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.

k. 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 can not 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:
   a. On an exit lane in a pull out just past the crosswalk.
   b. 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>Average Maintained Illuminance at Pavement</th>
<th>Uniformity Ratio (Eavg/ Emin)²</th>
</tr>
</thead>
<tbody>
<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 the nearest tenth)
² Eavg = Horizontal Illuminance, Emin= Vertical Illuminance
Source ANSI/IESNA RP-8-00 Table 9
# Lighting Level Chart

<table>
<thead>
<tr>
<th><strong>Roadway Classification</strong></th>
<th><strong>Description</strong></th>
<th><strong>Existing Daily Vehicular Traffic Volumes</strong></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>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Pedestrian Conflict Area Classification</strong></th>
<th><strong>Description</strong></th>
<th><strong>Guidance on Existing Pedestrian Traffic Volumes</strong></th>
</tr>
</thead>
<tbody>
<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 areas blocks with libraries, apartments, neighborhood shopping, industrial, older city areas, and streets with transit lines.</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.

WILLIAM H. TEMPLE
CHIEF ENGINEER