

Roundabout Workshop

Module 3

Planning & Policy Considerations

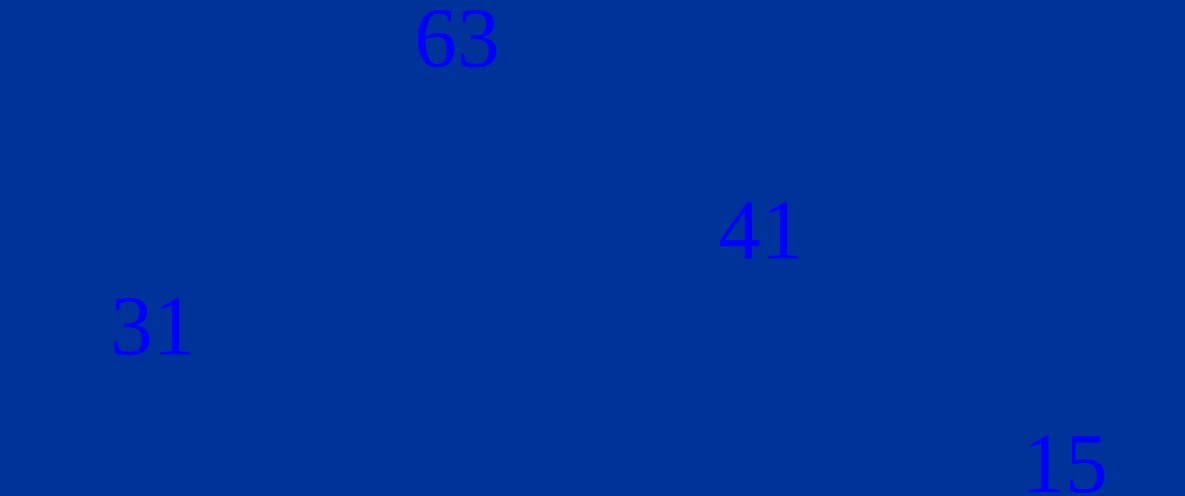
Reasons Why Agencies Have Not Yet Built Roundabouts

- **Not sure drivers will get used to them** 37%
- **Not sure they work efficiently** 34.3%
- **Not sure they are safe** 17.1%
- **Not part of AASHTO Guides** 14.3%
- **Concerned about liability** 14.3%

Public Attitude Toward Roundabouts Before And After Construction

Attitude	Before Construction	After Construction
■ Very Negative	23%	00%
■ Negative	45%	00%
■ Neutral	18%	27%
■ Positive	14%	41%
■ Very Positive	0%	32%

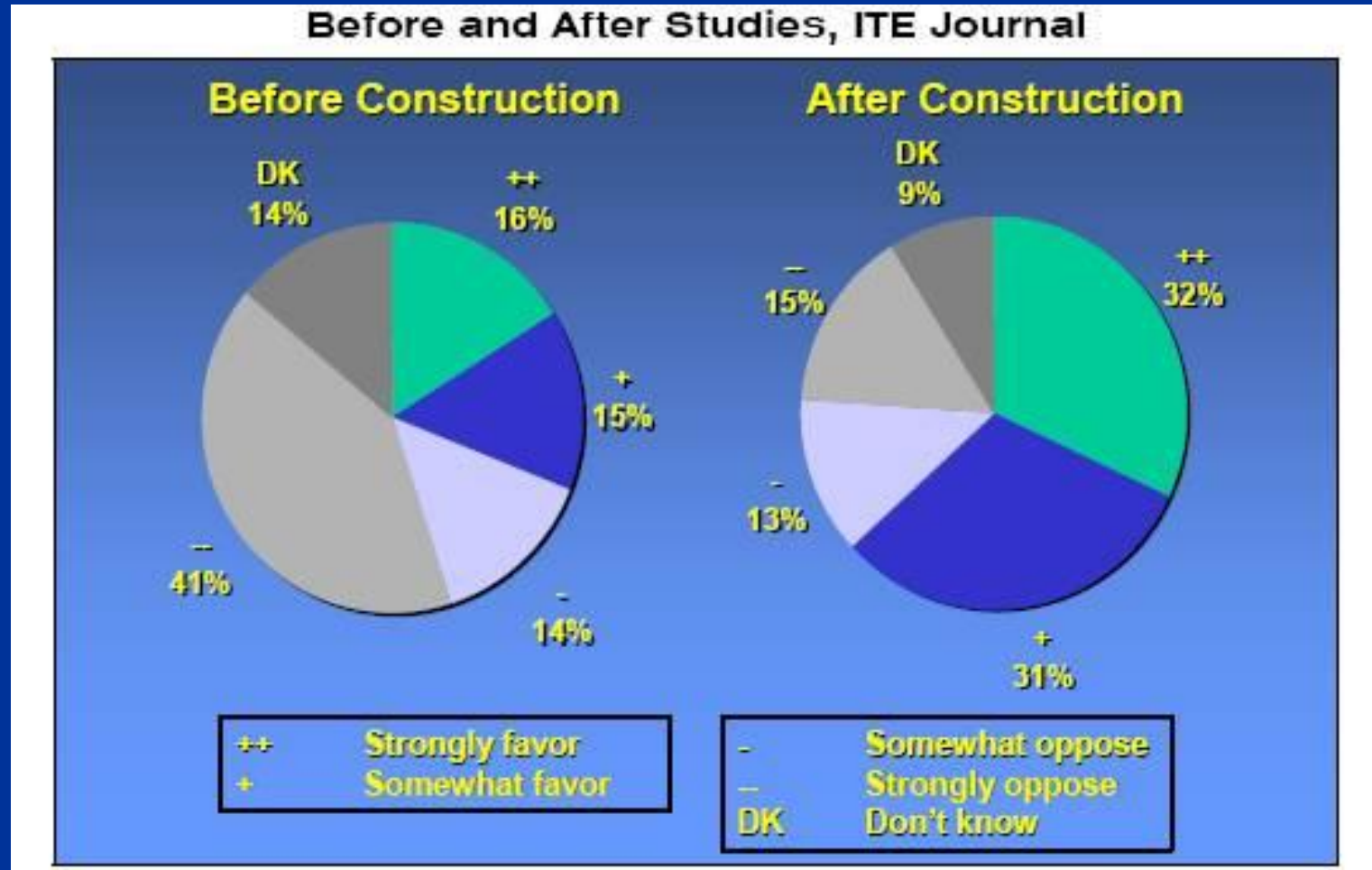
Drivers Who Favor or Oppose Roundabouts



FAVOR

STRONGLY
OPPOSE

From Opposition To Support



ITE Journal Sept 2002: Surveys in Kansas, Maryland and Nevada

Sometimes it takes perseverance!!!



Photo source: NYSDOT

Pedestrian Considerations

- Provides shorter traveled distance
- Simplifies decision making
- Reduces prevailing speeds at entries
- Special attention should be given to the visually impaired persons and the elderly

Designing Roundabouts for Accessibility

I heard somewhere that the Americans with Disabilities Act (ADA) will not allow us to build roundabouts. Is this true?

No. However, providing accessible roundabouts is a very important issue.

“... noise from continuously circulating traffic may mask useful audible cues”

Designing Roundabouts for Accessibility

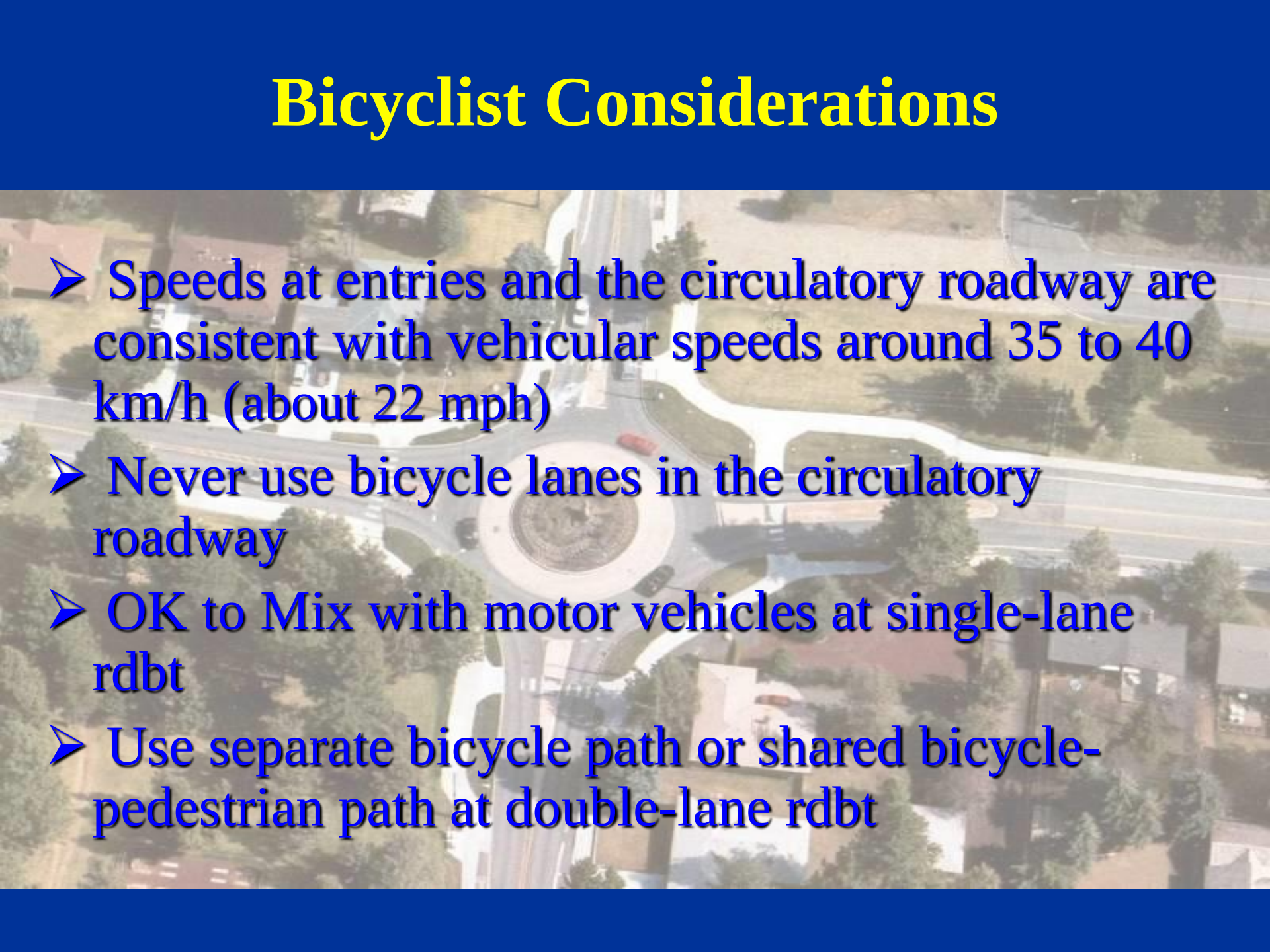


Signalized roundabout crosswalk in Sydney, Australia

Pedestrian's Probability of Death if Hit by Car



Bicyclist Considerations

- 
- Speeds at entries and the circulatory roadway are consistent with vehicular speeds around 35 to 40 km/h (about 22 mph)
 - Never use bicycle lanes in the circulatory roadway
 - OK to Mix with motor vehicles at single-lane rdbt
 - Use separate bicycle path or shared bicycle-pedestrian path at double-lane rdbt

Planning Considerations/Steps

- Consider project context
 - ✓ First roundabout in an area?
 - ✓ New roadway or a intersection conversion?
 - ✓ Site constraints (unfavorable topography, RR xing)
- Determine preliminary configuration
- Selection Category
 - Community Enhancement
 - Traffic Calming
 - Safety Improvement
 - Operational Improvement
 - Special Situations
- Operational Analysis
- Space requirements (ROW)
- Economic Analysis (Benefits and Costs)

Consider Site Context

- Roundabouts are often advantageous at intersections with:
 - Historical safety problems
 - High percentage of turning movements
 - Existing two-way stop-control with high side street delays (particularly those not meeting signal warrants)
 - Need to accommodate U-turns
 - Desired change in speed environment (i.e. on a “gateway” corridor)

Consider Site Context

- Roundabouts may not be appropriate at intersections with:
 - Unfavorable topography
 - Proximity to a high traffic generator
 - Proximity to a bottleneck
 - Heavy pedestrian traffic
 - Proximity to a railroad crossing or drawbridge
 - Coordination within a signal network

Determine Appropriate Roundabout Category/Configuration

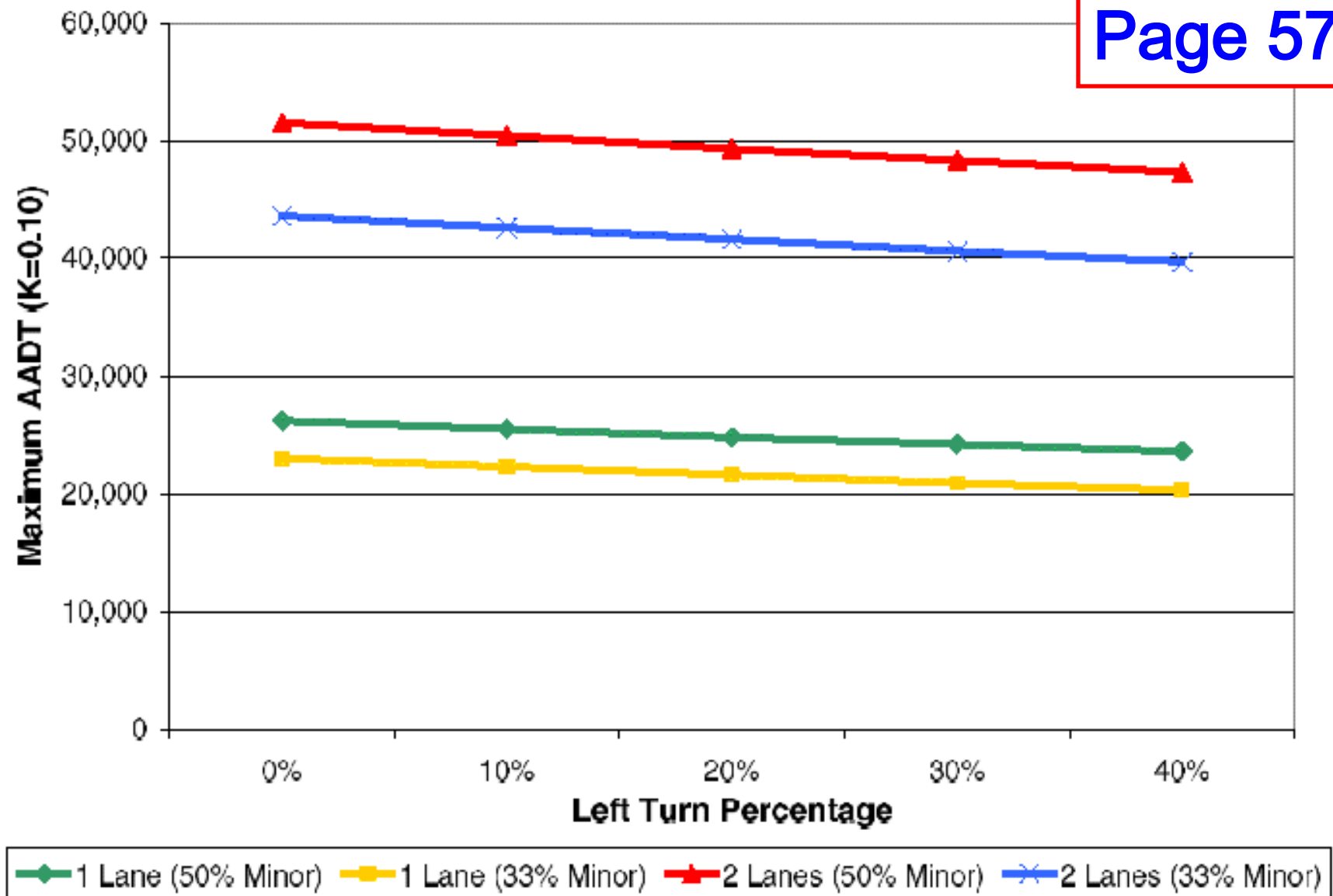
Roundabout Categories and Design Characteristics

Design Element	Mini-Roundabout	Urban Compact	Urban Single-lane	Urban Double-lane	Rural Single-lane	Rural Double-Lane
Recommended maximum entry design speed	15 mph (25 km/h)	15 mph (25 km/h)	20 mph (35 km/h)	25 mph (40 km/h)	25 mph (40 km/h)	30 mph (50 km/h)
Maximum number of entering lanes per approach	1	1	1	2	1	2
Typical inscribed circle diameter	50 to 90 ft (15 to 27 m)	100 to 120 ft (30 to 37 m)	120 to 150 ft (37 to 45 m)	150 to 220 ft (45 to 67 m)	120 to 200 ft (37 to 60 m)	175 to 250 ft (55 to 75 m)
Splitter island treatment	Raised if possible, crosswalk cut if raised	Raised, with crosswalk cut	Raised, with crosswalk cut	Raised, with crosswalk cut	Raised and extended, with crosswalk cut	Raised and extended, with crosswalk cut
Typical daily service volume on 4-leg roundabout (veh/day)	10,000	15,000	20,000	Approximately 40,000 – 50,000 Refer to FHWA publication: "Roundabouts: An Informational Guide"	20,000	Approximately 40,000 – 50,000 Refer to FHWA publication: "Roundabouts: An Informational Guide"

Source: Kansas Roundabout Guide

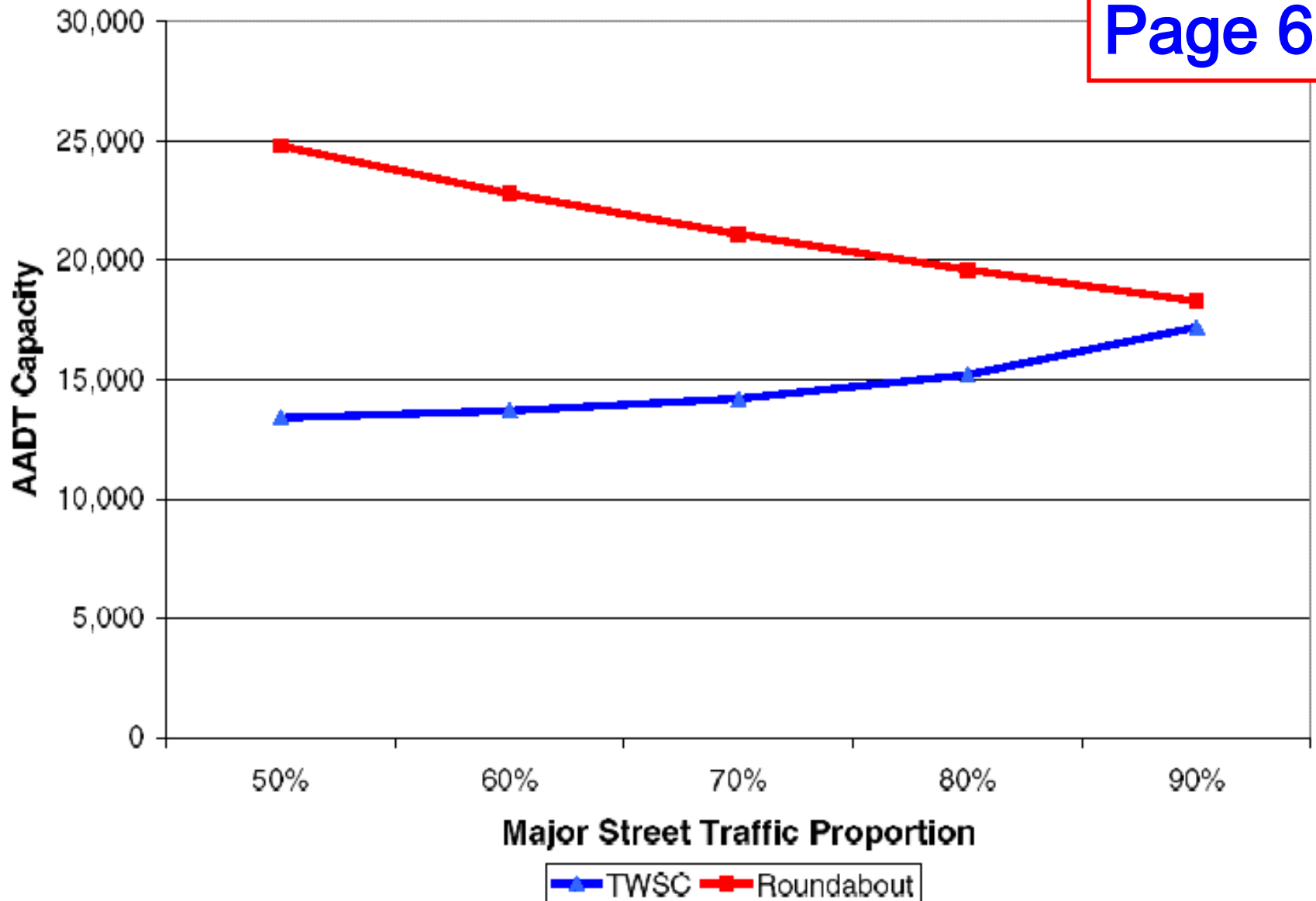
Maximum Daily Volumes for a 4-leg Rdbt

Page 57



Capacity Comparison with TWSC

Page 65



R.O.W. Comparison



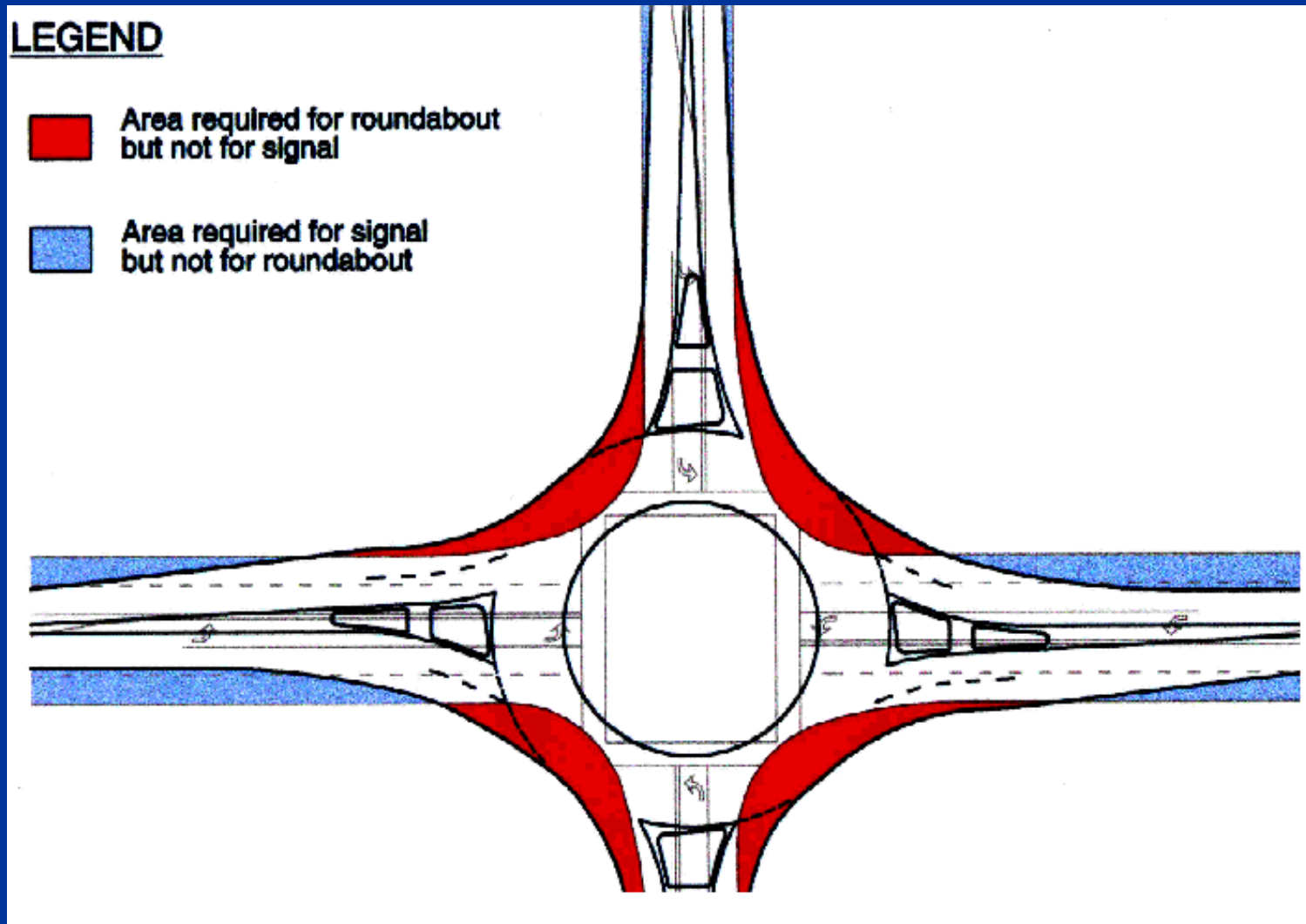
R.O.W. Comparison

Main St. and
Center St.
Hamburg, NY



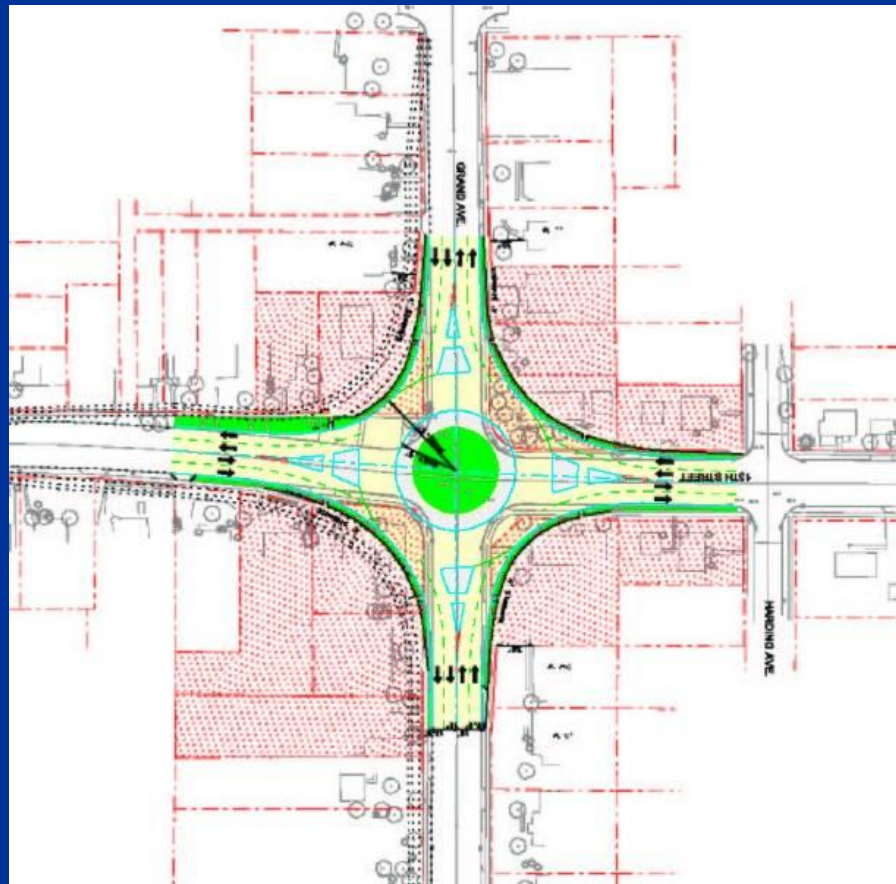
Source: NYSDOT

Area Comparison: Urban Flared Rdbt vs Comparable Signalized Intersection



Area Comparison: Urban Rdbt vs Comparable Signalized Intersection

Urban Rdbt



Signalized Intersection



Economic Considerations

Benefits -

- Safety Benefits – savings due to substantial reduction in fatal and injury crashes
- Operational Benefits – consider reduction in person-hours of delay and reduced commercial vehicle delay
- Environmental Benefits – reduced fuel consumption & improved air quality

Economic Considerations

Costs -

- Capitalized costs – Roundabouts may have higher ROW and construction costs
- Operation and Maintenance costs – consider reduction in costs for signal power, bulb replacement, and detection maintenance
- Life-cycle cost comparison is appropriate for roundabouts

PUBLIC EDUCATION

Original Presentation included

**Video: “Driving Modern
Roundabouts”**

Produced by Washington State DOT, City
of Olympia, WA and City of Lacey, WA

QUESTIONS?