

Modern Roundabouts – An Overview

Minneapolis Pedestrian Advisory
Committee

August 5, 2009

Modern Roundabout Overview



"Rotary" Traffic Circle (Madrid, Spain)



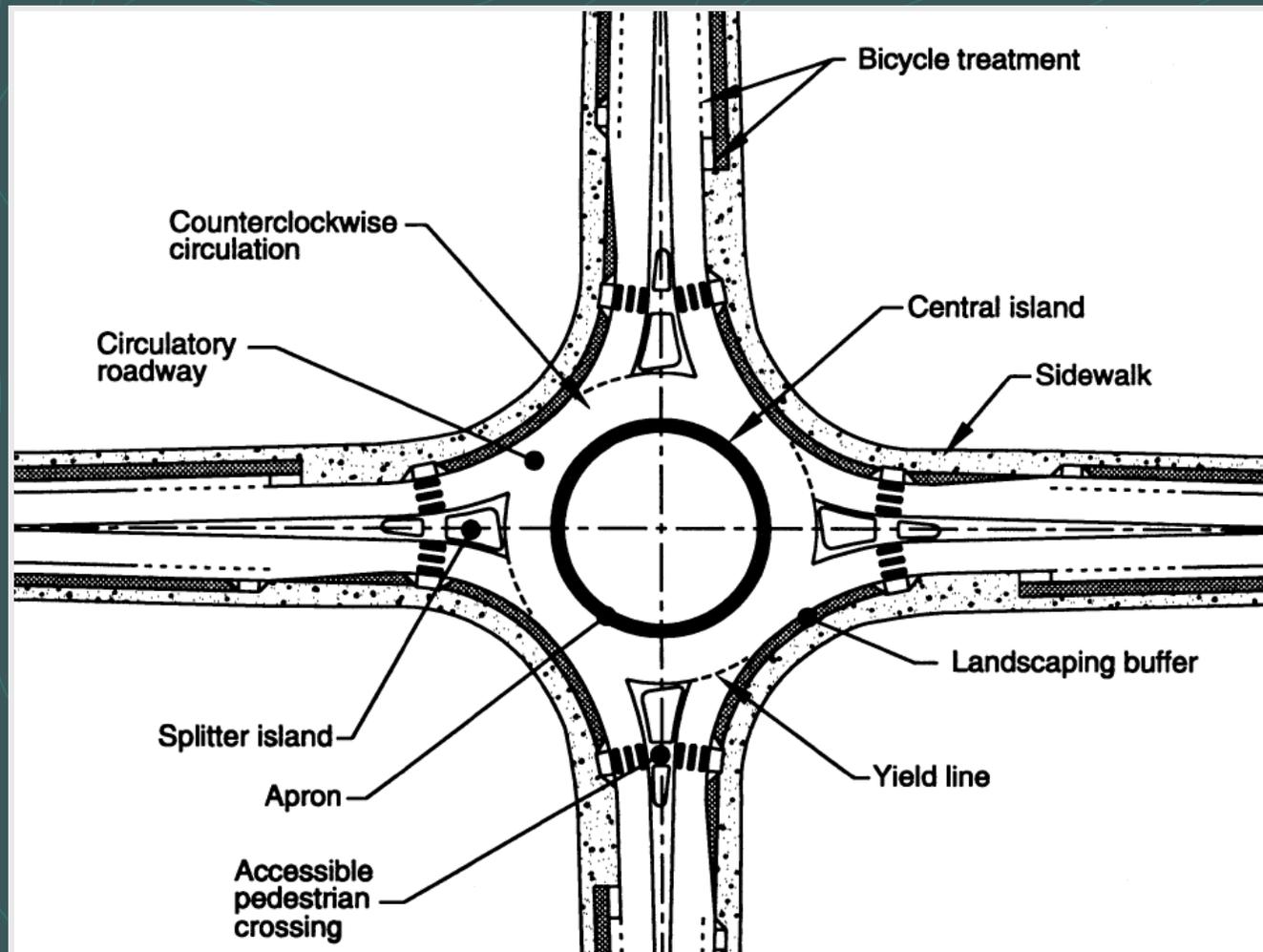
Medford's First Day



Medford Roundabouts



Roundabout Features



Truck Apron



With...

Without...



Photos: Lee Rodegerdts

Additional Features

Photo: Lee Rodegerdt

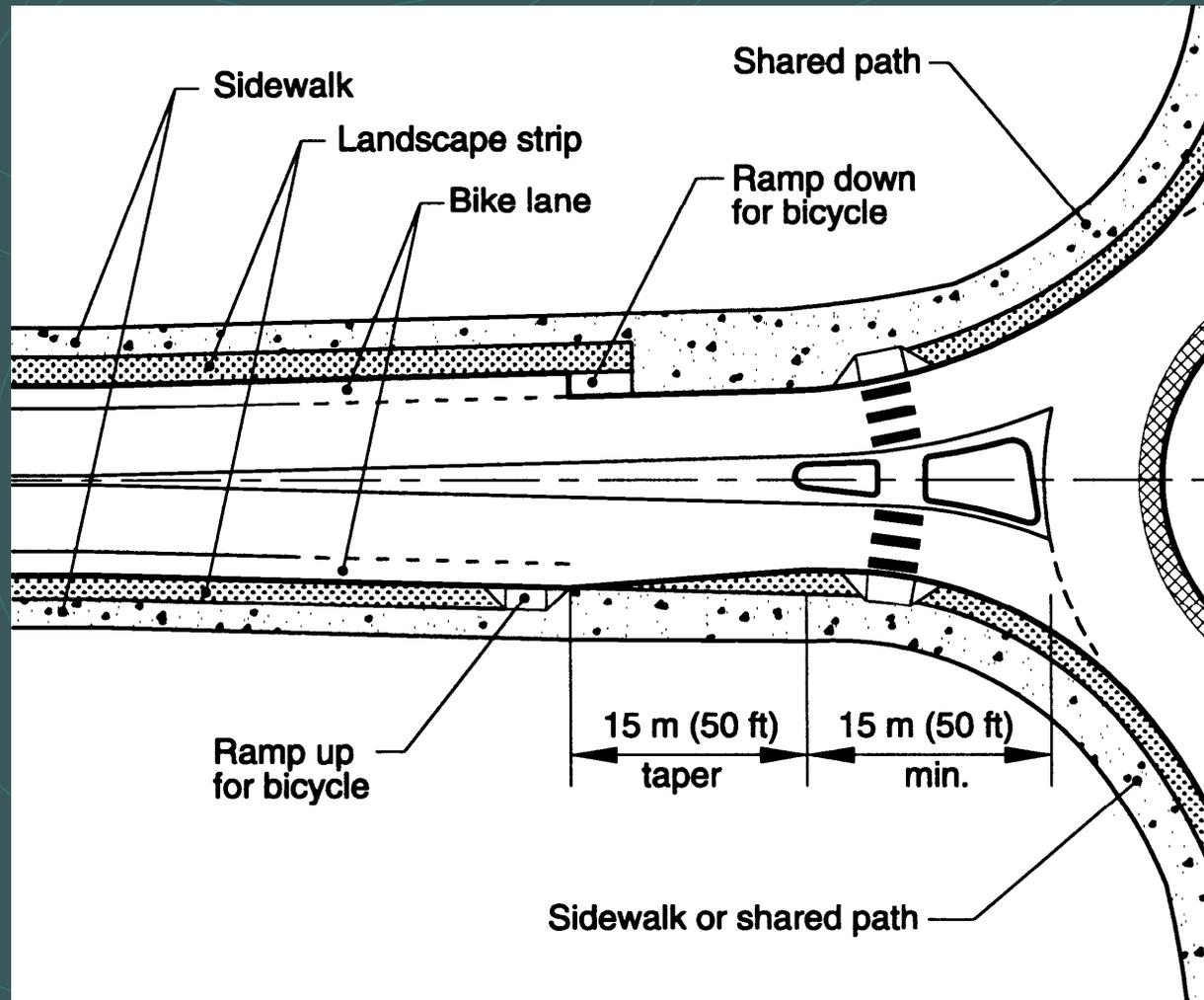


Photo: Lee Rodegerdt

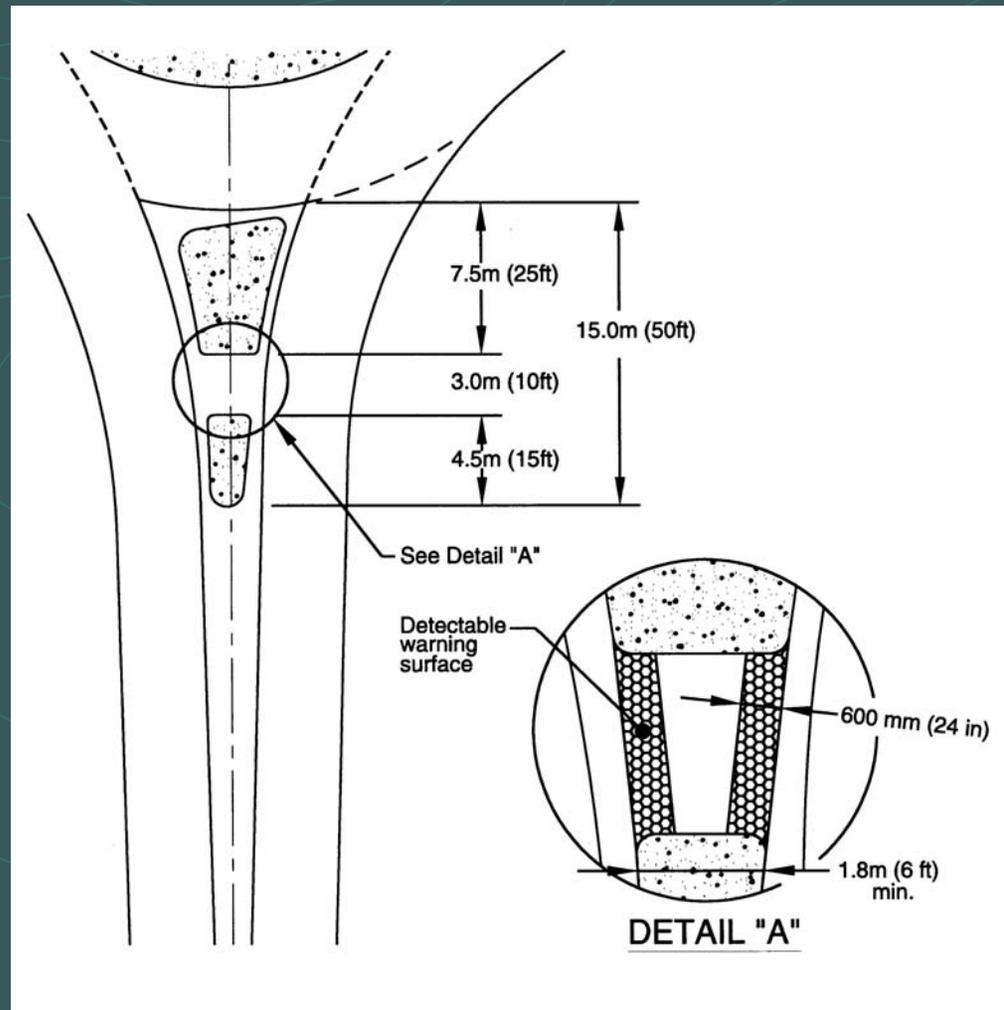


Photo: Paul Ryus

Bicycles: Provide Options



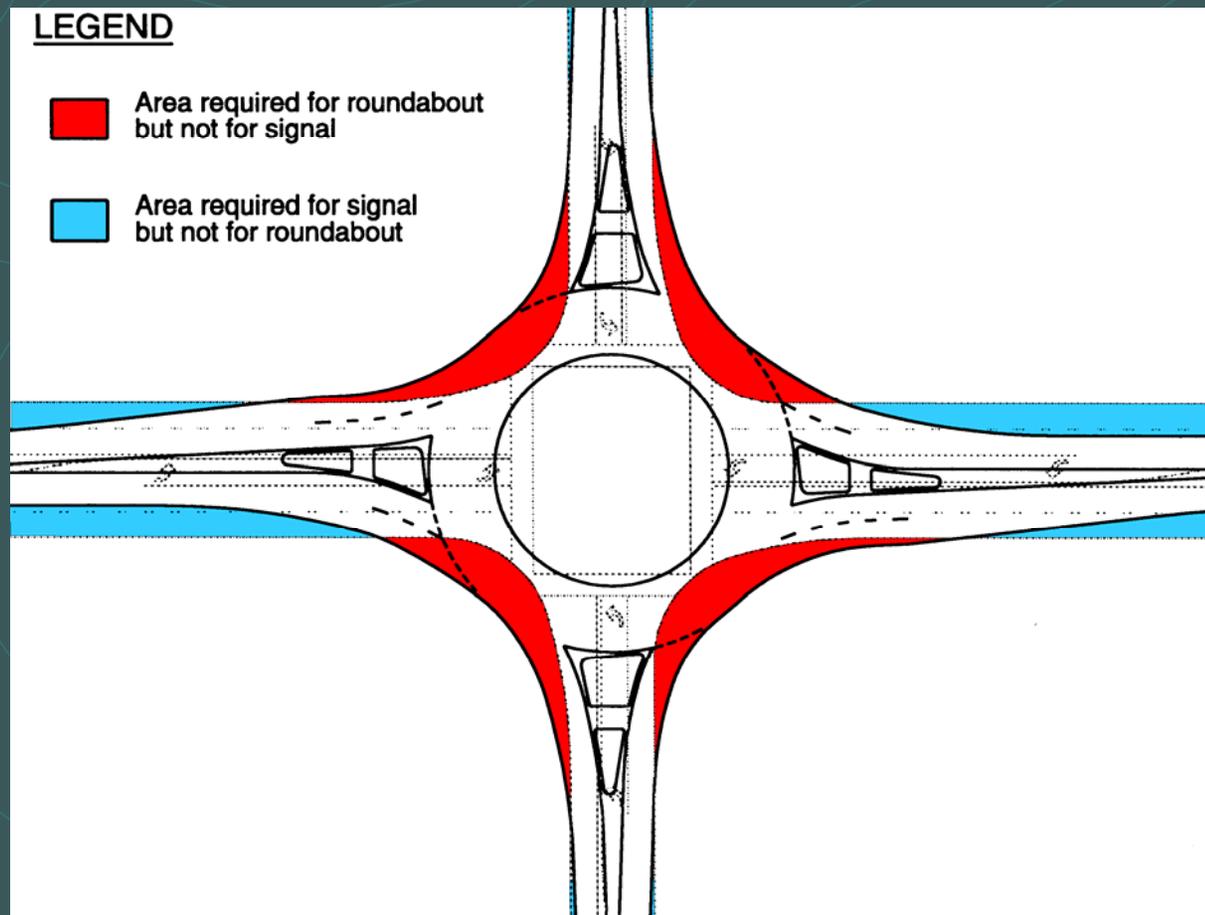
Pedestrians: Provide Refuge



Pedestrian Mobility



Space Requirements



“Narrow roads / wide nodes”

Capacity

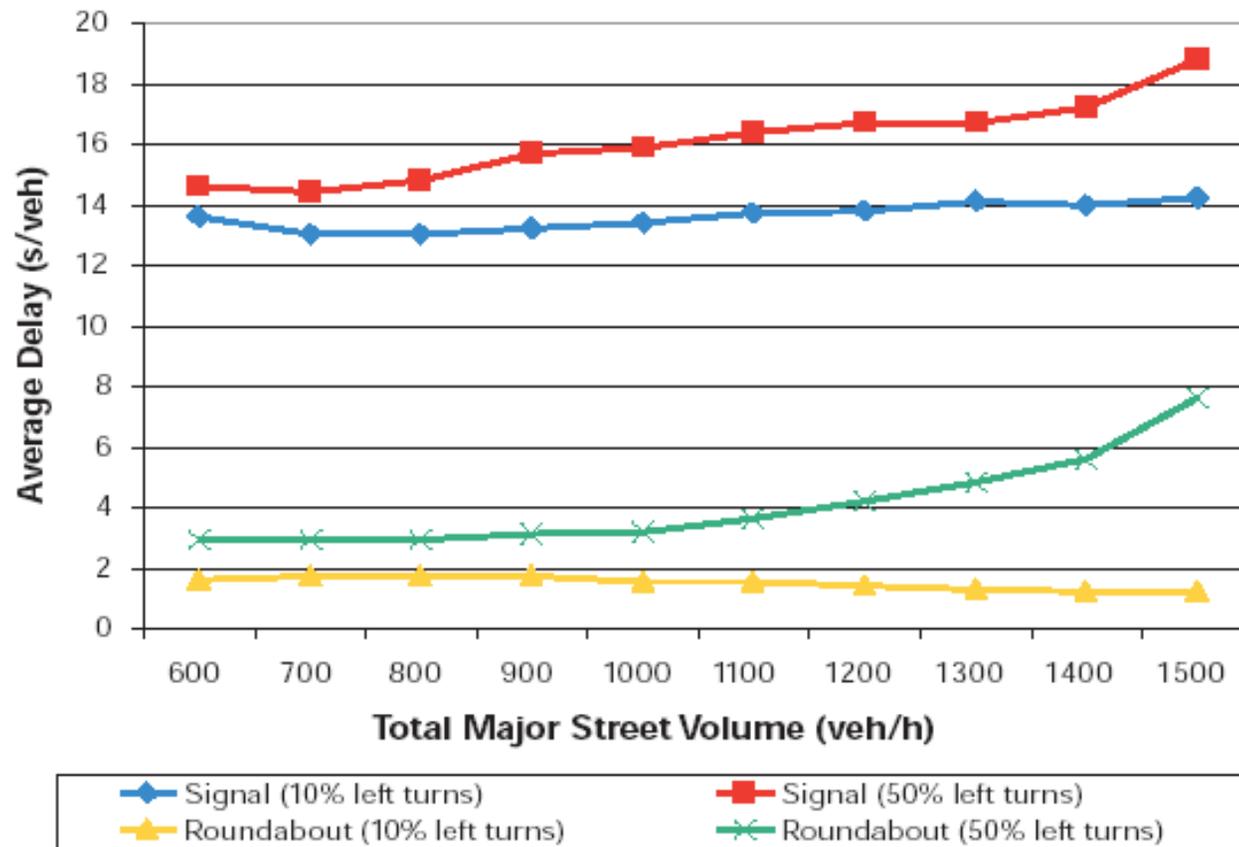
Traffic Volumes Accommodated

Type	Typical ICD	Typical Volumes
Mini-roundabout	45-80'	10,000 ADT
Urban compact	80-100'	15,000 ADT
Urban single lane	100-130'	20,000 ADT (34,000 in FL)
Urban multi-lane	150-180'	50,000 – 70,000 ADT
Rural single lane	115-130'	20,000 ADT
Rural multi-lane	180-200'	50,000 – 70,000 ADT

Assuming 4 perpendicular legs

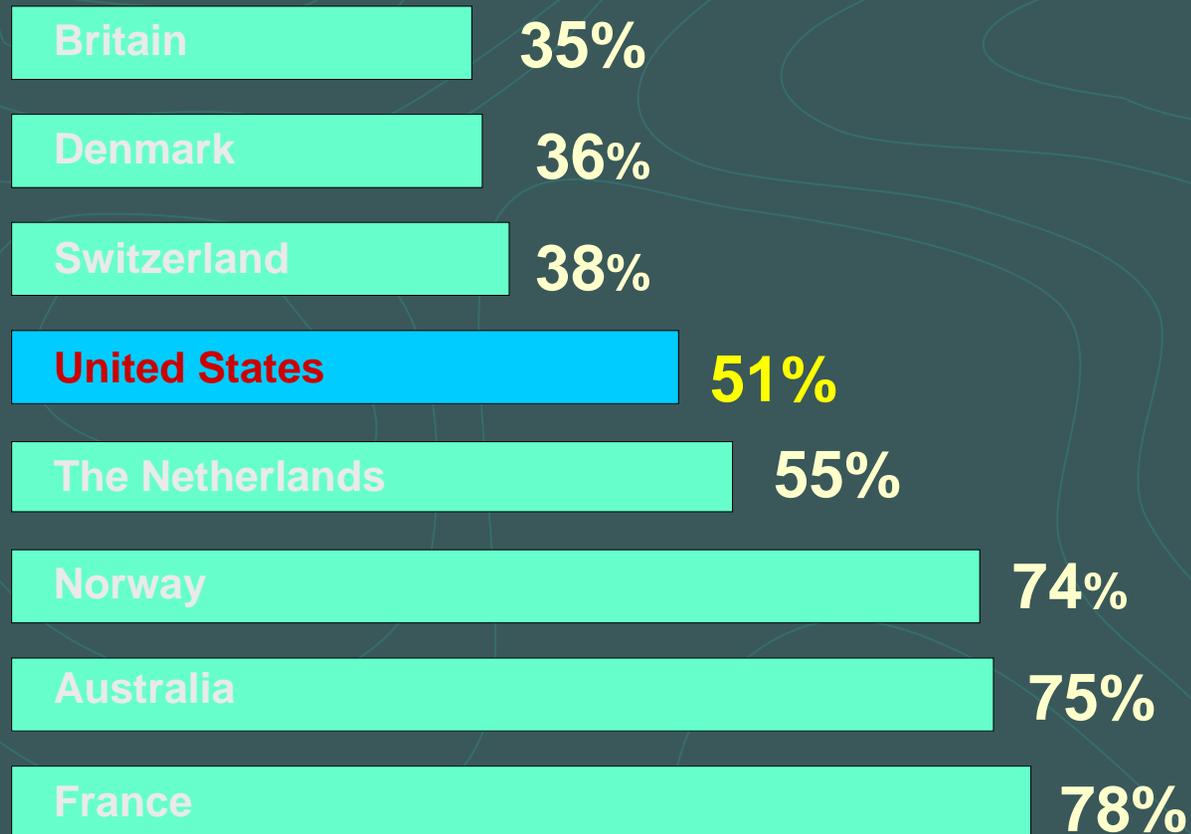
Capacity

Delay Comparison – Roundabouts vs. Signals



Safety

Injury Crash Reduction



Source: Maryland Department of Transportation; NCHRP synthesis



Safety

Overall Crash Reduction

Insurance Institute for Highway Safety

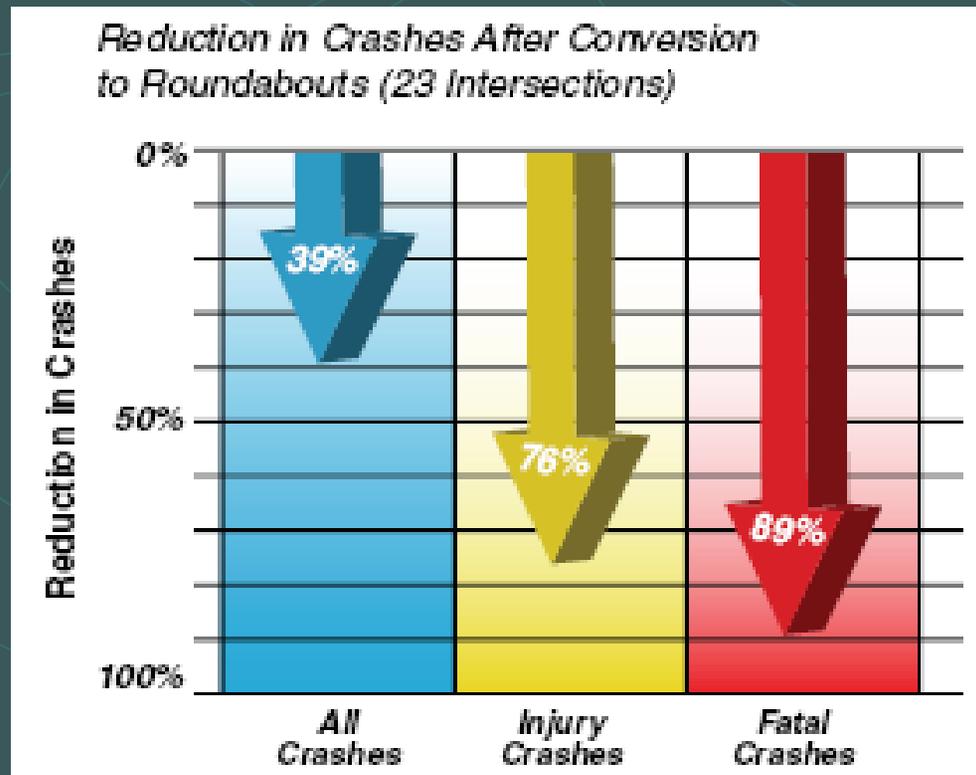
"Crash Reductions Following Installation of Roundabouts in the United States"

- 24 intersections in 8 states converted to roundabouts
- 39% Reduction in **All** Crashes
- 76% Reduction in **Injury** Crashes
- 89% Reduction in **Fatal** Crashes

Safety

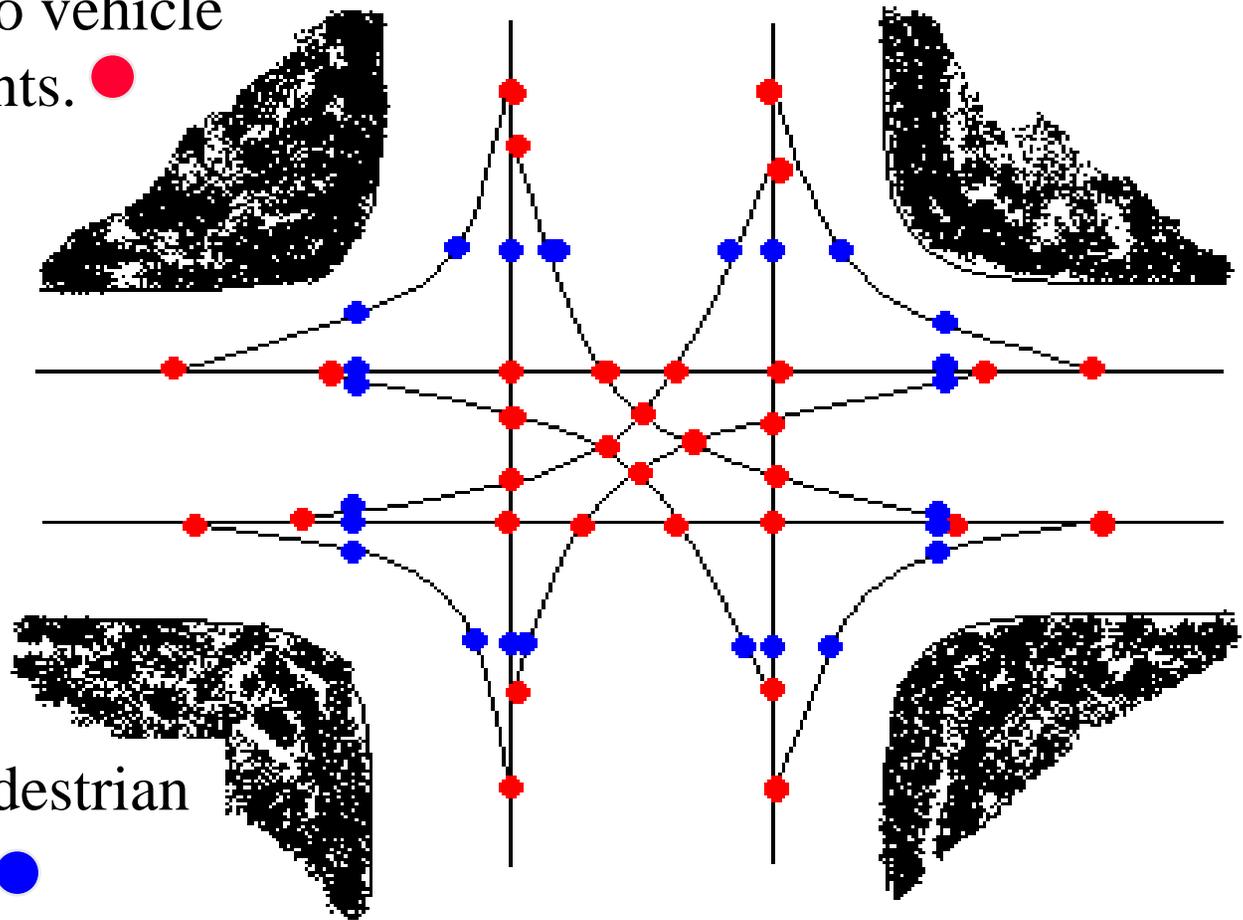
Overall Crash Reduction

Insurance Institute for Highway Safety



Conflict Points at 4-leg Intersection

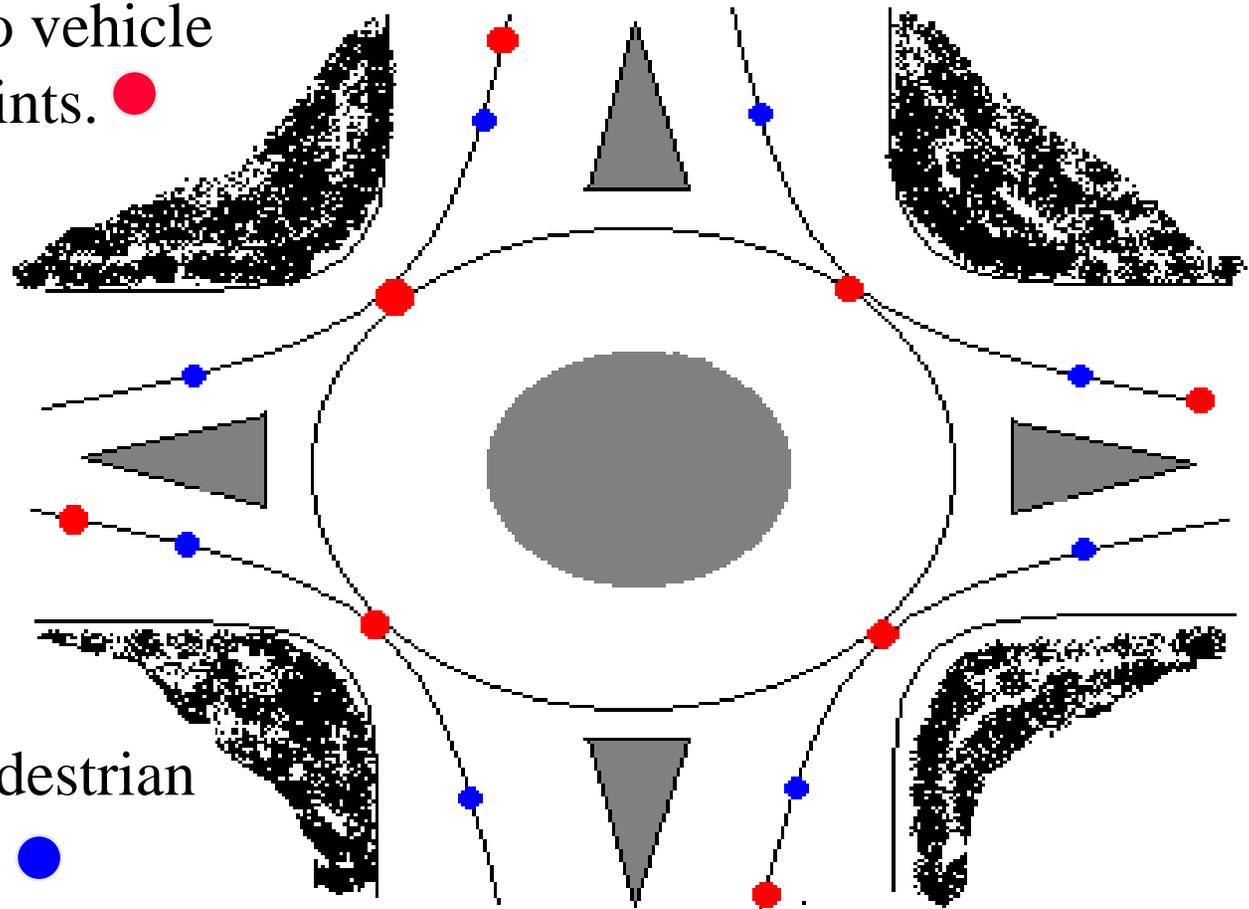
32 vehicle to vehicle
conflict points. ●



24 vehicle to pedestrian
conflict points. ●

Conflict Points at Roundabouts

8 vehicle to vehicle
conflict points. ●



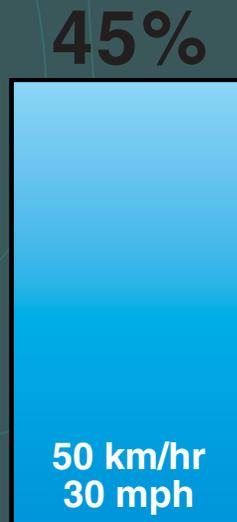
8 vehicle to pedestrian
conflict points. ●

Pedestrian Safety



Pedestrian Safety

Chance of pedestrian death increases with vehicle speed



Access Management



Golden Colorado

- 60% drop in crashes, 94% drop in injuries
- Prior – 31 injuries in 3 years
- After –1 (at median opening)



Intersection Control Evaluation (ICE)

- Formal analysis performed to determine the appropriate traffic control at an intersection
- Roundabouts considered equally versus other types (e.g. 4-way stops, signals)
- Just as important that they not get built where they won't work optimally

Where are we going with this?



Swindon, England



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