Median Barriers

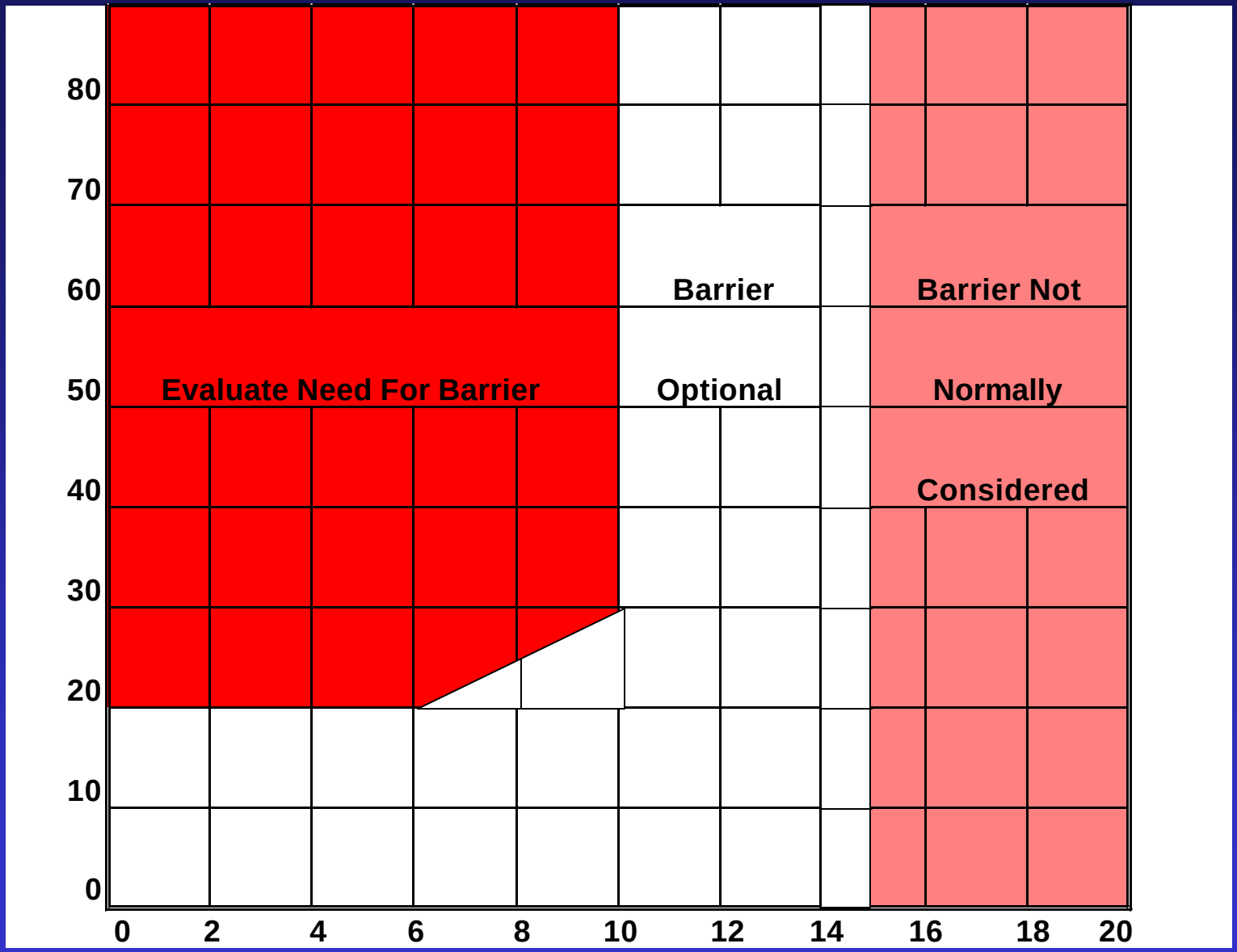
Chapter 6

AASHTO Roadside Design Guide

OVERVIEW

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

Figure 6.1



*Based on a 5-Year Projection

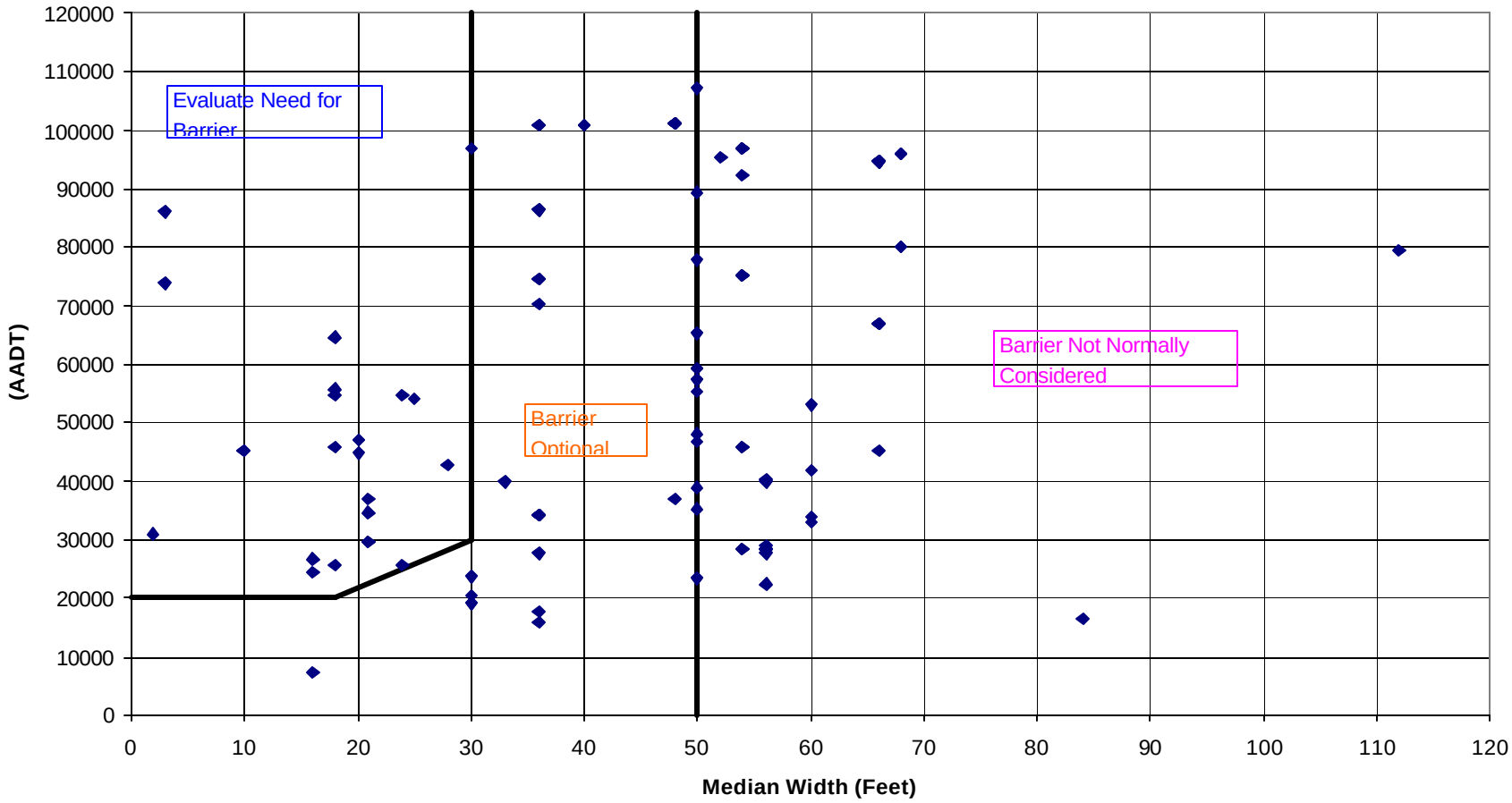
Warrants

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

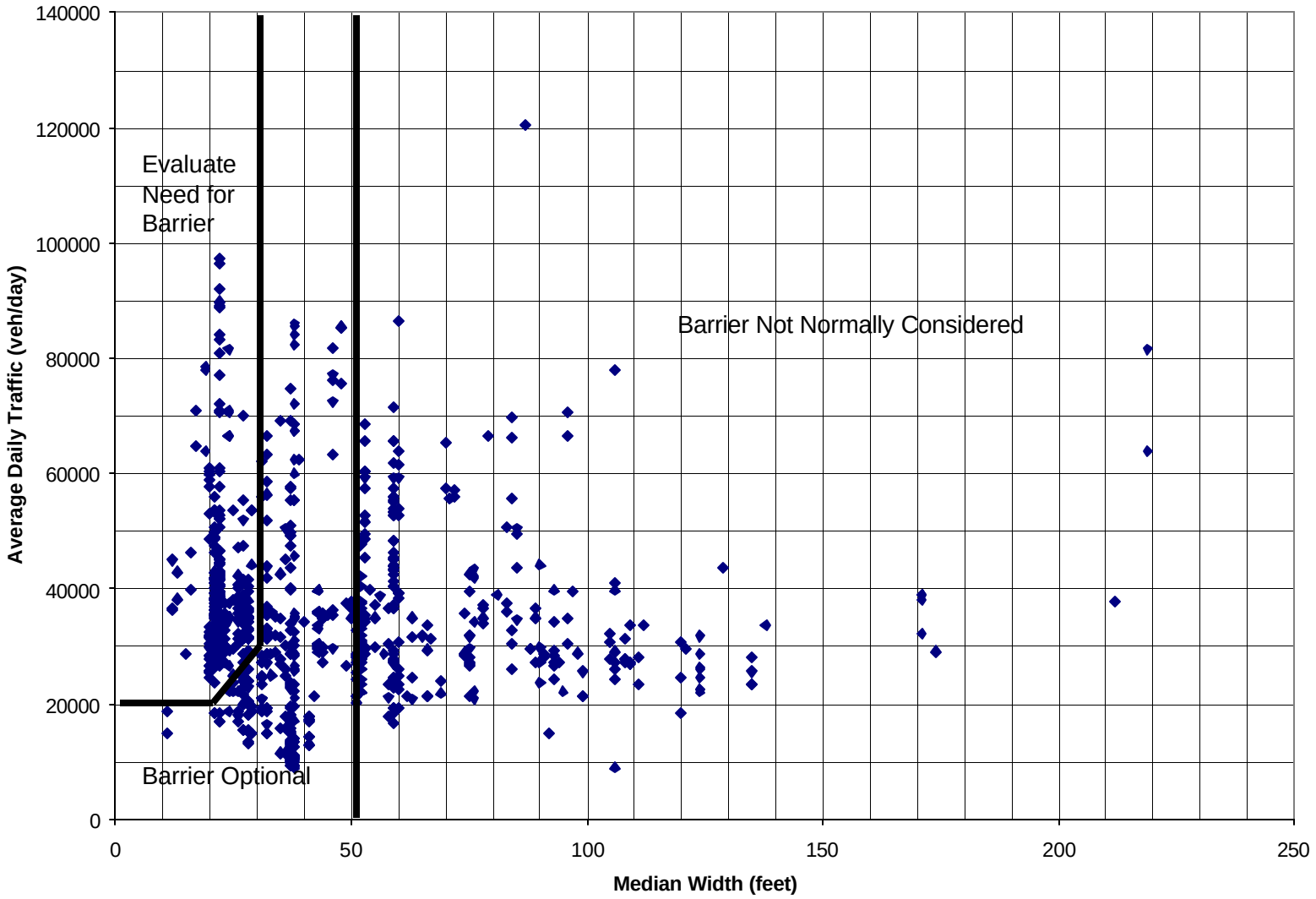
Initial Survey Findings…

- 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

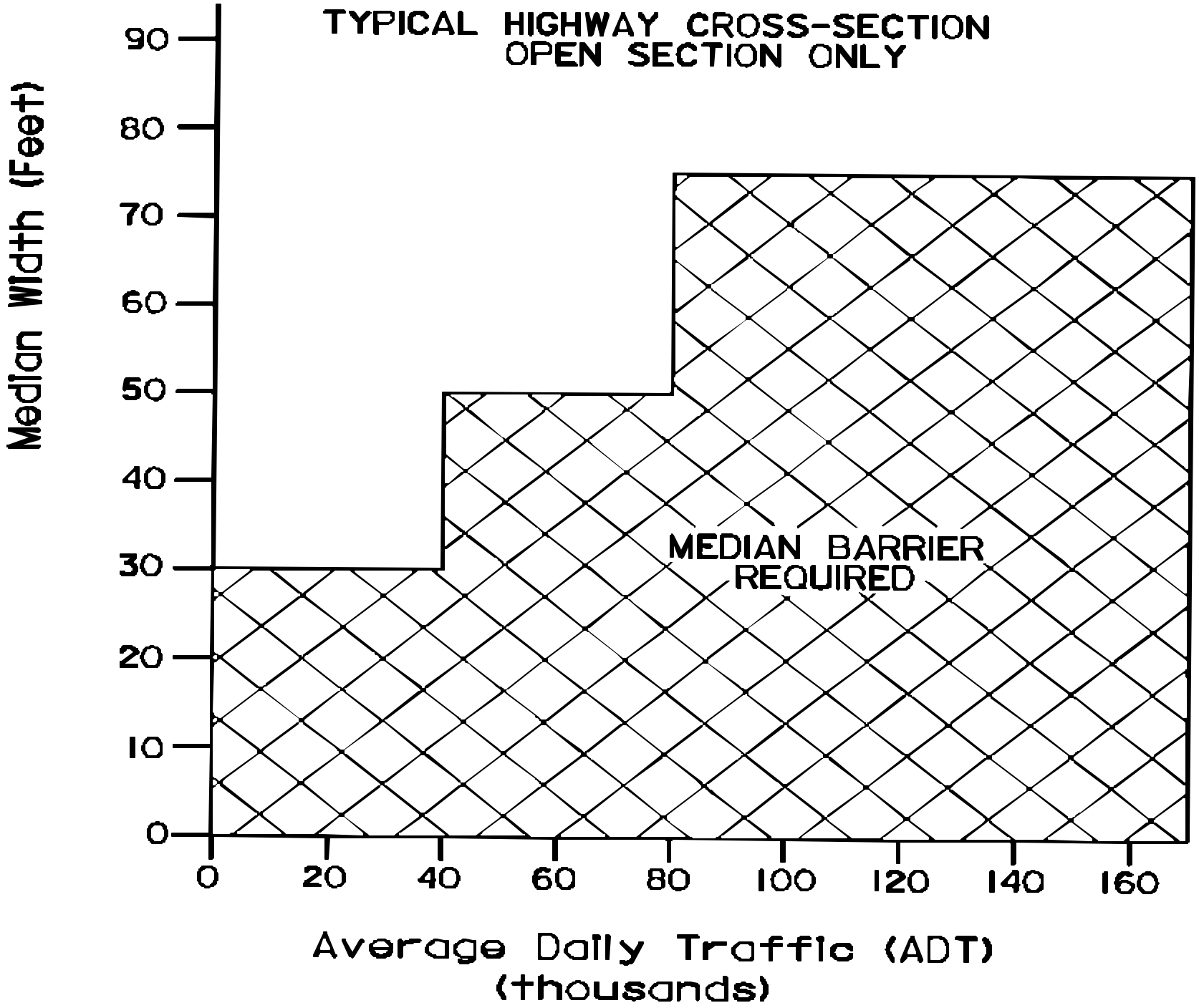


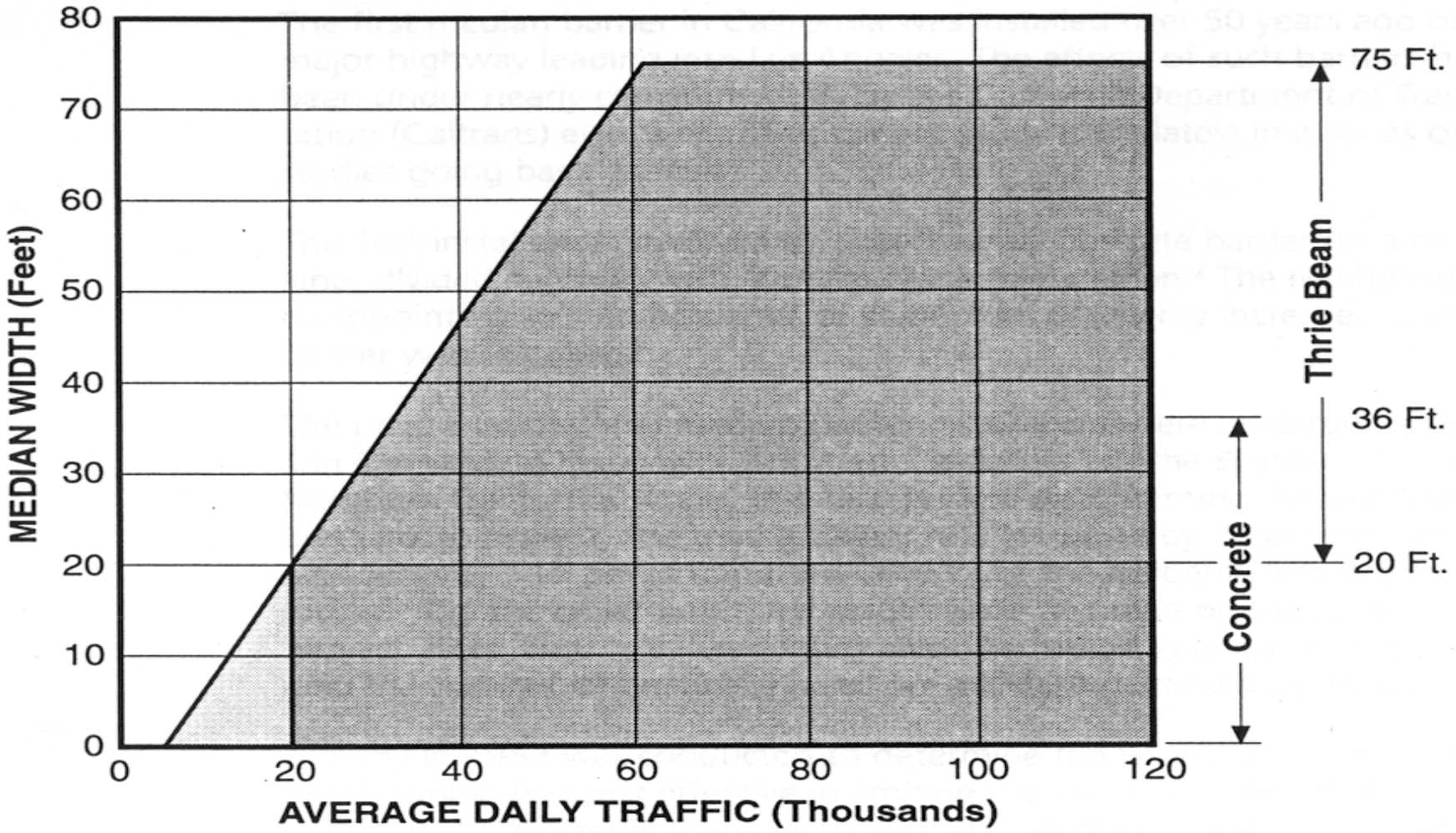
NC Cross-median Crashes



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 Width (Feet)
90
80
70
60
50
40
30
20
10
0
MEDIAN BARRIER
REQUIRED
0
20
40
60
80
100
120
140
160
Average Daily Traffic (ADT)
(thousands)



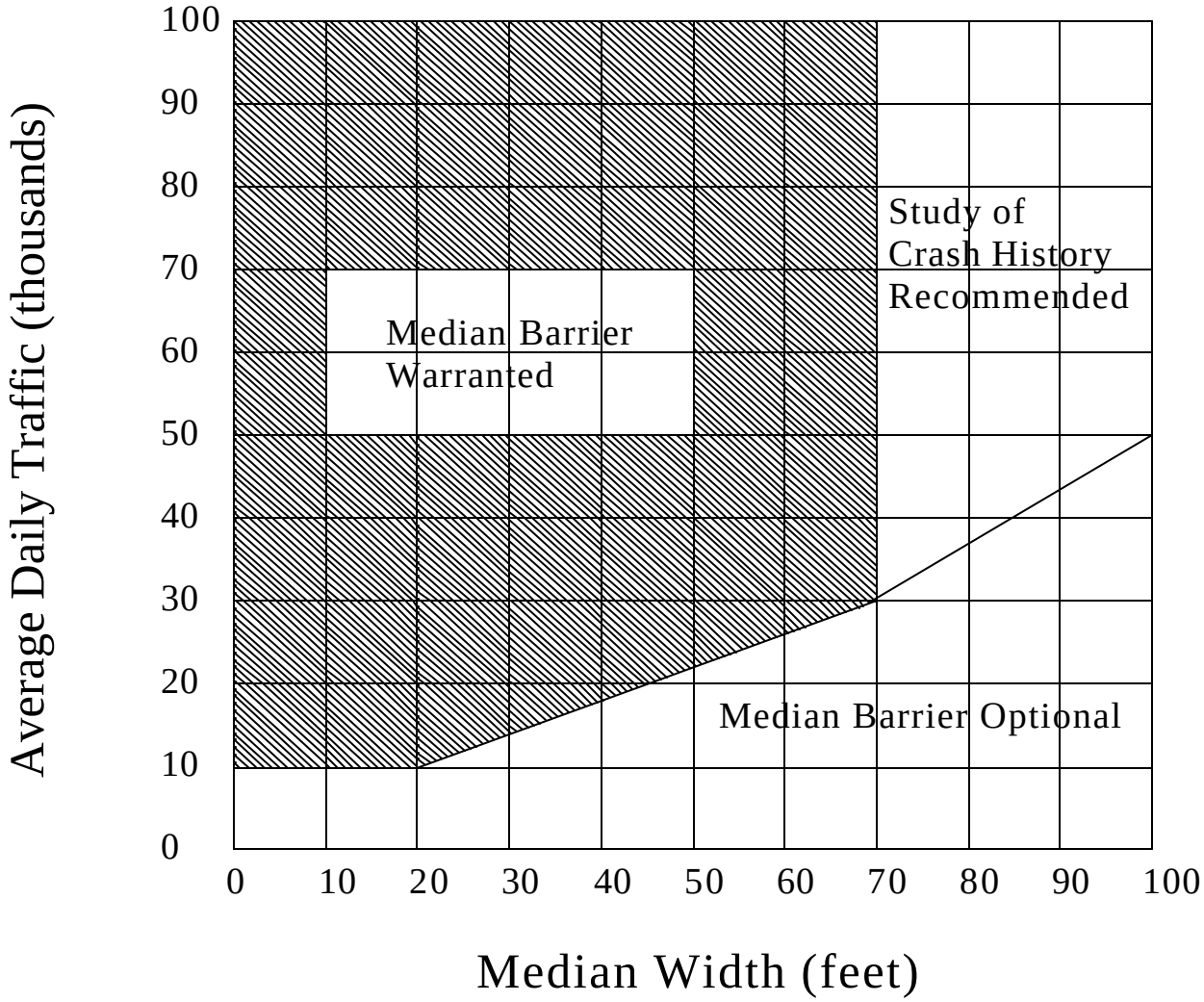
Study Warranted

Studies for barriers in these cases is optional, based on accident history or other special considerations.

Other STA Median Barrier Practices

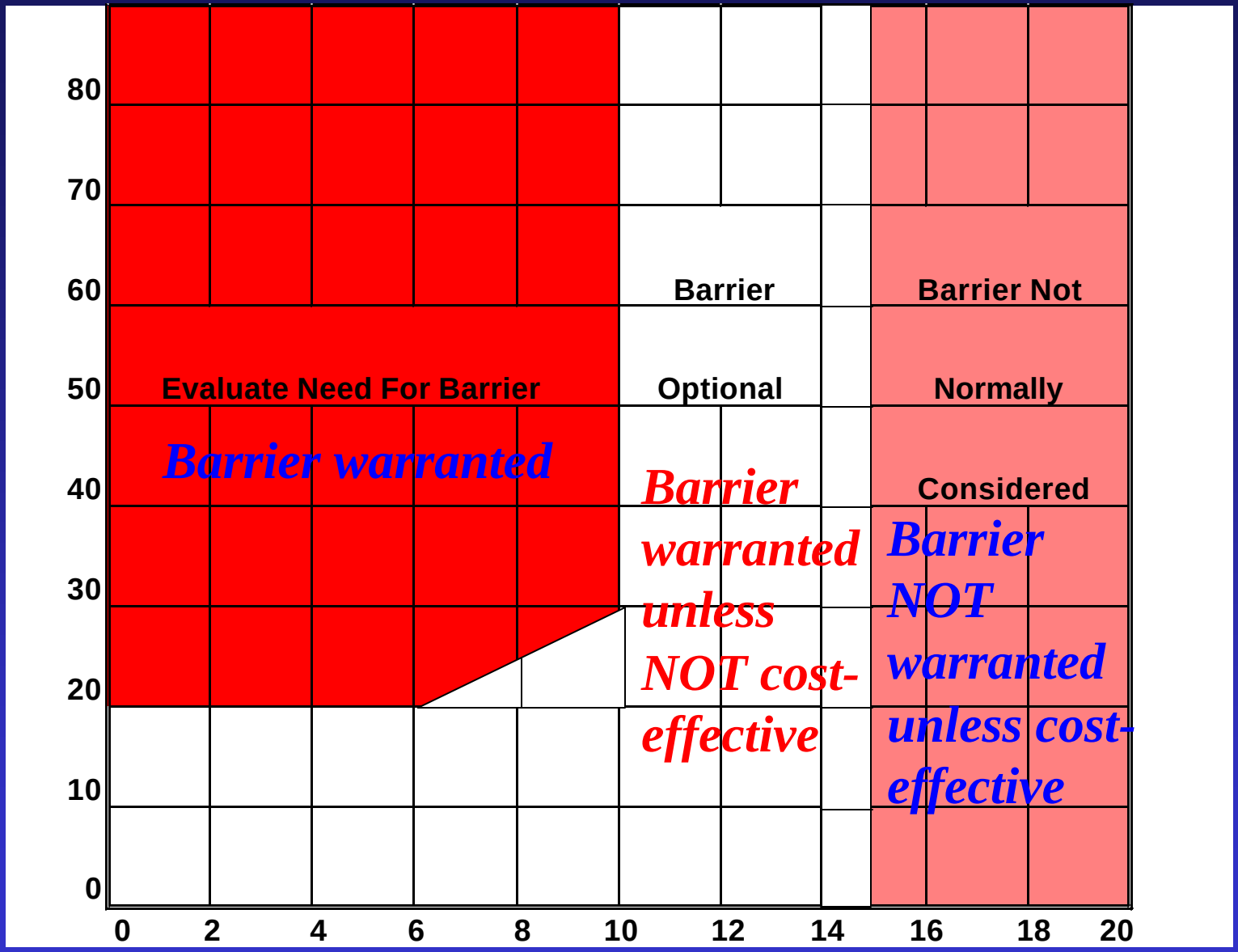
- Washington DOT
  - Recommend barrier on full-access controlled highways with posted speed > 45-mph and median ≤ 50-ft wide.
- Florida DOT
  - Install barrier on all divided highway medians ≤ 64-ft.
- North Carolina DOT
  - Install barrier on all divided freeway medians ≤ 70-ft.

Recommended Median Barrier Warrant



Current Status

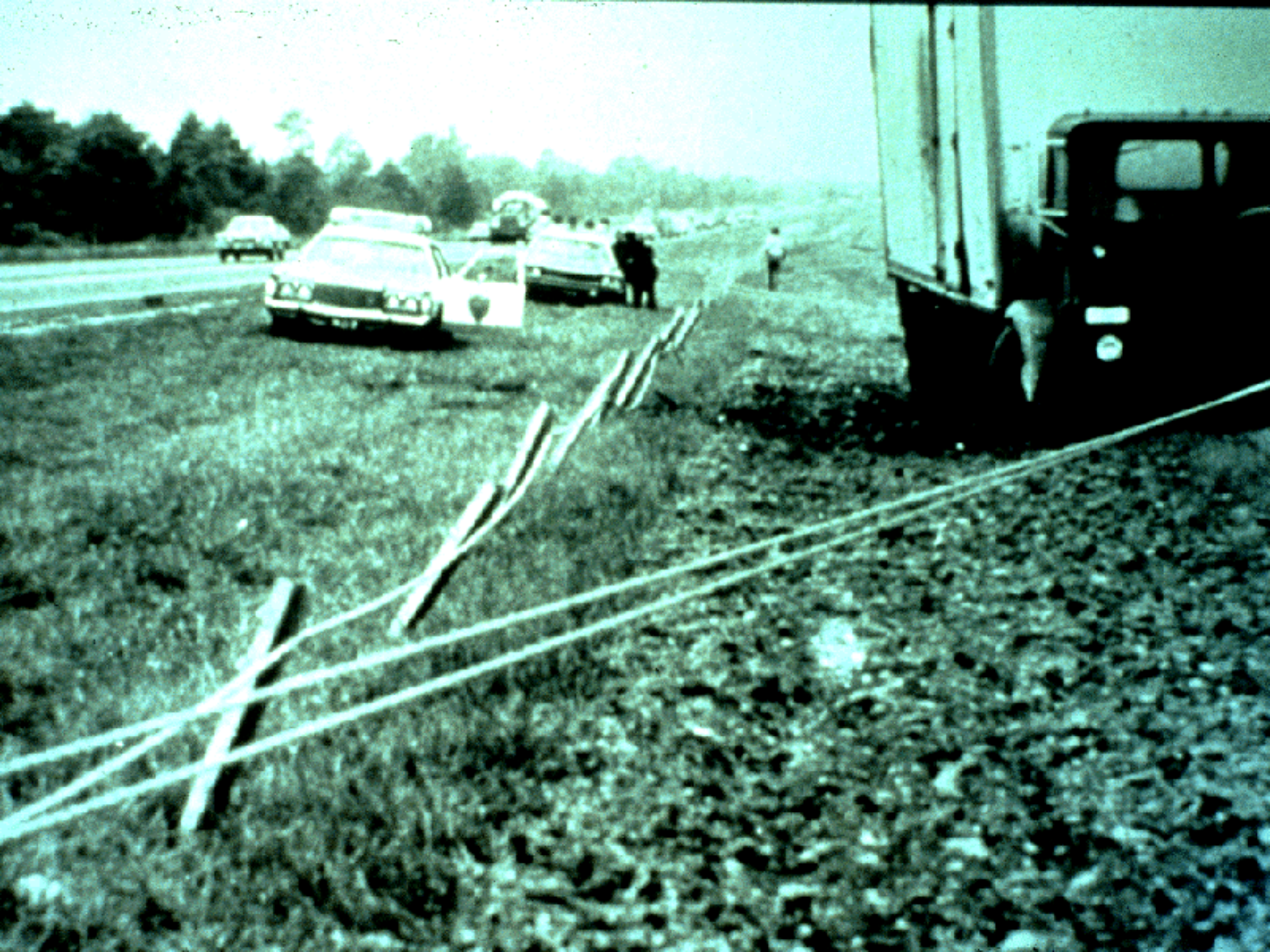
Figure 6.1



*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




Homestead
Air Reserve Base
EXIT 5

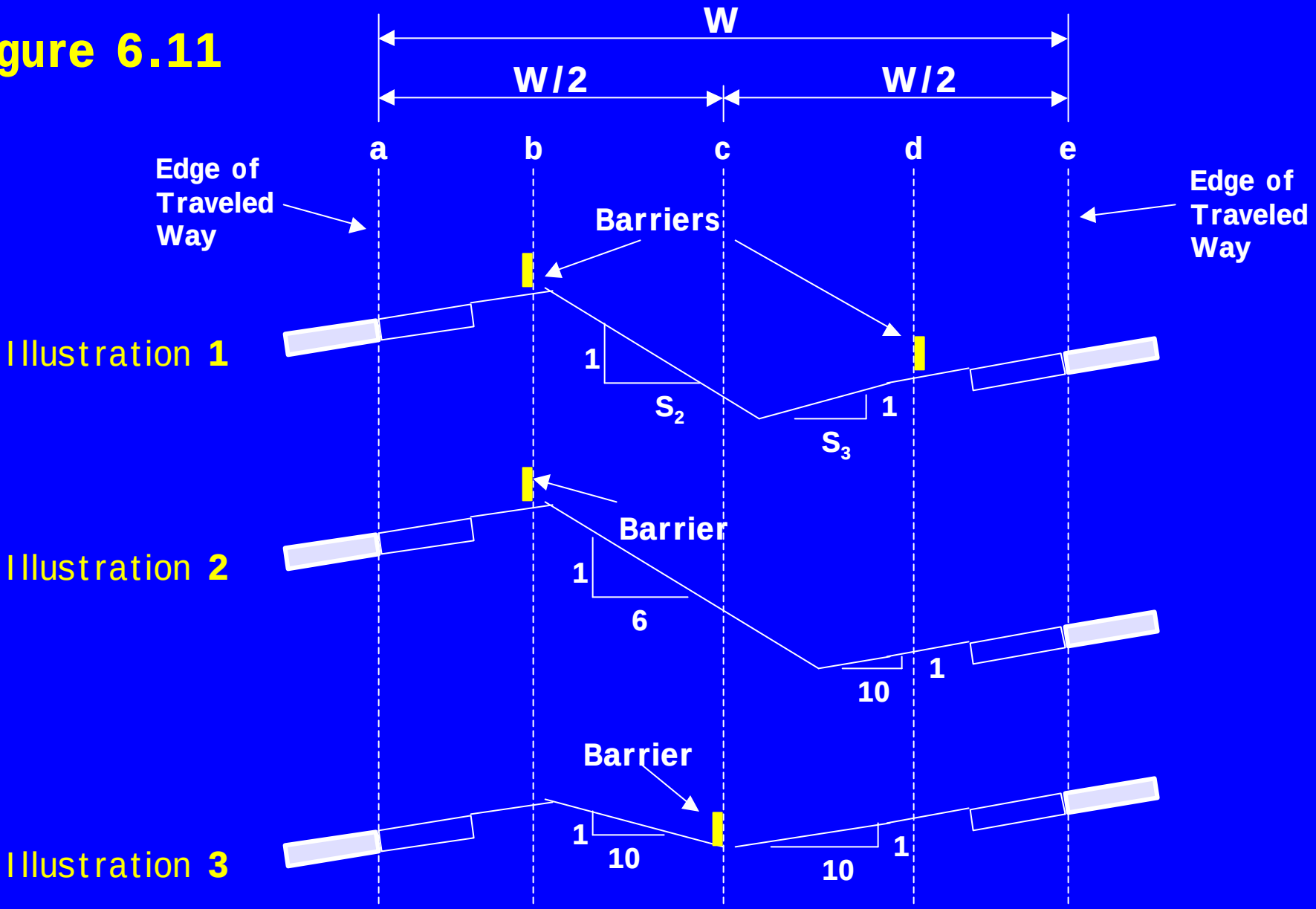

Ok. Dept. of Agric.
Forestry Services
NEXT RIGHT


CCX


4560
Colonial

Median Barrier Location

Figure 6.11


W
W/2
W/2
a
b
c
d
e
Edge of Traveled Way
Edge of Traveled Way
Barriers
Illustration 1
1
S2
1
S3
Barrier
Illustration 2
1
6
1
10
Barrier
Illustration 3
1
10
1
10


1/2 MILE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KEEP
OFF
MEDIAN


Frame -00000041


University
Boulevard
2005 2 25


Frame -00000041

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?