



Modular Roundabouts

Jim Mertz, GISP – Bolton & Menk, Inc.

Modular Roundabouts

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Modular Explained

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Case Study

Chesterfield
County, VA

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Case Study

Franklin, NC

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Introduction - Roundabouts

- Improved safety and mobility
- Long-term cost benefits
- Issues
 - Construction costs
 - Construction schedules
 - Right-of-way acquisition
 - Utility relocation



Modular Roundabouts

- Constructed on top of existing intersections, use existing pavement
- Materials can include striping, flexible posts, custom blocks, or conventional asphalt/concrete



“Installation may take place in a manner of weeks, if not days”

Case Study

Chesterfield County, VA

Before

Source (Google Earth)

After

Source (Google Earth)

Source (Vortex)

- 1 Constructed using small custom-made blocks bolted to pavement
- 2 Traffic maintained during construction, installed by VDOT staff
- 3 Total construction cost of \$291,005



Case Study – Chesterfield County, VA



Performance

- Safety
 - Before – 18 crashes in 3 years (7 injury)
 - After – 3 crashes in 1 year (all PDO)
- Durability
 - Winter maintenance
 - Heavy vehicle impacts
- Aesthetics

Case Study – NCDOT Division 14, Franklin

- Located at Wells Grove Road and Bellview Road in Franklin, NC
- Critical intersection between Mountain View Intermediate School and Macon County Middle School
- Previously side street stop-controlled intersection with law enforcement for peak hours



Case Study – NCDOT Division 14, Franklin

- 75' outer diameter, 15' width of circulating roadway
- Division 14 received trial approval for use of rubberized curb
- Filled with aggregate and topped with asphalt
- Constructed over 3 days
- Flexible posts for splitter islands and updated pavement markings
- Total cost roughly \$30,000





Considerations

- 1 Intersection Size
- 2 Drainage
- 3 Traffic Operations
- 4 Community Considerations



An aerial photograph of a rural landscape. In the foreground, a red brick church with a green roof and a white steeple sits on a large, cracked asphalt lot. A dark pickup truck is parked near the church. To the right, a two-lane road with yellow double lines curves around a roundabout with a yellow center. A black car is driving on the road. In the background, a large school building with a blue roof and a parking lot filled with cars and yellow school buses are visible. The entire scene is surrounded by dense green trees, with rolling hills and mountains in the distance under a blue sky with scattered clouds.

Thank you!

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