2015 Design Training Expo

Roundabouts in Florida

Celebrating 100 Years of Innovation, Mobility and Economic Development

Why Modern Roundabouts

- 35% total crash reduction
- 75% injury crash reduction
- Lower delay than signal (Myth busters 8/7/14)
- Improves pedestrian safety
- Lower operating and maintenance costs
- Context Sensitive Solution
- Aesthetically pleasing

Innovative Solutions for tomorrow's transportation needs

Roundabouts on State Highway System

13

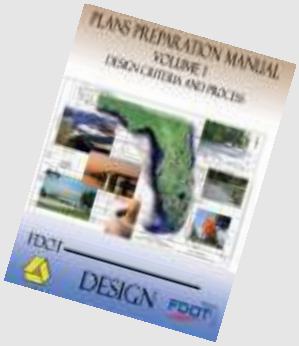
Roundabouts on State Highway System

District	Constructed	Planned
1	1	2
2	7	2
3	0	2
4	5	2
5	0	1
6	0	0
7	0	0
FTE	0	0

Innovative Solutions for tomorrow's transportation needs

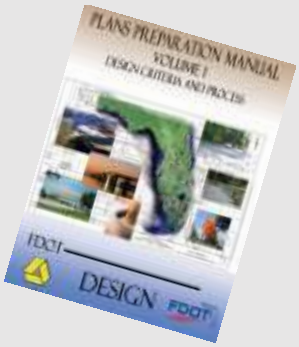
Roundabout Policy

- A roundabout alternative must be evaluated on new construction and reconstruction projects. Evaluation is also required for all other types of projects that propose new signalization or changes in intersection control.



Roundabout Policy

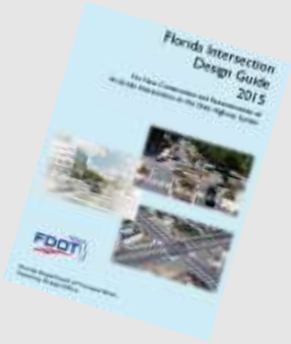
- To construct a roundabout on the state highway system one of the following criteria must be met:
  - MUTCD traffic signal warrants 1 or 2
  - Documented high frequency of severe crashes
  - Context Sensitive Solution for the implementation of Complete Streets on a low speed facility.



Innovative Solutions for tomorrow's transportation needs

Three Step Evaluation Process, FIDG Ch. 7

- Step 1, screening check list
  (is a roundabout a valid alternative)
- Step 2, b/c Analysis
  (does roundabout provide a superior ROI)
- Step 3, Geometric and Operational Analysis
  (how will the roundabout perform)



Roundabout Task Team

- Paul Hiers (chair), Roadway
- Angela Wilhelm, Traffic Operations
- Joe Santos, Safety Office
- Catherine Bradley, EMO
- Dave Amato, Roadway

Innovative Solutions for tomorrow's transportation needs

Roundabout Evaluation Tools




- Three Step Process
  - Step 1-Screening
  - Step 2-b/c Analysis
  - Step 3-Geometric and Operational Analysis
- Roundabout Evaluation/Selection is a District Function
- Retain Documentation in Project File

Step 1 – Roundabout Screening

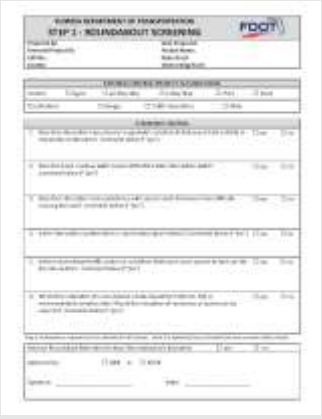
- Six Screening Questions (yes/no)
  - Physical or geometric constraints?
  - Major roadway AADT > 90% of total intersection AADT?
  - Pedestrians with special needs?
  - Located within coordinated signal network?
  - Queue backup from downstream traffic control?
  - Impacts to 4(f) or environmentally sensitive sites?

Step 1 – Roundabout Screening

- Investigation
  - Roundabout Footprint
  - Sources of information
    - Existing plans
    - Aerial Mapping
    - Site Visit
    - Environmental Screening Tools

Step 1 – Roundabout Screening

- Documentation
  - Step 1 Form
    - General project information
    - Screening questions
    - Decision and signature block
  - Signature by DDE **or** DTOE
  - Place in the project file



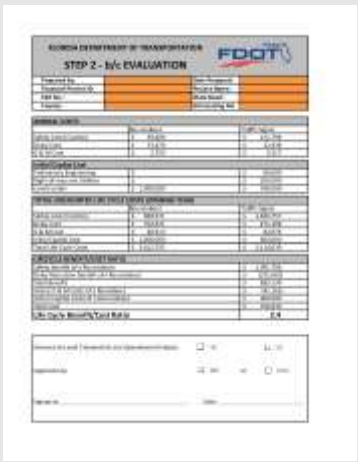
Innovative Solutions for tomorrow's transportation needs

Step 2 – b/c Analysis

- Cost comparison spreadsheet and user's manual
- Compares roundabout to traditional intersection
- Considers safety, delay, and costs
  - Safety analysis based on HCM
  - Delay input from separate analysis
  - Costs include R/W, Utilities, Construction, and O&M

Step 2 – b/c Analysis

- Outcomes
  - b/c ratio
  - Recommendation for or against advancing to Step 3
- Documentation
- Signature

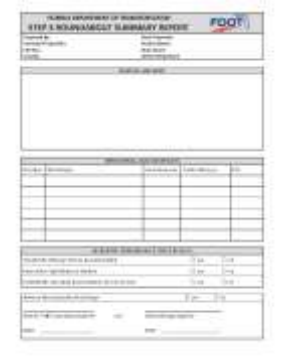


Step 3 – Geometric and Operational Analysis

- Geometric Performance Checks
  - Sight distance
  - Swept path
  - Fastest Path
- Operational Analysis
  - HCM methodology for isolated roundabouts
  - System level analysis for roundabouts in a system

Step 3 – Geometric and Operational Analysis

- Documentation – Summary Report
  - Summary Sheet
  - Operational Analysis Results
  - Concept level geometric layout
  - Performance checks
  - Step1 and Step 2 signed forms



Central Office Review

- Roundabout Evaluation is not reviewed by CO
- Keep Evaluation Documents on file for potential QAR
- Roundabout Design reviewed by CO at 45% Plans

Questions

Questions and comments are welcome.

david.amato@dot.state.fl.us
paul.hiers@dot.state.fl.us
angela.wilhelm@dot.state.fl.us

Innovative Solutions for tomorrow's transportation needs