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?
YEILD 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

- Traffic Congestion & Queuing/Delays
- Vehicle Emissions
- Crashes
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
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<th>Intersection Treatment</th>
<th>Mean Casualty Accident Rate</th>
<th>Typical Range of Casualty Accident Rates</th>
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Table from AUSTROADS 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?