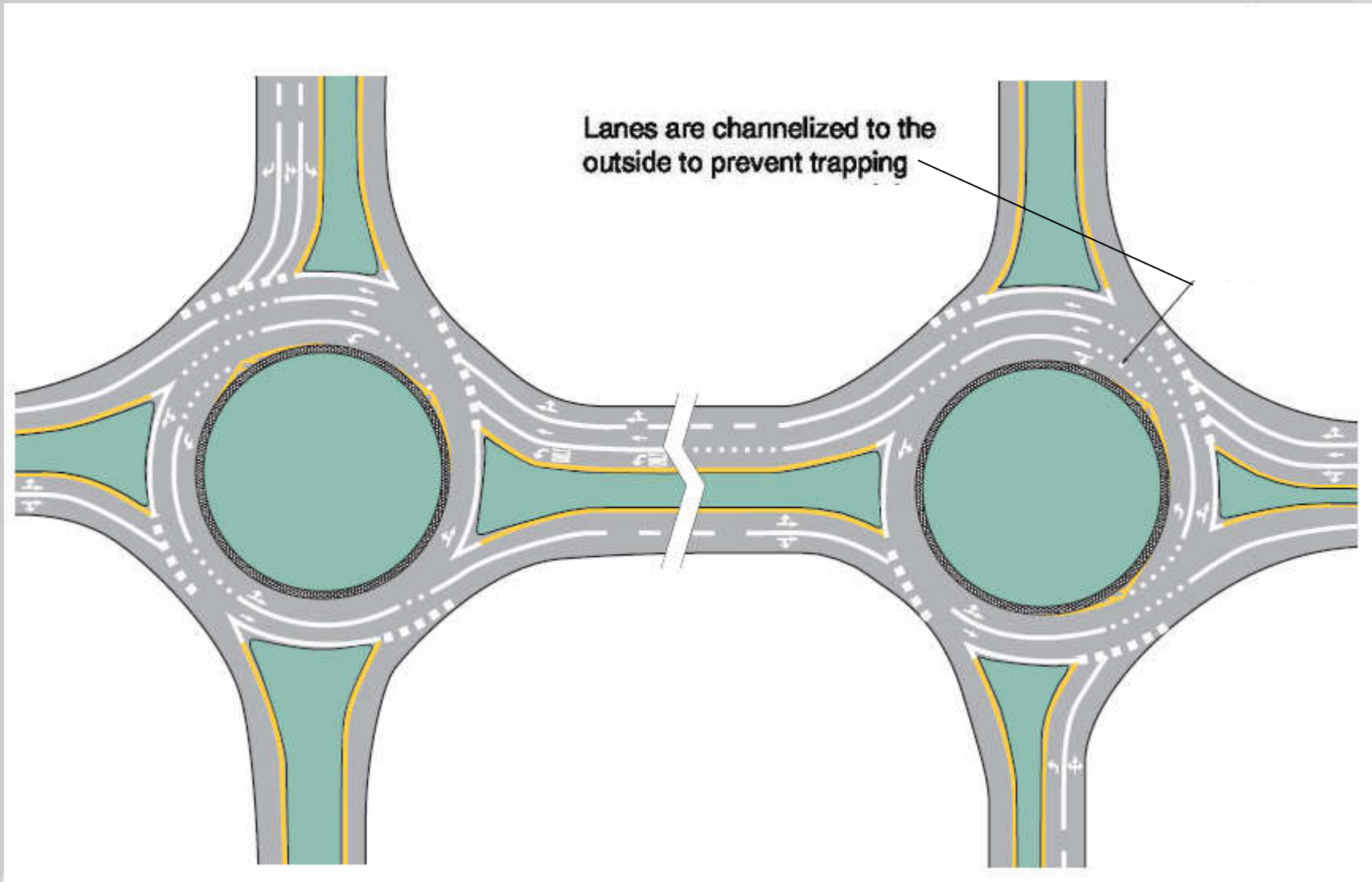


Example: 3x2 Roundabout

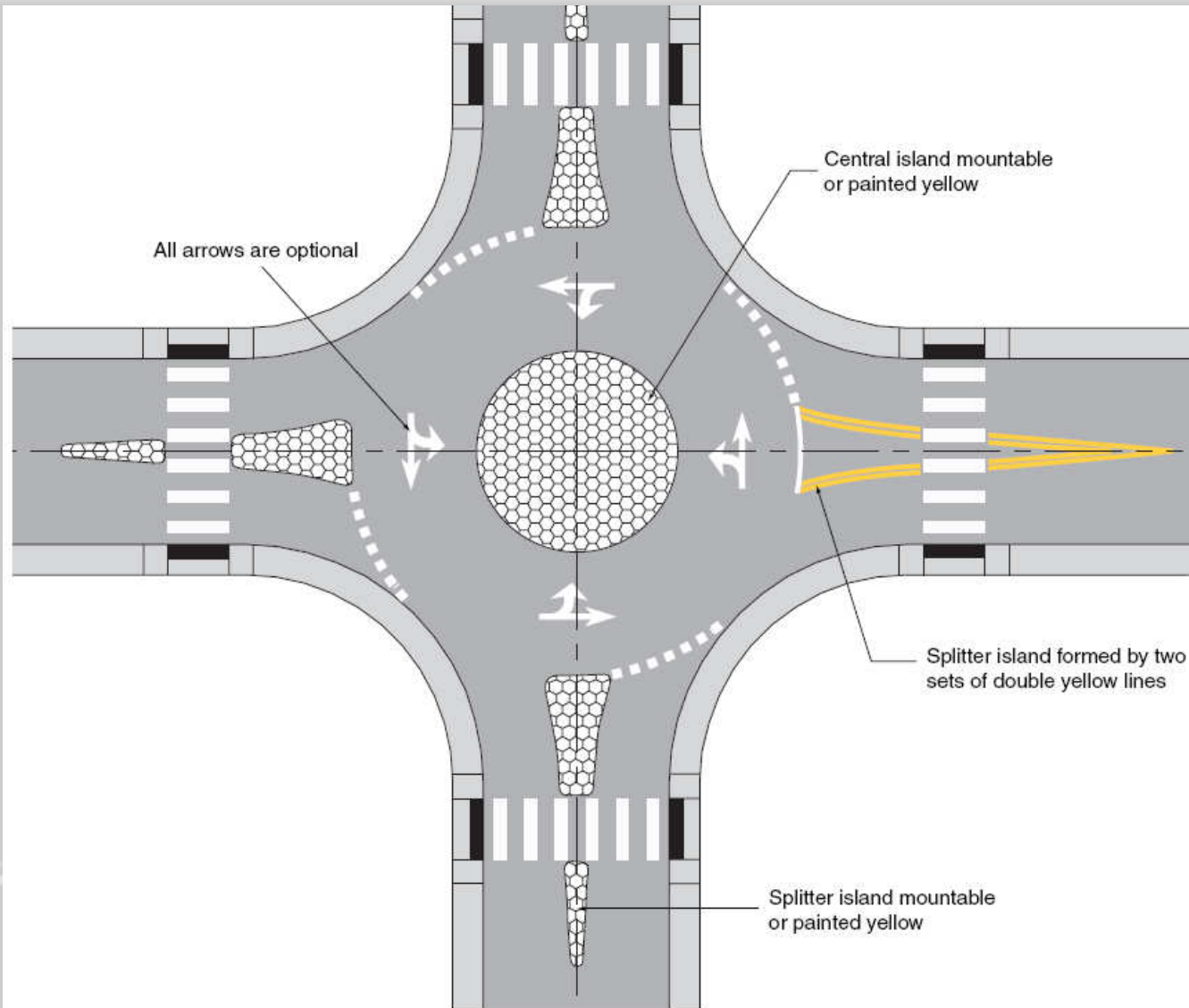


KITTELSON & ASSOCIATES, INC.
TRANSPORTATION ENGINEERING/PLANNING

Example: Two “Linked” Roundabouts



Example: Mini-Roundabout



Roundabouts in the Proposed MUTCD

- Fundamental principles
- Markings
- Signing
- Next steps



Photo: Casey Bergh

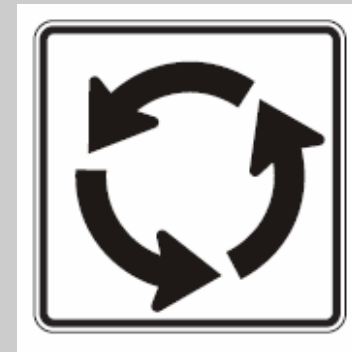
Sign Changes

- Roundabout Chevron Directional sign (new)



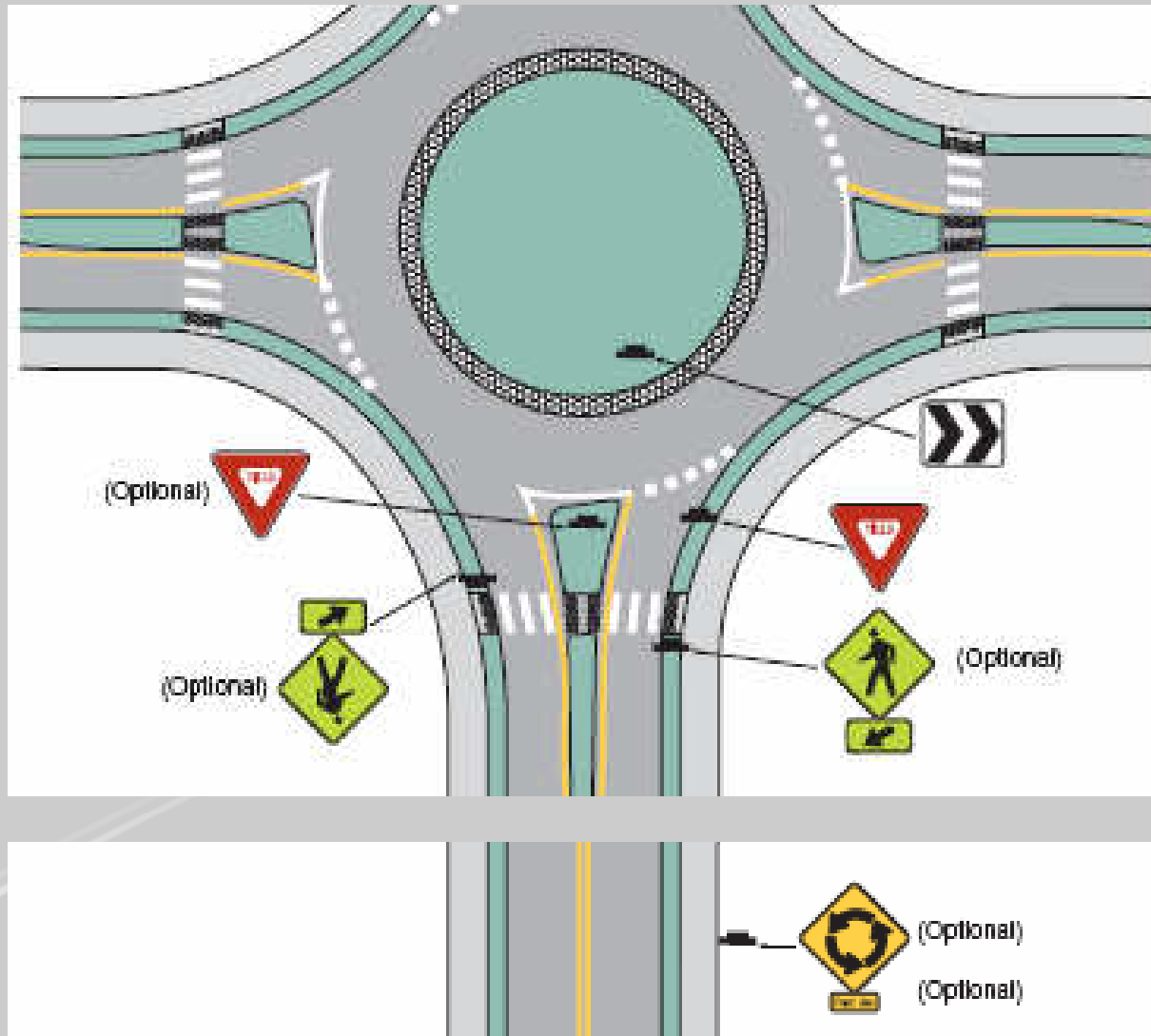
- Black on white, not black on yellow

- Roundabout Circulation sign
 - Supplements yield at minis

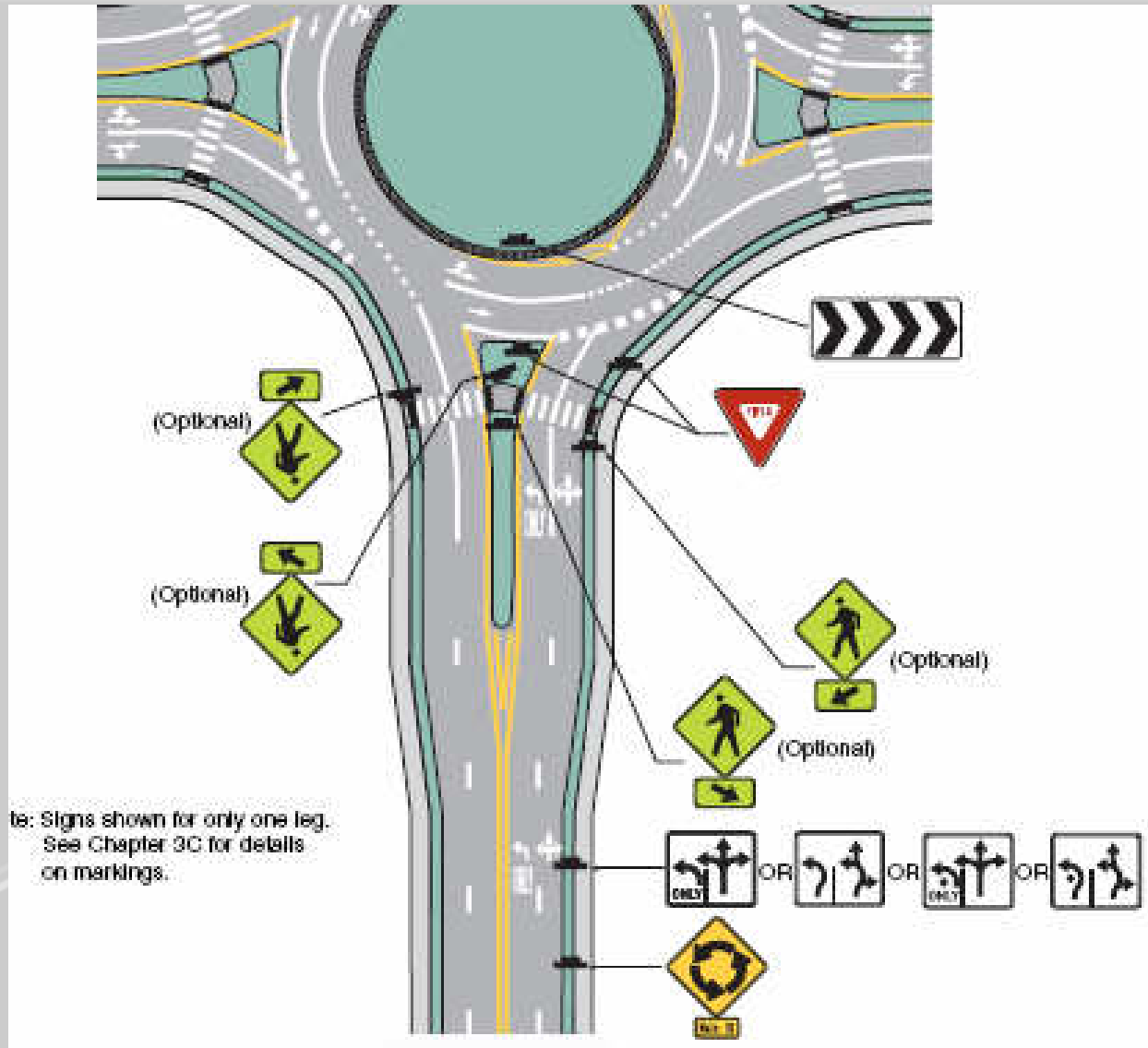


- Minor changes to other signs

Signing: Single-Lane Roundabout

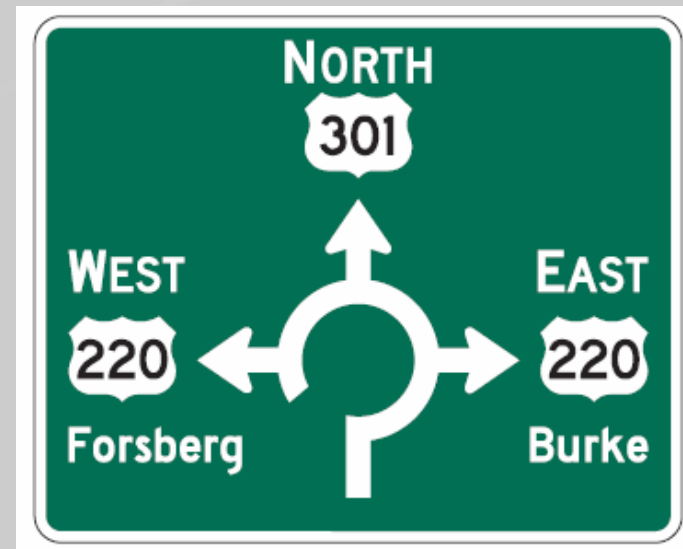
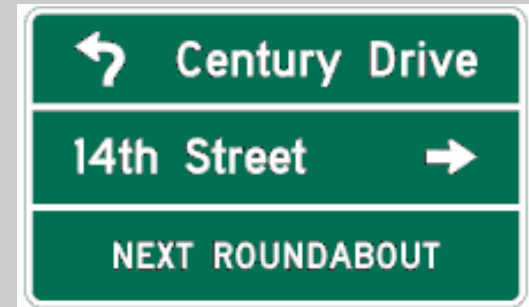


Signing: Multilane Roundabout

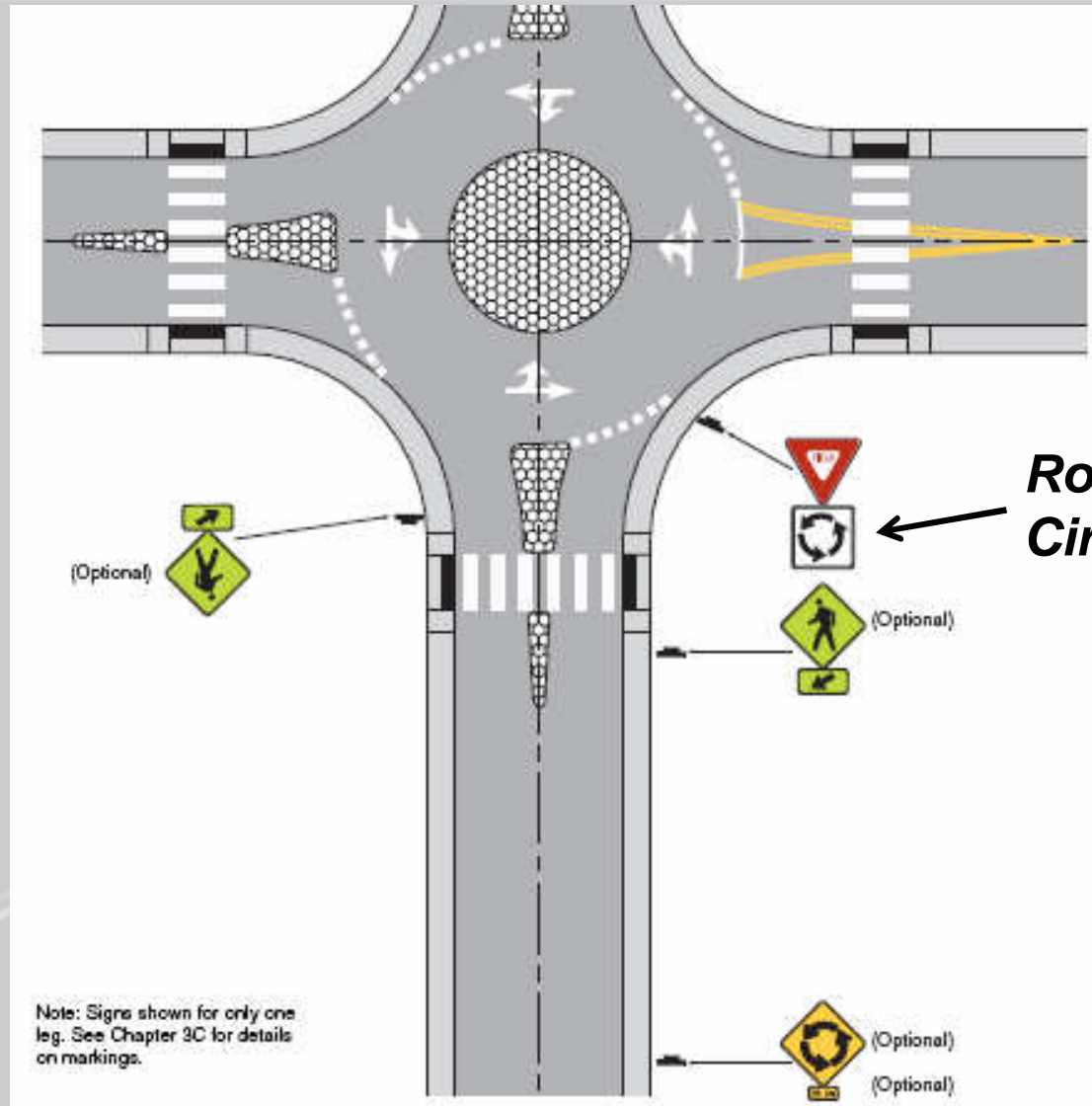


Advance Guide Signs

- Roundabout Destination signs
- Curved stem arrow
- Advance Street Name sign



Signing: Mini-Roundabout



**Roundabout
Circulation sign**

Roundabouts in the Proposed MUTCD

- Fundamental principles
- Markings
- Signing
- Next steps



Photo: Casey Bergh

Next steps under consideration

- Signals
 - Refinements to pedestrian beacons
 - Metering signals
 - Preemption/priority treatments
- Work zone traffic control
 - Single-lane
 - Multilane
- At-grade rail crossings
 - Crossings adjacent to intersection
 - Crossings through intersection



Thank you!

- Lee Rodegerdts, (503) 228-5230
- Irodegerdts@kittelson.com



Photo: Lee Rodegerdts