# Table of Contents

What is the Local Road Safety Program ................................................................. 3  
Types of Eligible Projects .................................................................................. 4  
Standards Compliance ....................................................................................... 5  
Eligible Reimbursable Work Categories ............................................................. 5  
Ineligible Items for Reimbursement .................................................................. 7  
Project Selection and Approval ......................................................................... 7  
Implementation of Purchase Only Projects after Selection and Approval ........ 8  
Implementation of Construction Projects after Selection and Approval .......... 8  
Pavement Marking Policy ................................................................................... 11  
Portable Message Board Policy ......................................................................... 13  
EDSM VI.1.1.5. Roundabout Study and Approval ............................................ 16  
EDSM VI.1.1.6. Roundabout Design ................................................................... 18  
How to Submit the Application ......................................................................... 24
What is the Louisiana Local Road Safety Program?

Funding for Local Road Safety Improvement Projects is available through the Louisiana Local Road Safety Program (LRSP). Eligible safety projects include those for roadways and transportation systems owned and operated by parish and municipal road agencies. Projects involving state roads are not eligible under this program. Specific funds are available for these projects, and additional funding sources or resources may be available depending on the type of project. The Local Technical Assistance Program (LTAP) administers the Local Road Safety Program in coordination with the LADOTD. LTAP also facilitates submittal and review of applications for the Local Road Safety Program.

Intent of the Program

The program is intended to increase local community participation in roadway safety and to develop and implement road safety improvements to reduce fatalities and injuries on local public roads. This program is part of the implementation of the LA Strategic Highway Safety plan as required by SAFETEA-LU which was signed into law on August 10, 2005. The annual funding level is anticipated between $3 and $5 million per year.

Funding Sources and Should We Do Our Own Engineering?

LRSP funds are reimbursable federal-aid monies, not up-front grants, subject to all the requirements of Title 23, United States Code. The Sponsor must have the financial resources to carry project expenditures until reimbursed and statutory authority to charge on a reimbursable basis. Due to the following stipulations, all construction projects are asked to budget for a 90% match initially. The match will then be adjusted accordingly.

The LRSP will be funded with Transfer and/or FHWA funds. When Transfer funds are used, the U.S. Department of Transportation (USDOT) will reimburse the Sponsor through LADOTD 90% of the total eligible cost for construction projects and 95% of the total eligible costs for purchase only projects. When FHWA funds are used, the Federal Highway Administration will reimburse the Sponsor 95% of the total eligible costs for High Risk Rural Road construction safety projects and 90% of the total eligible costs for all other projects. If LADOTD advertises and chooses the consultant for the Sponsor, potential items that may be included in the total eligible project costs are: design, construction, engineering/testing/inspection, materials, services, and real property (if purchased for the project). The Sponsor’s share shall be a cash match. If the Sponsor chooses their own consultant to perform engineering and/or contract administration, LADOTD will not reimburse the Sponsor for these services. This means the Sponsor must pay all design and/or contract administration costs for the project. The Sponsor will be allowed to choose the consultant and negotiate the fees without LADOTD, FHWA, or USDOT oversight. LADOTD will accept these costs as in-kind services and contribute toward the match source of the project. The Sponsor may start design (not construction) before project authorization. Sponsors are encouraged (if possible) to do their own engineering as this speeds up project implementation considerably.
Who is Eligible to Request Funding?

Louisiana Parish or municipal jurisdictions with direct authority over impacted roadways.

Maximum Funding and Local Match Per Project

State funding cannot exceed $500,000 per project (or sponsor). A local match of 10% on construction projects and 5% for other projects is usually required. See the above section regarding the use of in-kind matches for engineering and design work.

Sponsor/State Agreements

All sponsors whose projects have been approved must sign a Sponsor/State Agreement prior to project initiation. The agreement is a legally-binding contract between the Sponsor and LADOTD. Project funding is cost reimbursement as specified in the Sponsor/State Agreement.

Application Required

A downloadable application form is available at LTAP’s website (www.ltrc.lsu.edu/ltap)

Important Dates

Completed applications are due each year by January 18th. Project selection and award will be made by February 5th of the same year.

Types of Projects Eligible for Funding

Eligible projects will fall into one of the following categories:

1. Construction that will improve traffic safety and operations at a specific site with a documented crash history, such as:
   - Parish-wide Horizontal Curve Treatments
   - Intersection signing
   - Roadside Hazard Removal
   - Guardrails
   - Rumble Strips
   - Culvert Safety End Treatments
   - Flashing Warning Devices
   - Line-of-sight Improvements
   - Roundabouts
   - Other
2. Transportation and roadway safety initiatives such as:
   - Signage Replacement and Improvements at specific sites
   - Crash and Location Data Development and Analysis
   - Work zone Safety Improvements
   - Data management systems or GIS
   - Public Information and Education

**Standards Compliance**

*Please note that all projects (purchases and construction) must conform to recognized engineering standards (AASHTO Roadway Design Guide, MUTCD, etc.), and construction practices, as well as the LADOTD Engineering Directives and Standards (EDSM) and LADOTD’s policies and procedures.*

Only regulatory and warning signs will be funded.

Signing and pavement marking projects must have an engineering study to determine proper size, location, and placement included in the itemized cost. Pavement markings must comply with the LRSP Pavement Marking Policy found on page 11.

All sign and pavement markings and their installation must be certified by a Louisiana Registered Professional Engineer, and the cost can be included as part of your project.

**Eligible Reimbursable Work Categories**

**Engineering**

This includes the cost to provide all engineering services necessary for the preparation of complete plans, specifications and estimates for the proposed project. Engineering will only be reimbursed for projects where LADOTD selects the consultant to performing engineering for the Sponsor. If the Sponsor chooses to use their engineer, engineering will not be reimbursed. The cost, however, will count toward the Sponsor’s match.

**Contract Administration**

This includes the cost to provide construction administration and inspection and testing services during the project construction. Contract Administration will only be reimbursed for projects where LADOTD selects the consultant to perform contract administration for the Sponsor. If the Sponsor chooses to use their engineer, contract administration will not be reimbursed. The cost, however, will count toward the Sponsor’s match.
Right-of-Way (ROW) Acquisition

This includes the cost of buying property plus right-of-way support services such as appraisals. Whenever federal funds are used in any phase of a project, acquisition of real property for the project becomes subject to the provisions of the Federal Uniform Relocation Assistance and Real Property Acquisition Policies Act of 1970, no matter if carried out by federal, state, local agencies, or by private parties. An LADOTD certified appraiser must perform right-of-way appraisals to determine property value even if ROW is not used as part of the match or Federal funds are not used for property acquisition. Work done prior to selection and written approval by LADOTD will not be eligible for reimbursement. For additional information concerning ROW procedures, go to www.dotd.louisiana.gov/highways/project_devel/realestate/realestate.asp?page=manual on the LADOTD website to consult the LPA Real Estate Manual.

Real Property Match

ROW matches have certain stipulations. The real property must be specifically used for the project and cannot be already-owned public land. If the Sponsor proposes to acquire ROW with LRSP funds, then the request must be shown in the application. If the Sponsor intends to use ROW as match and pay for it themselves, then that must be reflected in the application. Regardless of which route is taken, the appraisal and acquisition procedures must meet federal and state guidelines. The LADOTD Real Estate Section will ultimately review for concurrence with value and thus determine the actual value of the match. Before obtaining ROW acquisition an LADOTD-certified appraiser must perform the appraisal. The Sponsor may obtain a list of LADOTD-certified appraisers in his area from the LADOTD Real Estate Section listed above.

Construction

This is the major category of work for eligible LRSP activities involving the actual construction of the project.
Ineligible Items for Reimbursement

Though not a comprehensive list, there are some activities that will not be funded through the LRSP:

1. Administrative costs are not compensable. The Sponsor is responsible for these costs. Some examples of actions considered to be administrative are application preparation, invoice checking, certification and transmittal, consultant selection and management, coordination with LADOTD, fundraising, etc.

2. Reconstruction/rehabilitation projects are not eligible for funding through the program. These projects are considered maintenance projects and should be part of a sponsor’s normal maintenance program.

3. Local Road Safety Program funds cannot be used for utility relocation. LRSP funds will only pay for adjustment of utilities (such as manholes or water meter that need to be raised due to sidewalk construction).

4. Actions (or work) taken prior to USDOT/FHWA project authorization are not eligible for compensation. This does not mean the portion of the action done before authorization is ineligible and the portion done after authorization is eligible. None of the action is eligible. For example, if the Sponsor intends to be compensated for their right-of-way acquisition, and if they inadvertently begin work before authorization, none of the right-of-way acquisition is eligible for reimbursement. The Sponsor will be notified in writing when expenditures are authorized and can be incurred.

Items that are ineligible for funding by the Local Road Safety Program can be included in the construction contract as nonparticipating items with the funding to be provided by the Sponsor or others. Costs that are ineligible for compensation are not eligible for match credit.

Project Selection and Approval

All project funding is provided through the Louisiana Department of Transportation and Development.

The Louisiana Local Road Safety Program utilizes a Review and Selection Committee composed of representatives from local government, LADOTD, FHWA, the Louisiana Highway Safety Commission, and the Local Technical Assistance Program (LTAP). The Committee recommends a priority ranking of projects to the LADOTD Safety Section, which then approves funding of specific projects:

LOW COST PROJECTS ARE ENCOURAGED.

Funding for selected projects is approved considering the safety benefits of eligible applications, the annual funding level and other criteria.
DOTD will select consultants (as necessary) and contractors as specified in the Sponsor/State Agreements. **Approved project costs will be reimbursed per specifications in the Sponsor/State Agreement.**

All purchases must be made according to state contract regulations as specified by the LA Division of Administration.

**Implementation of Purchase-Only Projects after Selection and Approval**

Sponsors of the approved projects will need to sign and return the Sponsor/State Agreement to LADOTD. Purchases cannot be made until LADOTD executes the Sponsor/State Agreement and a Notice to Proceed is issued. **Any purchases bought before the Notice to Proceed is issued will not be reimbursed.** After the Notice to Proceed is issued, the sponsor has one (1) calendar year to purchase and submit invoices to LTAP for reimbursement. Failure to file the invoices within the one year period will result in the project funds being closed as detailed in the Sponsor/State Agreement.

**Implementation for Construction Projects after Selection and Approval**

Approved projects will be implemented in two phases: (1) Engineering and Design, followed by (2) Construction. Before these phases can be implemented, the development and signature of Sponsor/State Agreement is required. **In order to expedite initiation of the process, the Sponsor/State Agreement should be signed within 60 days of receipt.** These agreements will specify that the local sponsor and LADOTD will perform the following:

**Engineering and Design Phase:**

LADOTD will conduct the consultant selection process on behalf of the local sponsor. The sponsor also has the option to hire their own consultant to perform engineering. Sponsor will not be reimbursed for these engineering costs; however, the cost will be used towards the sponsor’s local match.

LADOTD will select consultants (depending on the option taken above) to conduct appropriate engineering studies, project designs, plan preparation, prepare estimates and construction bid proposals. They will also be responsible for construction administration and inspection.

The local sponsor will sign the contract with the consultant to perform the work required by the project application.

The local sponsor will issue task orders to the consultant to begin work.
The consultant will perform the required work and prepare all necessary plans, specifications, and estimates to implement the installation or construction of the safety improvement project.

The Sponsor will appoint a project manager who will have responsible charge of the project during the construction and design phases.

The consultant will schedule a Plan-in-Hand meeting with the local entity and LADOTD to review the project and provide the necessary deliverables for the installation and/or construction phase.

The consultant will invoice the local sponsor who will pay the consultant. The local sponsor will apply for reimbursement following LADOTD’s reimbursement procedures.

**Construction Phase:**

The consultant will prepare construction proposals. LADOTD will advertise for and receive bids for the work on behalf of the local sponsor. The bids will be tabulated, extended and summarized to determine the official low bidder. LADOTD will then submit to the local sponsor copies of the official bid tabulations. The award of contract will be made by LADOTD on behalf of the local sponsor following concurrence by the Federal Highway Administration and the local sponsor.

Construction contracts will be prepared and processed by LADOTD for the local sponsor. The local sponsor will sign the contract with the Contractor and will be responsible for construction contract recordation. **The contract must be signed within 60 days for the project to remain eligible.** LADOTD will inform the local sponsor in writing when they can issue to the Contractor an official “Notice to Proceed” with construction.

The contractor will perform the work and invoice the local sponsor who will pay the contractor. The local sponsor will apply for reimbursement from LADOTD.

Standardized forms may be provided by LADOTD for consultant and contractor invoices; issuance of task orders by local sponsor to consultant and/or contractors; and reimbursement requests.

The sponsor/state agreement will include a requirement to describe how safety improvement projects will be monitored and maintained at the expense of the local sponsor.
Cost Increases

Funding for project costs in excess of those awarded initially will not be provided. Therefore, obtaining realistic cost estimates for the services to be performed are extremely important to insure that adequate funding is provided. Funding requests should take into account that the project will not be under construction until the third (3rd) year in the program. It is recommended that the services of a professional engineer, architect, or contractor familiar with LADOTD procedures be obtained to assist in the development of the required project services and cost estimates compliance to LADOTD standards. Costs for professional services associated with preparation of the application are not eligible for reimbursement.

The Sponsor will be responsible for any cost in excess of that awarded initially. Sponsors should carefully control increases and overruns as they may jeopardize completion of the entire project. If the Sponsor decides not to complete a project, the applicant will reimburse all federal expenditures to the LADOTD.
Local Road Safety Program
Pavement Marking Policy

A number of applications have been submitted that call for centerline markings on local roads. There is a concern that some of the applicants have not carefully considered the implications of their request for centerline marking of roadways within their jurisdiction. Specifically, not all roadways require centerlines.

Centerlines are traffic control devices that regulate, warn and guide traffic over your local road. As such, the Manual on Uniform Traffic Control Devices (MUTCD) is the national standard for how centerlines installed on your roadway. Chapter 3 of the MUTCD addresses centerline markings directly (available online at http://www.mutcd.fhwa.dot.gov/pdfs/2003r1/Ch3.pdf).

In accordance with the standards, guidance, and options published within Chapter 3 of the MUTCD, the roadways you submit for centerline markings should:

Be 18 feet or more in width; and,

For urban areas, have an average daily traffic count of at least 1000 vehicles per day (or 100 vehicles in one hour).

For rural areas, have an average daily traffic count of at least 400 vehicles per day (or 40 vehicles in one hour).

If your roadway meets these minimum requirements, the application to fund centerline striping for that specific roadway will be approved provided funding is available. If your roadway does not meet these requirements, it should be removed from your application unless you can provide the following information:

The roadway has more than two lanes of traffic.

The roadway has a history of crashes where vehicles have left the roadway.

The roadway has a history of crashes where vehicles have collided with fixed objects.

The roadway has a railroad crossing that requires pavement markings (see Chapter 8 of MUTCD).

The roadway has a history of crashes that occur during low light or darkness.

The roadway has a history of crashes where vehicles have collided with parked vehicles or other vehicles engaged in parking maneuvers.

A letter from a registered professional engineer which bears the engineer’s stamp. The letter should affirm that the engineer has personally examined the roadway and determined that on the basis of their engineering judgment, crashes along the
roadway could be significantly reduced by the application of pavement markings as proposed within your application.

You should indicate within your application your willingness and ability to maintain the markings that are applied if your application is approved. That is why it is so important that you limit your pavement marking requests to a roadway(s) or a segment of a roadway that can be made safer with the application of pavement markings.

**Pavement markings:** Standard centerline markings shall consist of a thermoplastic (40 mil) 4 inch wide stripe installed on a 40' pattern (10' stripe and a 30' gap). The centerline will be supplemented with a raised pavement marker placed in the center of each gap.
Local Road Safety Program
Portable Changeable Message Sign Policies

Temporary Traffic Control Applications

Adapted from 2003 MUTCD Section 6F.55 Portable Changeable Message Signs

Standard:
Portable Changeable Message signs shall be TTC (temporary traffic control) devices with the flexibility to display a variety of messages. Each message shall consist of either one or two phases. A phase shall consist of up to three lines of eight characters per line. Each character module shall use at least a five wide and seven high pixel matrix.

Support:
Portable Changeable Message signs are used most frequently on high-density urban freeways, but have applications on all types of highways where highway alignment, road user routing problems, or other pertinent conditions require advance warning and information.

Portable Changeable Message signs have a wide variety of applications in TTC zones including: roadway, lane, or ramp closures, crash or emergency incident management, width restriction information, speed control or reductions, advisories on work scheduling, road user management and diversion, warning of adverse conditions or special events, and other operational control.

The primary purpose of Portable Changeable Message signs in TTC zones is to advise the road user of unexpected situations. Some typical applications include the following:
A. Where the speed of vehicular traffic is expected to drop substantially;
B. Where significant queuing and delays are expected;
C. Where adverse environmental conditions are present;
D. Where there are changes in alignment or surface conditions;
E. Where advance notice of ramp, lane, or roadway closures is needed;
F. Where crash or incident management is needed; and/or
G. Where changes in the road user pattern occur.

Guidance:
The components of a Portable Changeable Message sign should include: a message sign panel, control systems, a power source, and mounting and transporting equipment.

Portable Changeable Message signs should subscribe to the principles established in Section 2A.07 and other sections of this Manual and, to the extent practical, with the design (that is, color, letter size and shape, and borders) and applications prescribed in this Manual, except that no reverse colors for the letters and the background are considered acceptable.

The front face of the sign should be covered with a protective material. The color of the elements should be yellow or orange on a black background.

Portable Changeable Message signs should be visible from 800 m (0.5 mi) under both day and night conditions. For a trailer or large truck mounted sign, the letter height should be a minimum of 450 mm (18 in). For Changeable Message signs mounted on service patrol trucks, the letter height should be a minimum of 250 mm (10 in).

The message panel should have adjustable display rates (minimum of 3 seconds per phase), so that the entire message can be read at least twice at the posted speed, the off-peak 85th-percentile speed prior to work starting, or the anticipated operating speed.

For assistance in completing this application, please contact LTAP at 225-767-9717
Rev. 4/4/2011
Messages should be designed taking into account the following factors:

A. Each phase should convey a single thought.
B. If the message can be displayed in one phase, the top line should present the problem, the center line should present the location or distance ahead, and the bottom line should present the recommended driver action.
C. The message should be as brief as possible.
D. When a message is longer than two phases, additional Portable Changeable Message signs should be used.
E. When abbreviations are used, they should be easily understood (see Section 1A.14).

Option:
The message sign panel may vary in size.
Smaller letter sizes may be used on a Portable Changeable Message sign mounted on a trailer or large truck provided that the message is legible from at least 200 m (650 ft), or mounted on a service patrol truck provided that the message is legible from at least 100 m (330 ft).

Two Portable Changeable Message signs may be used for the purpose of allowing the entire message to be read twice at the posted speed.

**Standard:**

**Portable Changeable Message signs shall automatically adjust their brightness under varying light conditions, to maintain legibility.**

The control system shall include a display screen upon which messages can be reviewed before being displayed on the message sign. The control system shall be capable of maintaining memory when power is unavailable.

**Portable Changeable Message signs shall be equipped with a power source and a battery back-up to provide continuous operation when failure of the primary power source occurs.**

The mounting of Portable Changeable Message signs on a trailer, large truck, or a service patrol truck shall be such that the bottom of the message sign panel shall be a minimum of 2.1 m (7 ft) above the roadway in urban areas and 1.5 m (5 ft) above the roadway in rural areas when it is in the operating mode.

The text of the messages shall not scroll or travel horizontally or vertically across the face of the sign.

**Guidance:**

Portable Changeable Message signs should be used to supplement to and not as a substitute for conventional signs and pavement markings.

When Portable Changeable Message signs are used for route diversion, they should be placed far enough in advance of the diversion to allow road users ample opportunity to perform necessary lane changes, to adjust their speed, or to exit the affected highway.

The Portable Changeable Message sign should be sited and aligned to provide maximum legibility. Multiple Portable Changeable Message signs should be placed on the same side of the roadway, separated from each other at distances based on Table 6C-1.

Portable Changeable Message signs should be placed on the shoulder of the roadway or, if practical, further from the traveled lane. They should be delineated with retroreflective TTC devices. When Portable Changeable Message signs are not being used, they should be removed; if not removed, they should be shielded; or if the previous two options are not feasible, they should be delineated with retroreflective TTC devices.
Portable Changeable Message sign trailers should be delineated on a permanent basis by affixing retroreflective material, known as conspicuity material, in a continuous line on the face of the trailer as seen by oncoming road users.

The following section was adopted from the 2009 Edition of the MUTCD, Chapter 2L, Section 2L.02, Paragraph 03 and 06 and provisionally approved by the Local Road Safety Program until official adoption of the 2009 Edition MUTCD by the State of Louisiana.

Option:

Portable Changeable Message signs may be used by State and local highway agencies to display safety messages, transportation-related messages, emergency homeland security messages, and America’s Missing Broadcast Emergency Response (AMBER) alert messages.

Standard:

When a Portable Changeable Message sign is used to display a safety, transportation-related, emergency homeland security, or AMBER alert message, the display format shall not be of a type that could be considered similar to advertising displays.

The following requirements were approved by the Local Road Safety Program committee on August 17, 2010 and are in effect for Portable Changeable Message signs requested in 2011.

A Sponsor requesting the purchase of a (or multiple) Portable Changeable Message signs must send a representative to participate in the Sponsor’s local Safe Community meetings, provided that the Portable Changeable Message signs were approved for funding.
DEPARTMENT OF TRANSPORTATION AND DEVELOPMENT
OFFICE OF HIGHWAYS

EDSM No: VI.1.1.5

ENGINEERING DIRECTIVES AND STANDARDS

VOLUME VI Effective Date: April 8, 2008
CHAPTER 1
SECTION 1 Subject: ROUNDBOOTH STUDY AND APPROVAL
DIRECTIVE 5

1. PURPOSE:
This directive sets forth the Department of Transportation and Development’s (DOTD) policy for the justification and approval for installing roundabouts.

2. SCOPE:
This policy applies to the State highway system and to local roads where state or federal funds will be used as well as to any improvements to the State highway system funded by a private entity, Parish or local governments that are constructed by permit. Refer to EDSM VI.1.1.6 on Roundabout Design for the design details of a roundabout.

3. POLICY:
A. A comprehensive investigation and report of traffic conditions and physical characteristics shall be made of the location. This report shall be recommended by the District and approved by the Chief Engineer. This report shall include;

1. Crash history of the site for the past 3 years with a chart listing the number of correctable crashes
2. Traffic Volumes
   a. 7 day 24 hour approach counts with hourly subtotals including classification counts identifying truck volumes
   b. Manual counts for peak hour AM and PM (also noon and weekend if applicable)
   c. Projected peak hour counts for a 20 year design life (Traffic Engineering Division Administrator to approve waivers to design year)
   d. Pedestrian Volumes
3. Speed study for each approach
4. Analysis of roundabout operation
   a. Sidra Intersection [computer software] (Akcelik & Associates) software must be run to compare the level of service and the v/c ratio between roundabouts, signals and stop controlled intersections
   b. VisSim™ [computer software] (Visual Solutions, Inc.) model
5. Identify any safety concerns
6. Perform a systems analysis on adjacent intersections and commercial driveways that the roundabout may affect
7. Nearby land use
a. Right of Way Issues
b. Access Issues
c. Operational issues

8. Conceptual drawing of proposed roundabout
   a. Assure appropriate geometry can be obtained for entry and exit using a WB-67 (or larger) design vehicle. (Waivers to be approved by the Traffic Engineering Division Administrator.)
   b. Horizontal and vertical geometry must be clearly identified
   c. Approximate Right of way
   d. Nearby driveways
   e. Utilities
   f. Sidewalk location

B. Locations where a roundabout may be justified;
   1. Intersections with poor visibility as long as stopping sight distance to the roundabout will be provided.
   2. Intersections with 5 or more reported crashes, of types susceptible to correction by a roundabout, have occurred within a 12 month period, each crash involving personal injury or property damage apparently exceeding the applicable requirements for a reportable crash.
   3. Increases capacity of an intersection.
   4. Intersections with limited space for queuing.
   5. Intersections with difficult skew angles, significant offsets, odd number of approaches or close spacing to other intersections.
   6. Intersections where U turns need to be accommodated.

C. Reasons why a roundabout may not be justified;
   1. Should not be installed strictly for access to private development using state or federal funds. May be installed under permit.
   2. Should not be planned to include metering or signalization

4. WAIVERS:
   Deviations from this policy must be requested in writing along with engineering justification for the variation from policy. The request shall be submitted to the Traffic Engineering Division Administrator who may approve a waiver in policy.

5. APPLICATION OF STANDARDS:
   These standards shall apply immediately to all new installations.

6. OTHER ISSUANCES AFFECTED:
   All directives, memoranda or instructions issued heretofore in conflict with this directive are hereby rescinded.

7. IMPLEMENTATION:
   This directive will become effective immediately upon issuance.
ENGINEERING DIRECTIVES AND STANDARDS

VOLUME VI Effective Date: April 8, 2008
CHAPTER 1 Subject: ROUNDABOUT DESIGN
SECTION 1
DIRECTIVE 6

1. PURPOSE:
This directive sets forth the Department of Transportation and Development’s (DOTD) policy for the design of roundabouts.

2. SCOPE:
This policy applies to the State highway system and to local roads where state or federal funds will be used as well as to any improvements to the State highway system funded by a private entity, Parish or local governments that are constructed by permit. Roundabouts must be approved according to EDSM VI.1.1.5 Roundabout Study and Approval prior to beginning design.

3. POLICY:
A. General
1. All movements should be accounted for in the design.
2. A roundabout should be designed for current peak hour traffic at time of construction.
3. The roundabout should be planned for a 20 year design life such that no right of way would have to be purchased to increase capacity once the roundabout is constructed. A waiver may be approved by the Traffic Engineering Division Administrator.

B. Operational
1. If the roundabout is installed under permit a city/state agreement must exist such that if the roundabout fails within the first three years then the state is not responsible for any construction or reengineering costs.
2. Driveways should not be allowed within 100’ away of the splitter island. (Waivers are to be approved by the Traffic Engineering Division Administrator.)

C. Geometry
1. All Roundabouts
   A. All speed control shall take place prior to the yield point on entry. The recommended design speed for all vehicles entering the roundabout is 15 mph. Remove any reverse curvature between the entrance and exit radii and join with straight curb sections.
B. The offset left alignment is preferred, the center alignment is acceptable and the offset right alignment requires a waiver to be made by the Traffic Engineering Division Administrator.
C. Approach legs should be designed as perpendicular to each other as possible.
D. Entry width should be 18’ for a single lane roundabout unless a wider entry is needed due to a larger design vehicle. Entry widths for dual movements are to be designed using Auto TURN.
E. Circulatory roadway width should accommodate buses and fire trucks.
F. Exit radius should be between 400’ – 800’.
G. Use a WB-67 for the design vehicle. (Waivers are to be approved by the Traffic Engineering Division Administrator.)
H. Truck Aprons
   1) Range from 3 ft to 13 ft wide with a cross slope 3-5 percent away from the central island. Exact width of truck apron should be determined from Auto TURN.
   2) See Figure 1.1 for more detail.
I. Length of splitter island measured along the approach should be at least 50’ long. Longer islands or extended raised medians should be used in areas with high approach speeds.
J. Vertical face curbs are required in the area of the splitter island on both sides of the roadway and on the splitter island. The approach nose of the splitter island should be tapered down to a sloped curve. Vertical face curb should begin at the edge of the finished shoulder on the approach roadway, then taper inward using a shifting taper to the edge of the travel way. Continue the curb on the edge of the travel way through the roundabout entrance and along the outside diameter to the various exits.

2. Single Lane Roundabouts
   A. The inscribed circle shall be at least 110' diameter.
   B. The circulatory width shall be wide enough so that a bus will not have to use the truck apron.

3. Multi-Lane Roundabouts
   A. The recommended size for the inscribed circle shall be at least 175’ diameter.
   B. Gore striping shall be used between entry lanes to keep 12’ lane widths for passenger vehicles.
   C. Design for minimum lanes.
   D. If inner lane can exit, outer lane must be an exit only.
   E. Path overlap
      1) Striping cannot be used to mitigate path overlap.
      2) A diagram should be furnished illustrating that path overlap does not exist: Designers should determine the natural path overlap by assuming the vehicles stay within
their lanes up to the yield point. At the yield point the vehicle maintains its natural trajectory into the circulatory roadway. The vehicle will then continue into the circulatory roadway and exit with no sudden changes in curvatures or speed.

D. Pedestrians
   1. Any pedestrian crosswalk must be justified by the District Traffic Operations Engineer (DTOE) before including pedestrians in the design of the roundabout.
   2. Stopping sight distance to the crosswalk shall be provided.
   3. The pedestrian crossing is to be located at least 20 feet from the yield line to the center of the crosswalk.
   4. Sidewalk, ramp and crosswalk shall meet current DOTD standards.

E. Bicycles
   1. End all shoulders and bike lanes 100’ in advance of the yield line.
   2. Curb ramps should be placed where the shoulder/bike lane terminates to allow cyclists to access the mix use path.

F. Transit
   1. Bus pullouts shall not be located on the circulatory roadway.
   2. A bus stop is best situated:
      1. On an exit lane in a pull out just past the crosswalk.
      2. On an approach leg 60’ upstream from the crosswalk, in a pullout.

G. Signing
   1. See Figures 1.4 and 1.5 for signing layouts.
   2. Junction assemblies should be placed in advance of a roundabout.
   3. Confirmation assemblies should be placed no more than 500’ beyond the intersection.
   4. Signs placed in center island shall be 24” from bottom of sign to ground.
   5. Fishhook arrows shall be used on signs.

H. Pavement Markings
   1. See Figures 1.6, 1.7, 1.8, 1.9 for marking layout.
   2. Single lane roundabouts do not need lane arrows or circulatory roadway pavement markings except for edge line markings.
   3. Fishhook pavement markings shall be used. See Figure 1.10.
   4. Bike lane markings are not permitted within the circulatory roadway.
   5. No yield lines (shark teeth) shall be used.

I. Landscaping
   1. DOTD will not be responsible for the upkeep of the landscaping. A permit/agreement will need to be signed with the community to upkeep the landscaping.
   2. Provide two conduits to the central island, 1 for water and 1 for electrical.
   3. No hard wall, fountains or any object that would encourage pedestrians shall be allowed in the center island.
   4. Select plantings to ensure adequate sight distance and to minimize maintenance for the life of the project.
   5. Use a 6:1 slope on the central island.
6. Keep at least the outside 6’ of central island clear.
7. Splitter islands must not contain trees, planters or light poles.
8. Do not obstruct the sight triangle.
9. Avoid landscaping within 50’ in advance of the yield point.
10. Use low profile landscaping in the corner radii if a crosswalk is provided.

J. Illumination
1. Roundabouts shall be illuminated such that at a minimum should be located in advance of the crosswalk. Make sure pedestrians are not “back lit”.
2. See chart below:

<table>
<thead>
<tr>
<th>Roadway Classification (Street A/Street B)</th>
<th>Recommended Illuminance for Intersections</th>
<th>Uniformity Ratio (Eavg/ Emin)²</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Average Maintained Illuminance at Pavement</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pedestrian/Area Classification¹</td>
<td></td>
</tr>
<tr>
<td></td>
<td>High Lux (fc)</td>
<td>Medium Lux (fc)</td>
</tr>
<tr>
<td>Major/Major</td>
<td>34.0 (3.2)</td>
<td>26.0 (2.4)</td>
</tr>
<tr>
<td>Major/Collector</td>
<td>29.0 (2.7)</td>
<td>22.0 (2.1)</td>
</tr>
<tr>
<td>Major/Local</td>
<td>26.0 (2.4)</td>
<td>20.0 (1.9)</td>
</tr>
<tr>
<td>Collector/Collector</td>
<td>24.0 (2.2)</td>
<td>18.0 (1.7)</td>
</tr>
<tr>
<td>Collector/Local</td>
<td>21.0 (2.0)</td>
<td>16.0 (1.5)</td>
</tr>
<tr>
<td>Local/Local</td>
<td>18.0 (1.7)</td>
<td>14.0 (1.3)</td>
</tr>
</tbody>
</table>

[1] fc=foot candles (conversion factor from lux to foot candles is 10.67 (fc has been rounded to nearest tenth)

[2] Eavg = Horizontal Illuminance, Emin = Vertical Illuminance

Source ANSI/IESNA RP-8-00 Table 9
## Lighting Level Chart

<table>
<thead>
<tr>
<th>Roadway Classification</th>
<th>Description</th>
<th>Existing Daily Vehicular Traffic Volumes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major</td>
<td>That part of the roadway system that serves as the principal network for through traffic flow. The routes connect areas of principal traffic generation and important rural roadways leaving the city. Also often known as “arterials,” “thoroughfares,” or “preferential.”</td>
<td>Over 3,500 ADT</td>
</tr>
<tr>
<td>Collector</td>
<td>Roadways servicing traffic between major and local street. These are street used mainly for traffic movements within residential, commercial, and industrial areas. They do not handle long, through trips.</td>
<td>1,500 to 3,500 ADT</td>
</tr>
<tr>
<td>Local</td>
<td>Local streets are used primarily for direct access to residential, commercial, industrial, or other abutting property.</td>
<td>100 to 1,500 ADT</td>
</tr>
<tr>
<td><strong>Pedestrian Conflict Area Classification</strong></td>
<td><strong>Description</strong></td>
<td><strong>Guidance on Existing Pedestrian Traffic Volumes</strong></td>
</tr>
<tr>
<td>High</td>
<td>Areas with significant numbers of pedestrians expected to be on the sidewalks or crossing the streets during darkness. Examples are downtown retail areas, near theaters, concert halls, stadiums and transit terminals</td>
<td>Over 100 pedestrians/hour</td>
</tr>
<tr>
<td>Medium</td>
<td>Areas where lesser numbers of pedestrians use the streets at night. Typical are downtown office area blocks with libraries, apartments, neighborhood shopping, industrial, older city areas, and streets with transit lanes</td>
<td>11 to 100 pedestrians/hour</td>
</tr>
<tr>
<td>Low</td>
<td>Areas with very low volumes of night pedestrian usage. These can occur in any of the cited roadway classifications but may be typified by suburban single-family streets, very low-density residential developments and rural or semi-rural areas.</td>
<td>10 or fewer pedestrians/hour</td>
</tr>
</tbody>
</table>

### Notes:
1. Existing Daily Vehicular Traffic Volumes are for purposes of intersection lighting levels only.
2. Pedestrian volumes during the average annual first hour of darkness (typically 6:00 pm – 7:00 pm) representing the total number of pedestrians walking on both sides of the street plus those crossing the street at non-intersection locations in a typical block or 656 ft section. These volumes are for purposes of intersection lighting levels only and should not be construed as a warrant.

4. WAIVERS:
Deviations from this policy must be requested in writing along with engineering justification for the variation from policy. The request shall be submitted to the Traffic Engineering Division Administrator who may approve a waiver in policy.

5. APPLICATION OF STANDARDS:
These standards shall apply immediately to all new installations.

6. OTHER ISSUANCES AFFECTED:
All directives, memoranda or instructions issued heretofore in conflict with this directive are hereby rescinded.

7. IMPLEMENTATION:
This directive will become effective immediately upon issuance.
How to Submit the Application

Mail Delivery

To save time in processing your application, please follow directions and provide all requested application documentation. Please provide 3 copies of the application form. Paperclip your application together, no other binding is necessary.

List of Documentation

Completed Application which includes:
  Project Concept description
  Project Information including:
    o One or more sources of data
    o Pictures of site (attach to application)
    o Detailed map of site (including route numbers and street names).
      Projects without detailed maps will be eliminated.
  Detailed cost estimate
  Signed Certification by legal authority

After submitting your application to the LTAP office, you will receive a confirmation e-mail. In this e-mail, there will be a state project number (737 prefix) that you should use with all future correspondence associated with your project.

Send Applications to:
Marie B. Walsh, Director
Local Technical Assistance Program
Louisiana Transportation Research Center
4099 Gourrier Avenue
Baton Rouge, LA 70808
(225) 767-9184