



Dallas County Public Works Newsletter

Our mission...Improving the quality of life of our customers...the citizens, taxpayers, transportation users, communities and partners of Dallas County...by effectively planning and implementing regional public works transportation projects

Winter 2010

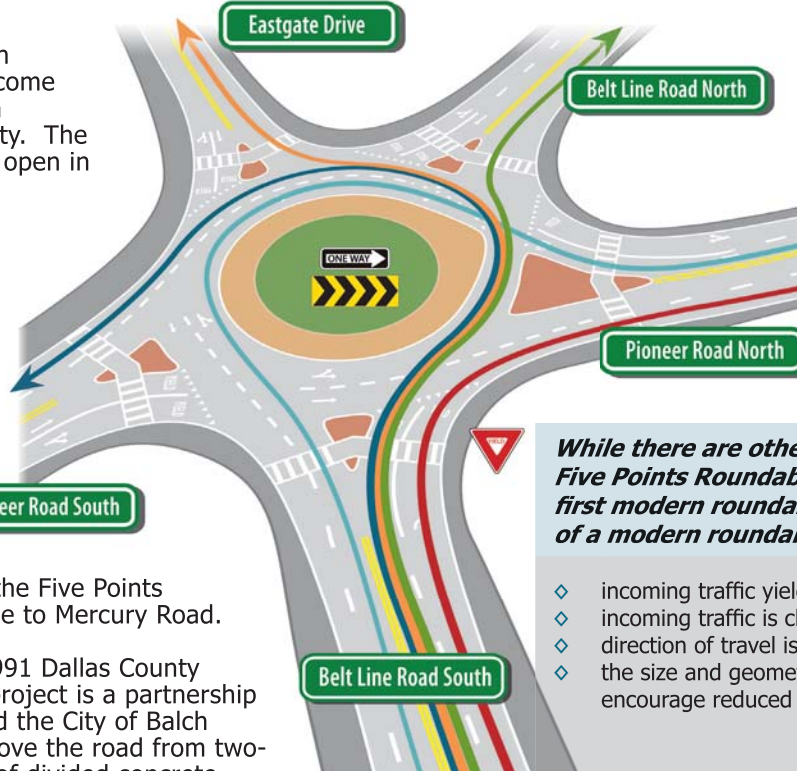
The Balch Springs Modern Roundabout

Five Points Intersection, a five-legged crossing in Balch Springs, is set to become the first multi-lane modern roundabout in Dallas County. The roundabout is expected to open in April.

Five Points lies at the intersection of Belt Line Road and Pioneer Road (which both go through the intersection) and Eastgate Drive (which merges into Belt Line). Construction of the roundabout is the final phase of a larger, \$7.1M Belt Line Road bond project whose limits extend from the Five Points intersection just over a mile to Mercury Road.

Initially proposed in the 1991 Dallas County bond, the Belt Line Road project is a partnership between Dallas County and the City of Balch Springs to widen and improve the road from two-lane asphalt to four lanes of divided concrete.

Prior to construction of the roundabout, five stop signs were the only means of traffic control at this busy intersection. At the time, building a roundabout wasn't even a consideration. According to Jack Hedge, P.E., Dallas County Public Works Design and Engineering Manager, roundabouts weren't well known or widely used when the project was first proposed. It wasn't until over a decade later, when Hedge came across information in a trade journal, that he started to believe that a roundabout might be the best solution to the project's challenges. By that time, modern roundabouts had been well-tested and were becoming increasingly popular in other parts of the country.



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While there are other roundabouts in Dallas County, the Five Points Roundabout in Balch Springs is the County's first modern roundabout. Distinguishing characteristics of a modern roundabout are:

- ◇ incoming traffic yields to circulating traffic
- ◇ incoming traffic is channelized
- ◇ direction of travel is one way counter-clockwise
- ◇ the size and geometry of the intersection and its approaches encourage reduced speed

A study performed by engineering firm HNTB examined the feasibility of several options for the intersection, including the original five-way stop and the roundabout. Though each of the methods proposed was projected to "provide adequate Level of Service," the roundabout offered five advantages:

- ◇ **better safety**
- ◇ **lowest delays** (i.e., better traffic flow through the intersection)
- ◇ **cheaper construction and maintenance costs** than a signalized intersection
- ◇ **beautification**
- ◇ **less ROW [right of way]** and could be designed within existing ROW limitations

"Roundabout" continued on next page...



“Roundabout” continued

Design work for the project was performed in-house at Dallas County Public Works. Lead Designer Lily Arenas, P.E. led the design team which included CAD Operators John Reiter, Bill Beaty, Mary Murray and Raymond Ray.

Following a peer review process, lead contractor Tiseo Paving subcontracted Mark Lenters, P.E. of Ourston Roundabout Engineering, Inc. Lenters helped in three critical areas:

- 1) refining the overall design, especially with regard to channelizing and widening the entries;
- 2) adjusting the signage scheme to more clearly guide drivers through the roundabout;
- 3) providing expertise and resources to help with the public outreach campaign [see story on opposite page].

The signage itself presented additional challenges. Lenters recommended large overhead signs to direct drivers into the appropriate lanes based on their desired destination. Project Manager John Mears, P.E., said that initial estimates projected that the signs could cost between half a million and a million dollars. Thanks to creativity and flexibility from Tiseo Paving and their subcontractors, cost for the signs was reduced to just over \$200,000.

Construction is wrapping up on the project, which, though nearly completed, is still functioning as a five-way stop. The central island will be one of the last elements to be completed. For about a week, Mears said, the intersection will likely function as something of a hybrid between a five-way stop and a roundabout.

Summing up Dallas County’s feelings about the Five Points roundabout, Public Works Director Donald Holzwarth P.E., said, “We’re excited about this. We think it’s going to be a dramatic improvement in the level of service—especially around the five points. Of course [the entire length of the project] is going to be a much, much better facility.”

The County is already strongly considering the use of roundabouts in some of its other projects.

Additional Resources and Information on Modern Roundabouts

Dallas County

<http://www.dallascounty.org/departments/pubworks/BalchSpringsModernRoundabout.html>

City of Balch Springs

<http://www.cityofbalchsprings.com/>



This issue, Alphabet Soup highlights some terms that are especially important to the modern roundabout. Some of these terms are taken or adapted from FHWA-RD-00-67, the FHWA’s “Roundabouts: An Informational Guide.”

approach – The portion of a roadway leading into a roundabout.

channelization – Using curbing and road markings to guide drivers into the proper lanes and counter-clockwise flow of traffic.

central island – The raised area in the center of a roundabout around which traffic circulates.

deflection – Change in trajectory of a vehicle imposed by geometric features of the roadway. Roundabouts use deflection to channelize and slow traffic.

FHWA – “Federal Highway Administration -- among its other activities, the FHWA provides authoritative guidelines for road construction and traffic regulation.

LOS – level of service - A qualitative measure describing operational conditions within a traffic stream, generally described in terms of service measures such as speed and travel time, freedom to maneuver, traffic interruptions, comfort, and convenience.

multilane roundabout – A roundabout that has at least one entry with two or more lanes, and that can accommodate more than one traveling vehicle side-by-side.

pedestrian refuge - A raised median that divides incoming from exiting traffic and provides a safe waiting place for pedestrians waiting to cross a roadway.

splitter island – A raised median that separates incoming from exiting traffic and that deflects and slows entering traffic. The splitter island also serves as a “pedestrian refuge.”

truck apron – A perimeter around the central island that is mountable by larger trucks and that enables them to more easily navigate a roundabout while at the same time being tall enough and steep enough to discourage smaller vehicles from driving onto it.

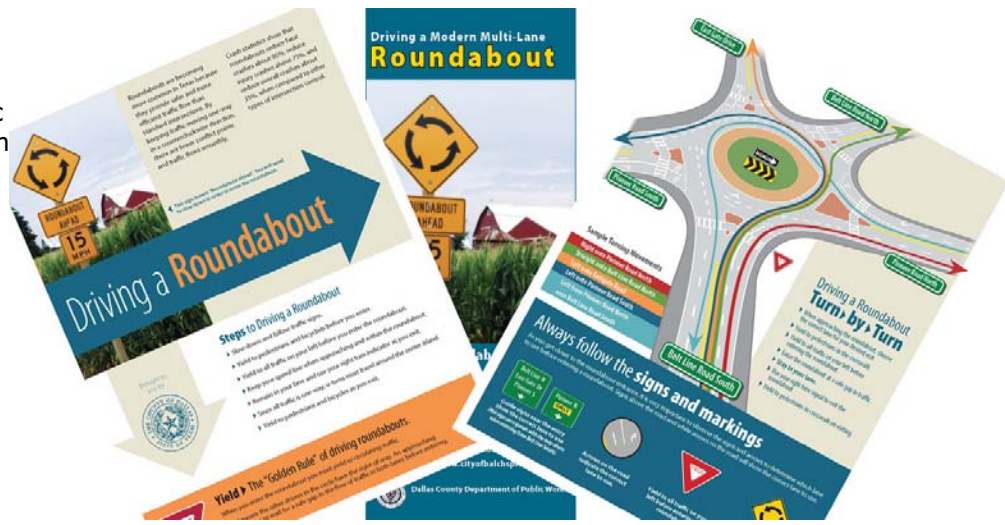
yield – “The ‘Golden Rule’ of driving roundabouts.” In a modern roundabout, incoming traffic always yields to traffic that is already circulating in the roundabout.

Public Outreach Campaign

In an effort to inform and educate the public about the new roundabout, the City of Balch Springs and Dallas County have executed what Dallas County Public Works Director Donald Holzwarth, P.E. called a “full court press.”

The multi-faceted educational outreach includes:

- ◇ Printed brochures and pamphlets distributed to local schools and businesses.
- ◇ Electronic versions of these documents available at both the City’s and County’s web sites.
- ◇ Public meetings with presentations, various education stations and opportunities for questions and answers about the roundabout.
- ◇ An interactive digital, Flash animation (available at both agencies’ web sites) that steps users through each type of movement through the roundabout and also shows special considerations for large trucks, pedestrians and cyclists. Both the text and accompanying audio for the animation are available in English and Spanish.
- ◇ A vinyl 1:87 scale plot based on an engineering drawing of the new roundabout with several identical scale cars and trucks that allow participants to physically drive vehicles through the roundabout.



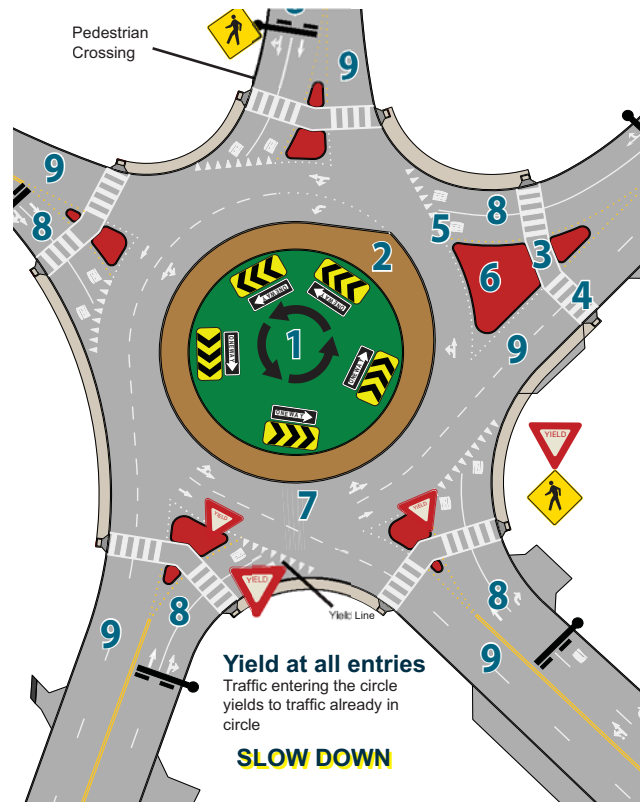
Consultant Mark Lenters, P.E., of Ourston Roundabout Engineering, explained the vinyl plot at one of the meetings, “We thought when we first started doing it this way in public meetings this was a trivial idea and only the children would play with it.” Instead, Lenters and his colleagues discovered that truckers in particular gravitated to the vinyl plot: “[They] picked up the largest truck and said, ‘let’s see, I don’t think this will work.’ And sure enough, it stays in the lanes, stays in the space, with no overtracking the curbs.”

Holzwarth said, “We want to do . . . as much as we can to get people to be thinking about this, anticipating it, and that it would be a success.” It’s all about providing a level of comfort with a type of intersection that is tested, simple, safe and effective—yet altogether alien to many drivers. “It’s not a new concept for many communities, but it’s something new for Dallas County” said Holzwarth.

Lenters complimented the Dallas County and Balch Springs partnership for their work to educate and prepare the public. “These humble folks have put together a very robust public education process and really done their homework,” he said, “I work with a lot of agencies and this one has put together a very strong program.”

The public information effort has been led by Transportation Planner Jonathan Toffer, with significant graphic and publications support from GIS Technician D’Juan Harris. Lenters himself has played a key role, providing core materials and ideas based on his extensive experience both engineering roundabouts and educating the public about them.

An excerpt of some of the “best practices” from the “Driving a Modern Multi-Lane Roundabout” pamphlet:
Slow Down; be cautious and aware of other vehicles in the roundabout.
Do not change lanes in the roundabout or as you exit.
Do not overtake other vehicles or bicyclists within the roundabout.
Follow pavement striping and arrows for guidance—exit roundabouts with caution.
YIELD to emergency vehicles before or after the roundabout DO NOT STOP in the roundabout.
YIELD to pedestrians.
Give oversized vehicles extra room because they may need both lanes to maneuver.



- | | |
|-------------------------|------------------------|
| 1. Central Island | 6. Splitter Island |
| 2. Truck Apron | 7. Circulatory Roadway |
| 3. Pedestrian Refuge | 8. Entry Lanes |
| 4. Pedestrian Crosswalk | 9. Exit Lanes |
| 5. Yield Line | |

Dallas County Public Works 2010 Recognitions

SERVICE PINS:

Bill Beaty (5 years)
Faye Searcy (5 years)

PARTNER AWARDS:

Jim Smith, P.E., Director of Public Works,
City of Lancaster - Special Partner of the Year
Jim Winfrey, AT&T - Vision Award

OTHER AWARDS AND RECOGNITION

Pam Easterling - Special Note of Appreciation
Carter Ferguson - Special Note of Appreciation
Mary Hanna - Letter of Commendation
D’Juan Harris - Special Recognition
Tony Irvin, P.E. - Special Recognition
Les St. John, P.E. - Project Delivery



Public Works Director Donald Holzwarth, and Assistant Directors Noah New, Alberta Blair, Antoinette Bacchus, Selas Camarillo, present Jim Smith, Public Works Director for the City of Lancaster with the Partner of the Year Award

WINTERGREEN OVERPASS PROJECT TEAM, LETTER OF COMMENDATION

John Mears, P.E.
Bud Snodgrass
Jonathan Toffer
Brad Tribble (Kimley Horn)
Jerry Kovar (APM & Associates)
Wayne Crabtree (Austin Bridge & Road)
Ronnie O’Brien (City of Hutchins)
Elliott Stovall (TxDOT)
Brian Murawski (NCTCOG)
Steve Martchenke (UPRR)



Aerial image below captured from Google Earth.

Led by John Mears, P.E., this team provided exemplary services in achieving total project delivery of this major connection alongside the Union Pacific Railroad intermodal facility in southern Dallas County. The effective collaboration of this team facilitated construction of this key bridge within 14 months. The area will benefit from the grade separation of vehicular and rail traffic delivered by this successful project.



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