



Roundabout Study and Design EDSM Revisions





Roundabout Study and Approval EDSM VI.1.1.5

- ❖ This EDSM sets DOTD policy for the justification and approval of roundabouts on Louisiana State Highways
- ❖ Policy is designed to evaluate potential roundabout projects in the early stages to ensure that it is the best intersection control.
- ❖ Requires that the intersection be evaluated for operation/capacity, safety, potential design constraints, and cost.
- ❖ Provides guidance on when a roundabout is or isn't an appropriate intersection control alternative

Traffic Volumes

NEW REQUIREMENTS OR ITEMS

- ❖ Addresses data collection requirements for the minor roadway – 48 hour counts acceptable
- ❖ Growth rate, build year, and any waivers to the design year requirement must be approved by the Traffic Engineering Division Administrator
- ❖ Peak hour counts to be projected for a 15 year design life measured from the anticipated build year, can be approximated to be 3 years from approved roundabout study report.
- ❖ Roundabouts should not be designed to include metering or signalization when first opens

Traffic Volumes

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ 7 day – 24 Hr. Counts to be done during a non-holiday or special event week
- ❖ Manual TMC Counts to be completed during expected peak conditions and during a non-holiday or special event week.
- ❖ Projected volumes and 15 year design life requirement to be measured from the anticipated build year or 3 years from date of approved roundabout report.



SPEED STUDY REQUIREMENTS

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ Speed study is required on each mainline approach
- ❖ Speed study must be conducted per DOTD policy (radar) - Tube counts are not acceptable for speed studies
- ❖ The posted speed cannot be substituted for the speed study

Roundabout Analysis

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ Approved roundabout analysis software is *Sidra Standard Intersection*
- ❖ Program settings must be set per DOTD requirements as indicated in the *DOTD Roundabout Analysis Brochure* currently under development
- ❖ In cases where *VisSim* traffic models are required, DOTD may require a calibrated model that DOTD calibrated traffic modeling policy
- ❖ Report must include Autoturn analysis showing that at minimum, the roundabout can accommodate the WB-67 design vehicle. If proposed roundabout is on a designated OSOW truck route, larger design vehicle autoturn analysis may be required.

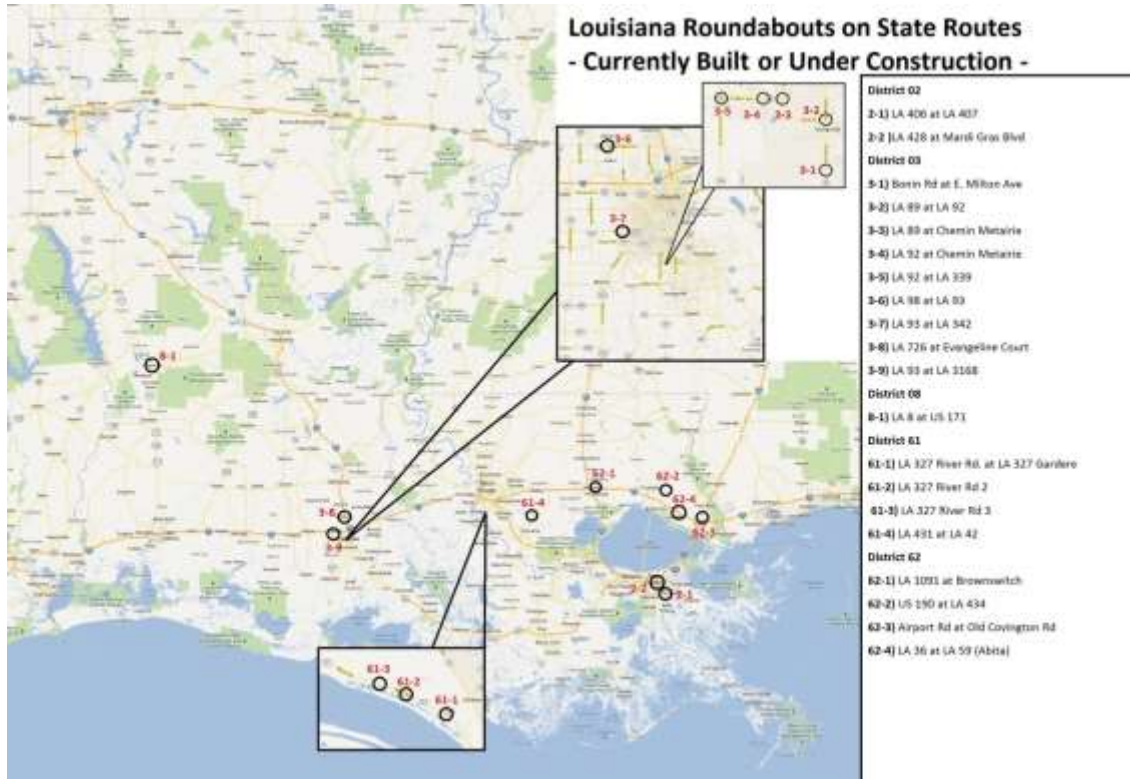


Justification

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ The roundabout report must provide a sound engineering reason to justify the installation of a roundabout.
- ❖ The report must include documentation and conceptual layout that shows a thorough investigation of the proposed site for use during the plan development process
 - ✓ Existing Residential and Commercial Access
 - ✓ Right of Way
 - ✓ Drainage
 - ✓ Operational Issues
 - ✓ Utilities
 - ✓ Nearby driveways Intersections and traffic control types within the 95% queue
 - ✓ Sidewalks

Roundabout Design EDSM VI.1.1.6



Louisiana has 18 roundabouts in operation and 53 proposed





Roundabout Design EDSM VI.1.1.6

- ❖ This EDSM sets DOTD policy for the design of roundabouts on Louisiana State Highways
- ❖ Policy is designed to ensure consistency of design practices as it relates roundabouts

GENERAL

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ Roundabouts to be designed for a 15 year design life measured from the build year or 3 years from date of roundabout study.
- ❖ Roundabout should be constructed for the build year condition but design should plan for future expansion to full build condition
 - ✓ Full Build ROW requirements
 - ✓ Full Build Drainage plan
 - ✓ Location of sidewalks
 - ✓ Curbing
- ❖ Full Build expansion should avoid complete rebuild of the roundabout

Operational

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ Previous requirement of a city/state agreement applicable to Roundabout projects installed under permit has been removed.
- ❖ The city/state agreement was required to ensure that DOTD did not incur cost of reengineering or reconstruction for roundabouts that failed within first 3 years.
 - ✓ Difficult to monitor roundabout
 - ✓ Study and Design review process has improved
 - ✓ Requirement no longer necessary

Geometry

NEW REQUIREMENTS OR ITEMS

- ❖ The design of roundabout is independent of the design criteria for the corresponding roadway classification of the approaching roadways.
- ❖ Design criteria for roundabouts begins 200 ft. prior to the intersection for approaching roadways posted 45 mph or below
- ❖ 400 ft. for approaching roadways posted greater than 45 mph
- ❖ Criteria based on 2-3 mph/sec deceleration rate (light to very light breaking) and the NCHRP recommendation that approach speeds immediately prior to the entry curve of a roundabout be limited to approximately 35 mph.

Geometry

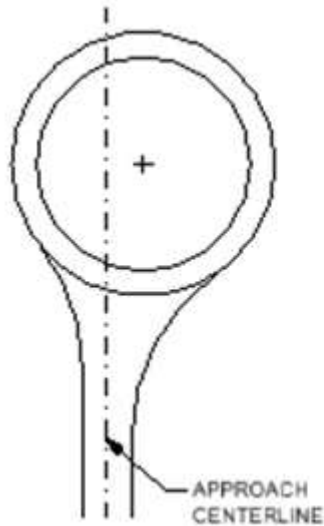
MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ Speed control shall take place prior to the yield point on entry should be accomplished geometrically with the use of a reverse curve on the approaches
- ❖ Recommended design speed for vehicles entering the roundabout is 15 mph

Geometry

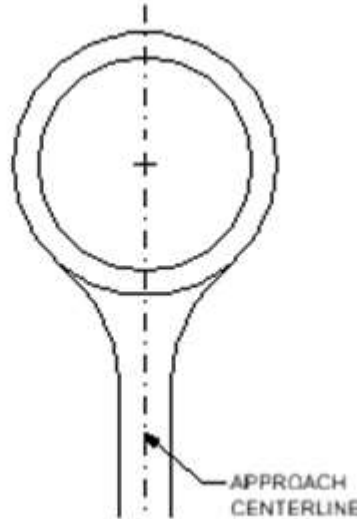
MODIFICATIONS AND/OR CLARIFICATIONS

Offset Left Alignment



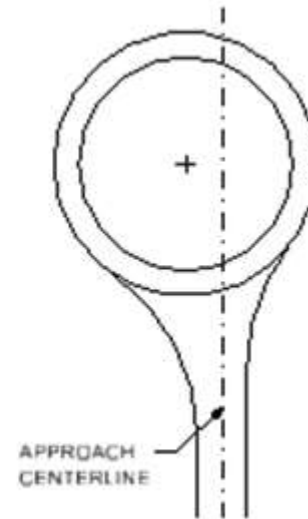
Preferred

Radial Alignment



**Requires waiver by Traffic Engineering
Division Administrator**

Offset Right Alignment



Geometry

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ The circulatory width should accommodate busses and fire trucks so that they **do not** use the truck apron
- ❖ The entry radius should be between 90' and 130'
- ❖ The exit radius should be between 400' and 800'
- ❖ The cross slope for the circulating lane should not exceed 1.5%
- ❖ Truck aprons widths typically range from 5' – 20' but the width should be determined by the truck wheel path
- ❖ The truck apron cross slope should be 0.5% -1.5% away from the center island

Geometry

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ Minimum length of splitter islands has been reduced

Posted Speed	Minimum Length of Curbed Splitter Island
35 ≥	50
40 ≥	75
45 ≥	125

- ❖ 3" sloping (mountable) curb is preferred for splitter islands and outside curbing
- ❖ 3" sloping (mountable) curbing is required for the outside edge of the truck apron
- ❖ 6" barrier curb is required on the inside edge of the truck apron where it meets the center island

Geometry

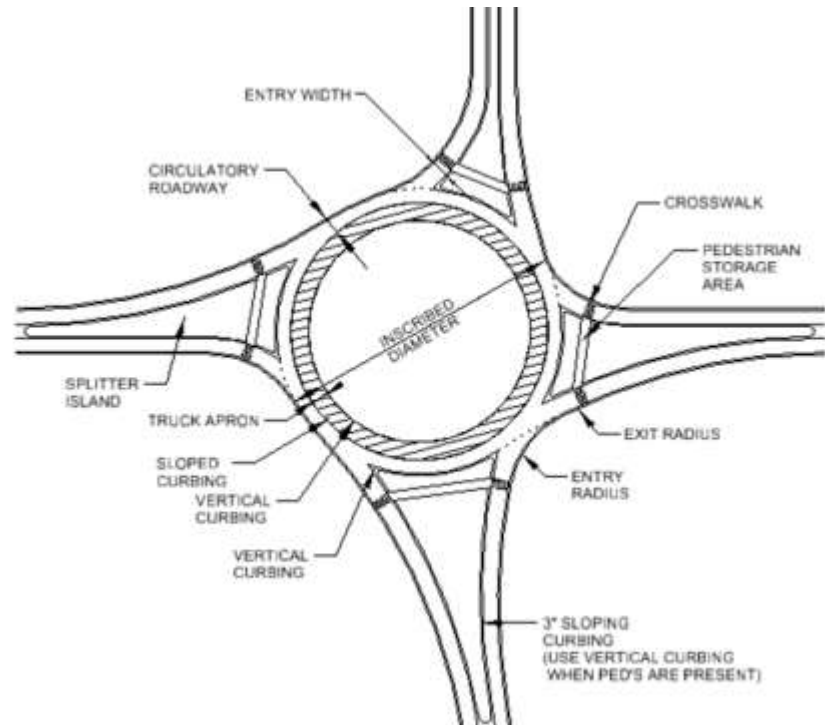
NEW REQUIREMENTS OR ITEMS

- ❖ Roundabouts should be installed on level terrain and with a maximum of a 3% grade.
- ❖ Additional earthwork may be required to achieve this criteria

Single Lane Roundabout Geometry

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ Minimum inscribed diameter = 110'
- ❖ 20' circulatory width





Multi-Lane Roundabout Geometry

MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ The minimum diameter for a multi-lane roundabout = 175'
- ❖ The multi-lane roundabout should be designed such that a truck and passenger vehicle can circulate the roundabout simultaneously
- ❖ The design vehicle may encroach on the outer lane, but a “safe” width of 12' must be maintained
- ❖ A 30'-32' circulatory width is recommended. 30' circulatory widths may be appropriate for roundabouts with inscribed circles that have larger than the minimum diameter

Landscaping



MODIFICATIONS AND/OR CLARIFICATIONS

- ❖ If landscaping beyond a grass center island is desired, the local government must agree to maintain it
- ❖ Sponsorship for landscaping is permitted but any sign must be placed so that it is visible to each approach
- ❖ Any sign shall have 2" lettering, be retro-reflective, and placed so that the bottom of the sign has a maximum 2' ground clearance
- ❖ Up-lighting may be installed to illuminate the roundabout but is not considered or intended roadway illumination
- ❖ Hard wall, benches, large spraying fountains or any object that would encourage pedestrians are not allowed in the center island

Questions???

Josh Harrouch
225-242-4640

Joshua.harrouch@la.gov



USA! USA! USA!