

Roundabout Construction

Overcoming Challenges in Roundabout Construction,
Resurfaces and Traffic Maintenance



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Roundabout Construction

Challenges in Roundabout Construction

- Steve Broermann – E&B Paving Noblesville Area Manager
- 17th year with E&B, over 30 years in road construction
- 11 years as Estimator/Project Manager
- Working mostly on INDOT and municipal projects



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Challenges in Roundabout Construction

IF CONTRACTORS COULD DESIGN A ROUNDABOUT

- Full Closure of road
 - Let's say 120 days
- Utility relocation complete before bid date
 - Dare to dream
- Use of existing drainage features
 - Use ditches, existing drainage features
 - No storm sewer, no inlets
- Existing pavement
 - Let's tear it all out
- No LD's
 - A guy can wish



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Challenges in Roundabout Construction – Rural Setting

- Maintenance of Traffic
- Utility relocation complete
- Use of existing drainage features
- Use of existing pavement
- Decorative items
- Post Construction Maintenance



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Challenges in Roundabout Construction

Urban vs Rural

- Urban
 - Traffic control/congested areas
 - Limited R/W
 - Utilities
 - Decorative features
 - Colored concrete
 - Stamped concrete
 - Raised crosswalks
 - Median/RAB Treatments – long lead items (light poles, planters, landscaping)
can these items be procured by locals on LPA jobs



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Challenges in Roundabout Construction

Urban vs Rural

Rural

- High speeds
- Farm equipment – lane widths, mountable curb in islands
- Lighting
- To landscape or not



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Challenges in Roundabout Construction – Rural Setting

Maintenance of Traffic

- Full Closure
 - Safest option for workers (always our first thought), motorists
 - Single lane – 45-50 days of construction
 - Dual lane – 65 -70 days of construction
 - Typical build is 15-20% less in total cost than a phased project
 - One direction Traffic
 - Traffic in both directions
 - Pedestrian Traffic
 - Cost of maintaining pedestrian traffic vs closure



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Challenges in Roundabout Construction – Rural Setting

Maintenance of Traffic

- Partial Closure
 - Use of Barrier Wall
 - Temporary Pavement
 - Allow for construction of RAB in single phase
 - One direction Traffic



US 52 and SR 9

Temporary Asphalt to construct RAB in single phase.
Maintain N – S traffic.

Allowed for construction of RAB during a closure

All road crossings were installed during closure

Stabilization done in one mobilization for RAB

Center curbs were changed to a more mountable curb
to allow farm equipment to use median for traversing
RAB





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Challenges in Roundabout Construction – Rural Setting Construction Challenges

- Utility relocation complete
 - Usually the biggest hurdle during construction
 - Creates delays
 - Adds cost



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Challenges in Roundabout Construction – Rural Setting Construction Challenges

- Use of existing drainage features – ditches, existing features
 - Storm Sewer systems add time to construction timelines
 - Raise the roundabout to create better drainage, eliminate need for inlets, sheet drainage
 - If needed, minimize the number of structures



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Challenges in Roundabout Construction – Rural Setting Construction Challenges

- Use of existing pavement
 - Remove it all – preferred by contractors
 - Issues with leaving it in place
 - Creates areas of possible failures in connection of existing to new pavement
 - Is the base OK? Will it fail in the next 3-5 years
 - Are we really saving anything – phasing adds cost, inefficiency of construction
 - Storm sewer crossings – failure area



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Challenges in Roundabout Construction – Rural Setting

Construction Challenges

- Post Construction Maintenance
 - Plants in medians and roundabouts.
 - Require maintenance in very tight spaces
 - Fill in medians with concrete
 - Eliminate future maintenance
 - Eliminate rutting of planting areas
 - Selection of plants used in center circle
 - Colored concrete requires maintenance. Cleaning, resealing



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Challenges in Roundabout Construction

- Resurface of Existing Roundabouts
 - Full Closure
 - Safest options for workers and motoring public
 - Avoid conflicts with live traffic
 - Close minor roads, flag traffic around circle



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Challenges in Roundabout Construction

THANK YOU

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QUESTIONS/COMMENTS



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