

A ROUNDABOUT AGE?



Roundabouts have been used for years in certain countries, yet completely avoided in other countries...

- Benefits/disbenefits?
- Safety Aspects?
- Best traffic environments for them?

YIELD AT ENTRY



ROTARIES to ROUNDABOUTS

Johnson City, NY



Kingston, NY



Roundabout Characteristics

- Entering vehicles yield to circulating traffic, i.e vehicles circulating have right-of-way
- Deflection is used to maintain low speed operation (usually less than 40 km/h)
- Parking is prohibited on the circulatory roadway
- Pedestrians are (usually) prohibited from the central island
- All vehicles circulate around the central island in the same direction. Left turns in front of the island are prohibited

...anything else is a traffic circle or rotary

MAJOR INTERSECTION PROBLEMS

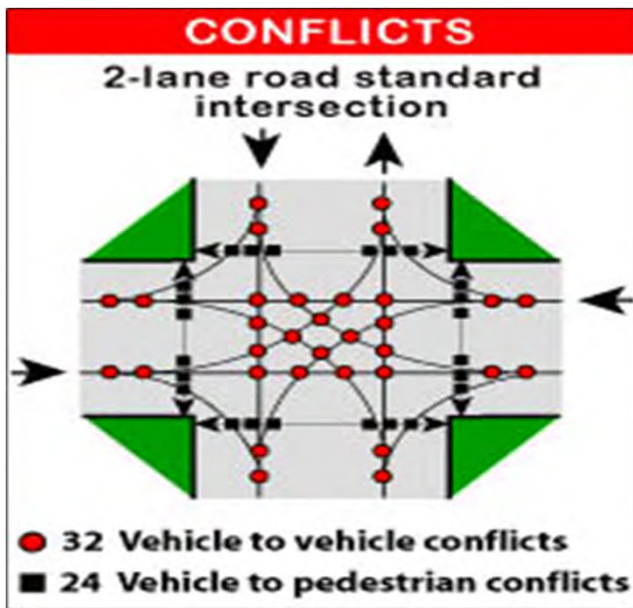


SAFETY ASPECTS

- Conflict points - reduced & spatially separated
- Speeds - reduced & more consistent
- No turning vs opposing movements - reduces severity of accidents
- Simplified driver decision-making
- Clearer indication of drivers' right-of-way
- Heightened awareness of drivers as they are forced to reduce speed

- *Conflict Points*

Conventional Intersection



Modern Roundabout



Diagrams Courtesy of Alaska Roundabouts

Intersection Treatment		Mean Casualty Accident Rate	Typical Range of Casualty Accident Rates
T	Unsignalised	1.5	1.3 – 1.7
	Signalised	1.4	1.2 - 1.6
X	Unsignalised	2.4	2.1 – 2.7
	Signalised	1.7	1.6 – 1.8
Multi-leg	Signalised	3.2	2.8 – 3.6
Roundabout	High Volume	0.8	0.6 – 1.1
	Low Volume	0.4	0.1 – 1.0

Table from AUSTRROADS Guide to Traffic Engineering Practice, Roundabouts pp. 16

- *Pedestrian Safety*

- For single-lane roundabouts, the number of pedestrian crashes is about 3-4 times less than for comparable signalised intersections
- For multi-lane roundabouts, the number of pedestrian crashes is about the same as for comparable signalised intersections
- The severity of pedestrian crashes is lower for roundabouts than for other forms of traffic control

- ***Bicycle Safety***

Cyclists account for:

- 1% of crashes* at signals
- 4% of crashes* at priority controlled intersections
- 6% of Crashes* at roundabouts

**Injury and Non-injury Crashes (Transfund 2000)*

- Higher under-reporting for non-injury crashes
- 6% of **Injury** crashes at signals involve cyclists
- 26% of **Injury** Crashes at roundabouts involve cyclists

(Transfund 2001)

BENEFITS OF ROUNDABOUTS

- Traffic flow: reduce delay, decrease fuel consumption and air pollution
- Safety: reduce injury crashes
- Maintenance: eliminate maintenance and electricity costs associated with traffic signals (approximately \$3,000 per year)
- Aesthetics: central island provides opportunity for landscaping

CONCLUSIONS

Roundabouts

- Not suitable for all traffic environments.
- There are situations where performance is outstanding when designed properly.
- Advisable that thorough traffic studies be undertaken before constructing a roundabout or converting an existing intersection to a roundabout.

Thank you...

Questions?