Roundabouts: Washtenaw County Experiences

2020 County Engineers Workshop
February 4, 2020
Outline

• Matt MacDonell – County Highway Engineer
• Mark McCulloch – Senior Project Manager
• Evolution of rightsizing roundabouts
  - Textile Road / Hitchingham / Stony Creek
  - Baker Road / Dan Hoey / Shield
  - Bemis at Moon
• Suggestions for rightsizing success
Who are we?

• Washtenaw County
  – 344,000 citizens

• WCRC
  – 1,653 miles, 580 miles for MDOT
  – $31 million MTF
  – $22 million Federal/State Aid Projects
  – 130 staff
Why build roundabouts?

• Intersection study
  – Traffic and pedestrian safety
  – Traffic capacity and operations
  – Construction and maintenance costs
  – Non-motorized access
  – Right-of-way and environmental impacts
  – Opportunity for place-making and aesthetic enhancements
TEXTILE: OUR FIRST MINIS
Textile existing conditions

- AWSC
- Purpose: increase capacity
- Project year: 2015
- Charter school
Textile footprint

- ADT
  - Textile Road – 6,600 vpd
  - Hitchingham Road – 6,800 vpd
  - Stony Creek Road – 4,200 vpd
- Design Speed: 45 – 55 MPH
- Truck Traffic: 4%
- ICD: 90 feet
- Total Cost $800,000
Slivers, not chunks

Textile / Hitchingham
1,225 sft (0.03 acres)

Textile / Stony Creek
605 sft (0.01 acres)

92% area reduction compared to Pontiac Trail / Seven Mile

Total Land Cost:
$3,575 (2014 dollars)
How are costs minimized?

- Less earthwork
- Less storm sewer infrastructure
- Less ‘non-production’ paving
Pancake island

Flush Center Island: Textile at Stony Creek (‘Beta Version’)
Raised Center Island’ 3” to 4”; Moon at Bemis (Washtenaw County Standard)
Before v. after

Textile at Hitchingham; AM Peak
BAKER RD: RIGHTSIZING & TRUCK TRAFFIC
Baker Rd Intersections
Keep on truckin’
BEMIS / MOON: NEW LIMITS
Update: One Killed, Three Hurt in Collision at Moon and Bemis Road

PROJECT GOALS

• Reduce delay
• Enhance safety
• Acquire no permanent ROW
• Construction budget: $300,000
Design details

- Design Speed:
  50 MPH (Moon Road)
  55 MPH (Bemis Road)
- ADT: 5,900 – 6,800 vpd per approach
- Trucks: 3%
- ICD: 82 feet
- Splitter island lengths: 75 feet
- Central island diameter: 40 feet
## The bottom line

<table>
<thead>
<tr>
<th>Activity</th>
<th>Cost</th>
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<tbody>
<tr>
<td>Design (consultant + WCRC)</td>
<td>$33,571.07</td>
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<td>Survey (topo + construction staking)</td>
<td>$12,651.81</td>
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<td>Right-of-Way</td>
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<td>Street lights (includes maintenance)</td>
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<td>Construction engineering (inspection, material testing, office technician)</td>
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<td>Payment to contractors</td>
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<td><strong>Total Cost</strong></td>
<td><strong>$404,306.19</strong></td>
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The outcome
Winter maintenance
SUMMARY
Takeaways

• Minimum ICD 90’
• 100’ – 110’ ICD is ‘sweet spot’
• AWSC; be cautious of TWSC
• More entry deflection where possible
• Monitor results (field visits and crash reports)
Questions?

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