OVERVIEW

- Warrants
- Median Barrier Selection
- Median Barrier Location (placement within median)
Figure 6.1

*Based on a 5-Year Projection
Warrants

- FHWA memorandum to field offices
- NCHRP Median Barrier Warrant Study
- AASHTO Technical Committee for Roadside Safety (Roadside Design Guide)
Initial Survey Findings…

- Requests must be specific!
- FARS data not reliable source for cross-over crashes
- Many state DOTs unable to identify true cross-over crashes or to correlate crash locations with median width/characteristics
- Revising warrants upwards likely to reduce cross median crashes in several states
MEDIAN BARRIER WARRANT
(AASHTO 2002 Figure 6.1)
1999-2002 NJ Median Cross Over Crashes

Evaluate Need for Barrier

Barrier Not Normally Considered
North Carolina Cross-median Crashes

- **Evaluate Need for Barrier**
- **Barrier Optional**
- **Barrier Not Normally Considered**

Average Daily Traffic (vehicles/day) vs. Median Width (feet) graph.
Research Objectives for NCHRP Project 17-14(2)

- Survey State Transportation Agencies regarding median practices.
- Analyze cross-median crash data from NC.
- Analyze median-involved crash data from CA, NC, and OH.
- Conduct before-after analysis of slope flattening projects in IA.
- Recommend revised median barrier warrant criteria and other median design guidelines.
TYPICAL HIGHWAY CROSS-SECTION
OPEN SECTION ONLY

MEDIAN BARRIER REQUIRED

Average Daily Traffic (ADT)
(thousands)
Study Warranted

Studies for barriers in these cases is optional, based on accident history or other special considerations.
Other STA Median Barrier Practices

• Washington DOT
  – Recommend barrier on full-access controlled highways with posted speed $> 45$-mph and median $\leq 50$-ft wide.

• Florida DOT
  – Install barrier on all divided highway medians $\leq 64$-ft.

• North Carolina DOT
  – Install barrier on all divided freeway medians $\leq 70$-ft.
Recommended Median Barrier Warrant

Study of Crash History

Median Barrier Recommended

Median Barrier Optional
Current Status
Figure 6.1

*Average Daily Traffic (Thousands)

*Based on a 5-Year Projection

**Median Width (Meters)**

- **Barrier warranted**
- **Barrier warranted unless NOT cost-effective**
- **Barrier NOT warranted unless cost-effective**
- **Barrier Not**
- **Optional**
- **Normally**
- **Evaluate Need For Barrier**

*Based on a 5-Year Projection*
Median Barrier Systems

- 3-Strand Cable (generic & high tension)
- W-Beam (weak post)
- Box-Beam
- W-Beam (strong post) w/rubrail
- Thrie Beam
- Modified Thrie Beam
- Concrete Safety Shapes
Median Barrier Location
Illustration 1

Illustration 2

Illustration 3

Figure 6.11
What we know….

- Many cross-median crashes occur on medians over 30 feet wide
- Median encroachments are likely to increase with higher traffic volumes
- Cross-over crashes are severe
- Median barriers can significantly reduce cross over crashes
- Barrier selection and placement are critical for optimal performance
What we don’t know

• What median width/ADT combinations result in cost-effective warrants?
• How should crash history be considered?
• How will cable, metal-beam or concrete median barriers perform when struck by a vehicle coming UP a slope into the barrier?
• When will new warrants be adopted by AASHTO?