Median Barrier Guidelines

Revision to Chapter 6 of the Roadside Design Guide

Presentation to the AASHTO

Subcommittee on Design

June, 2005

Overview of Proposed Revision

- New Guidelines for the use on median barrier
- Information on high tension cable barrier
- New guidance on placement of cable barrier in the median
- Other minor revisions, clarifications, etc

Background

- NCHRP Report 54 (1968)

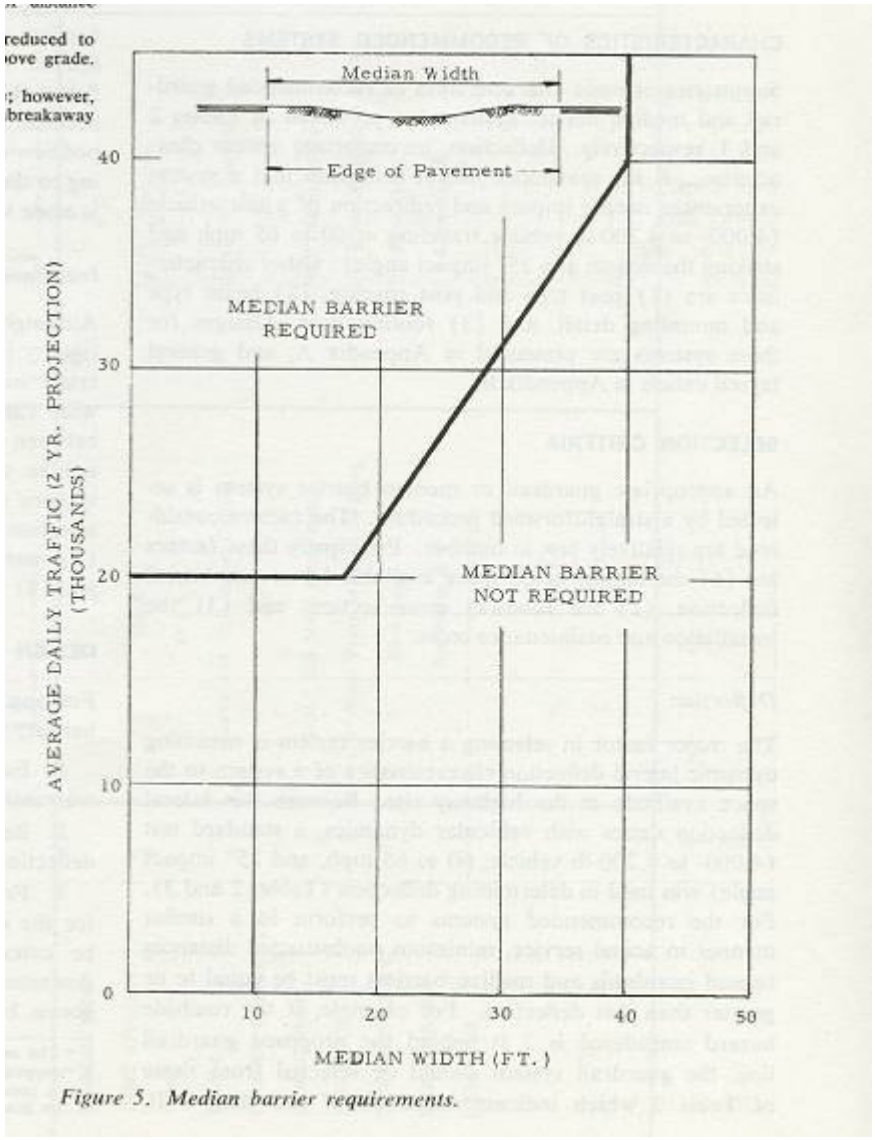


Figure 5. Median barrier requirements.

Background

- NCHRP Report 118 (1971)

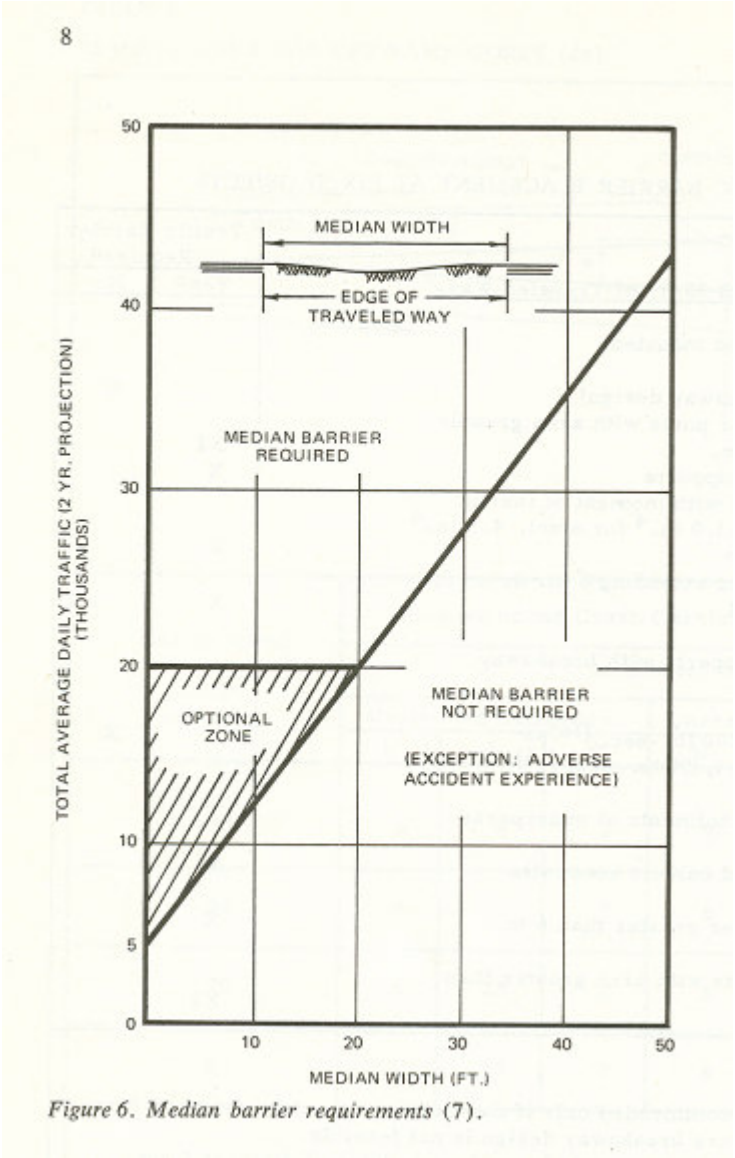


Figure 6. Median barrier requirements (7).

Background

- AASHTO Guide for Selecting, Locating, and Designing Traffic Barriers (1977)

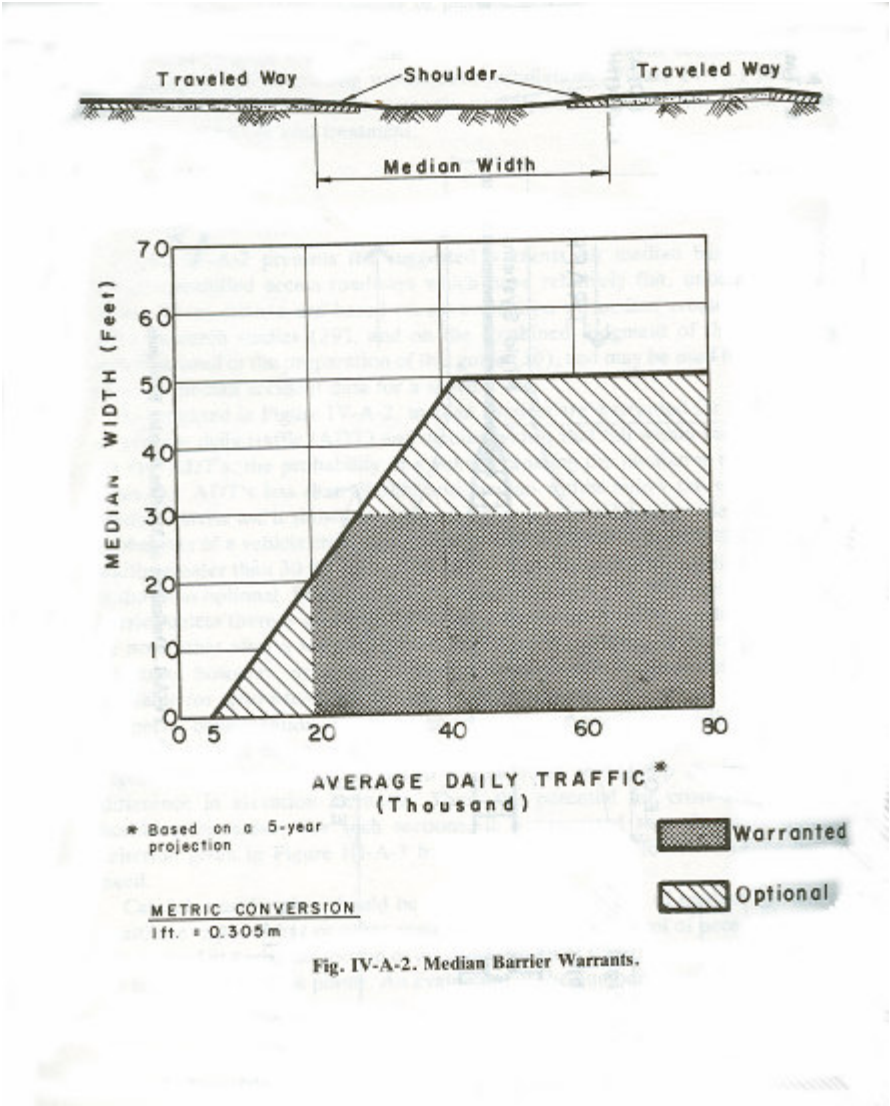


Fig. IV-A-2. Median Barrier Warrants.

NCHRP 17-14

- Selected by SCOR in March, 1995
- Original direction was to evaluate the median geometrics and tradeoffs with slope flattening

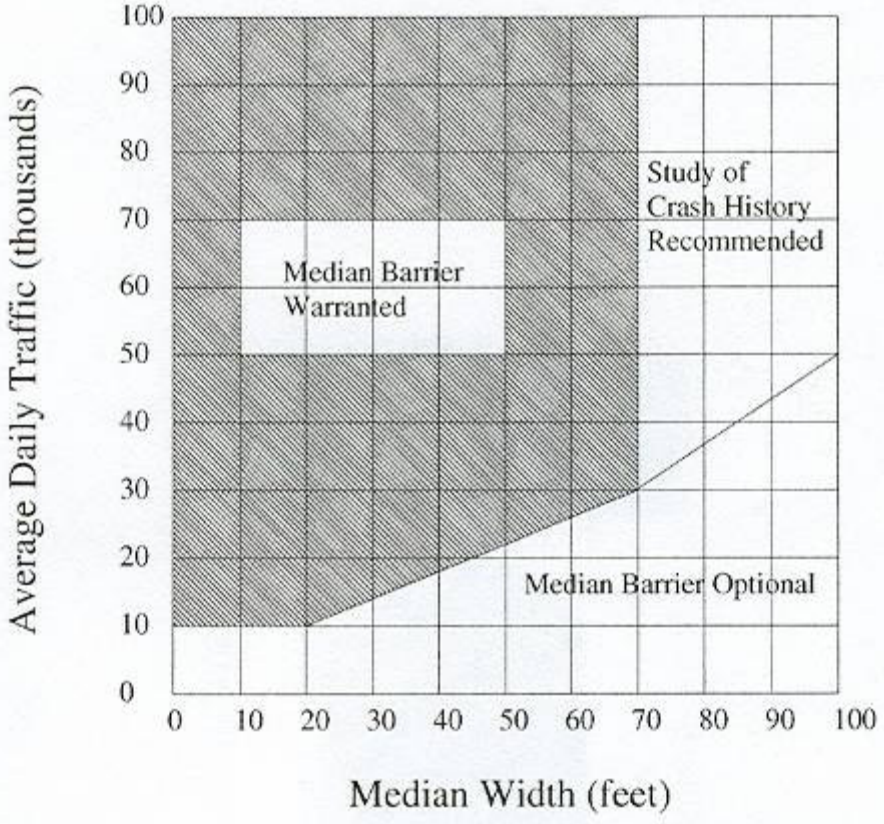


Figure 16. Revised Median Barrier Warrant Criteria Based on Cross-Median Crash Analysis.

National Transportation Safety Board (NTSB) Conclusion (February, 2002)

- 12. The median barrier warrant guidance in the American Association of State Highway and Transportation Officials 2002 Roadside Design Guide is inadequate to cover today's high-speed, high-volume roadways.

NTSB Recommendation

- Review, with the Federal Highway Administration, the median barrier warrants and revise them as necessary to reflect changes in the factors affecting the probability of cross-median accidents, including changes in the vehicle fleet and the percentage of heavy trucks using the roadway. (H-98-24)

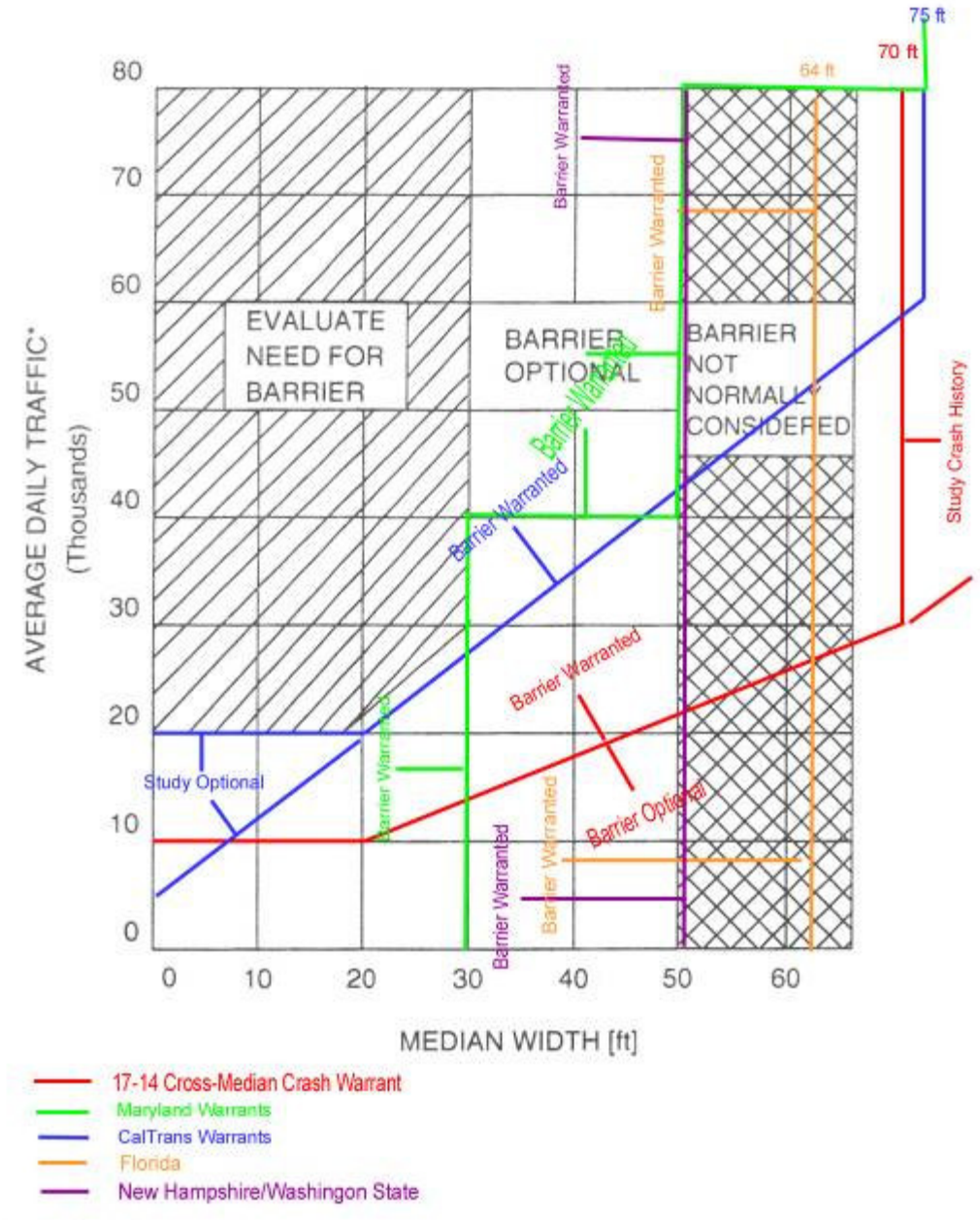
AASHTO Strategic Highway Safety Plan

- Strategy 18B: Reduce across – median crashes on freeways and arteries that have narrow medians.
- NCHRP Report 500, Volume 4

Median Cross Over

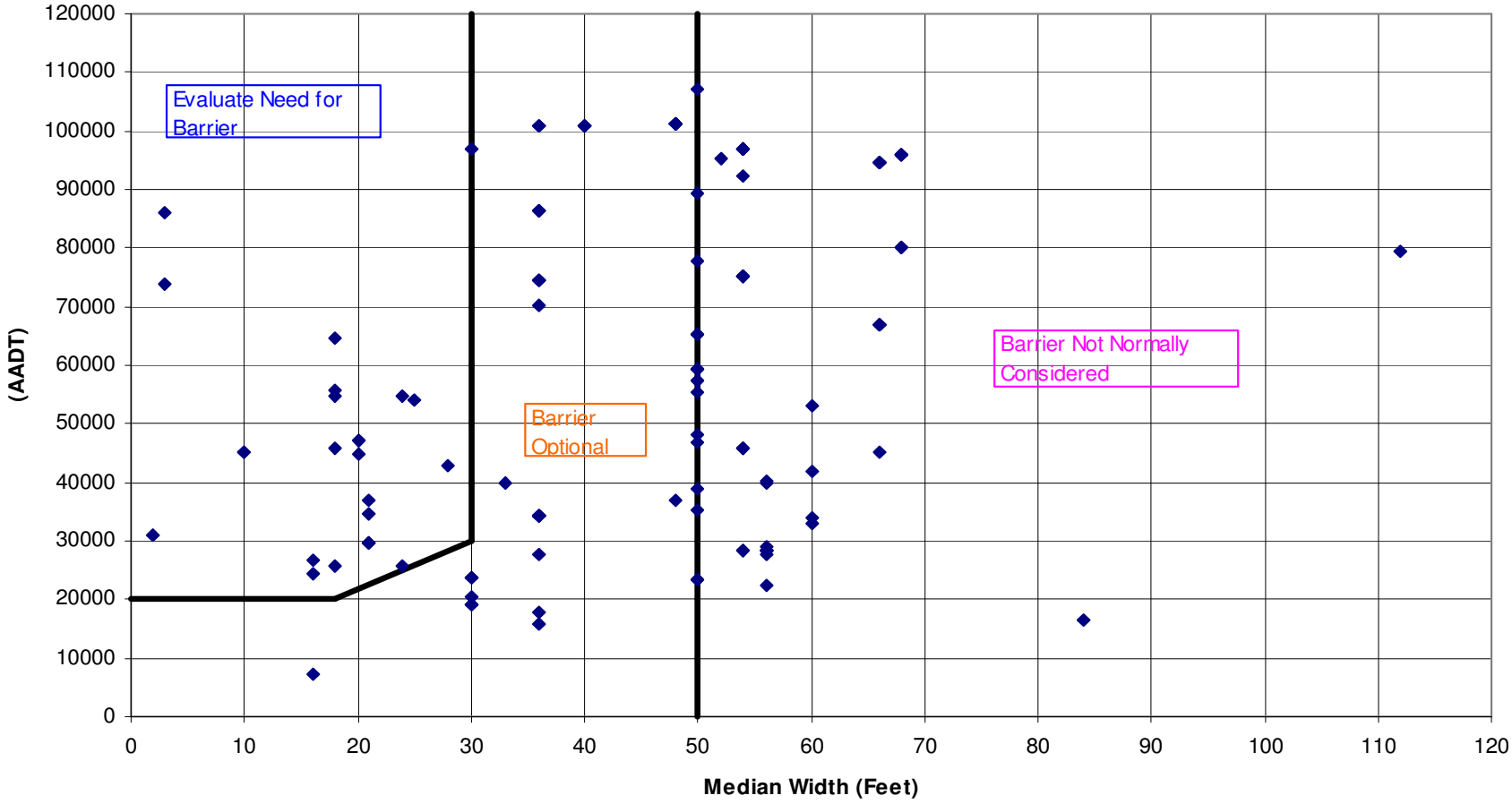
40’ wide median

- Many States have already revised their median barrier criteria

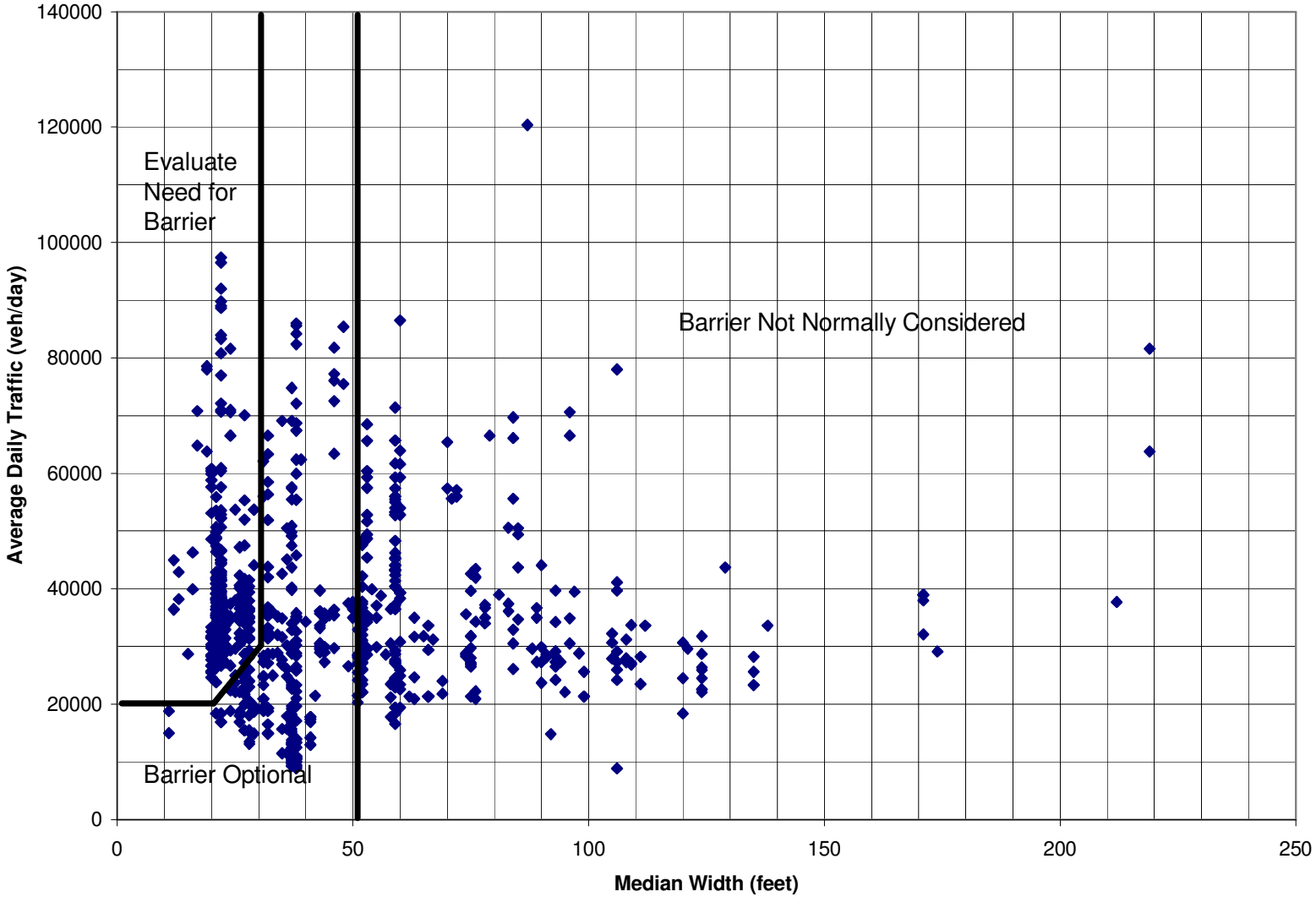


Median Barrier Warrants
2002 AASHTO Roadside Design Guide

MEDIAN BARRIER WARRANT
(AASHTO 2002 Figure 6.1)
1999-2002 NJ Median Cross Over Crashes

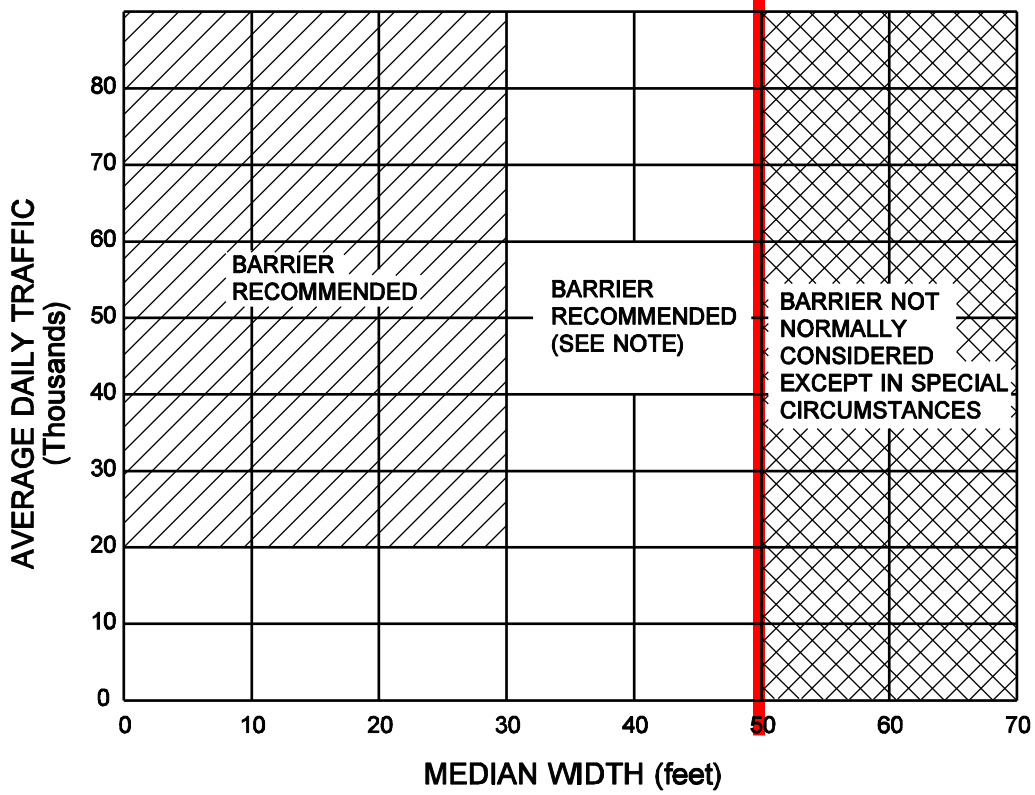


NC Cross-median Crashes



Proposed Guidance

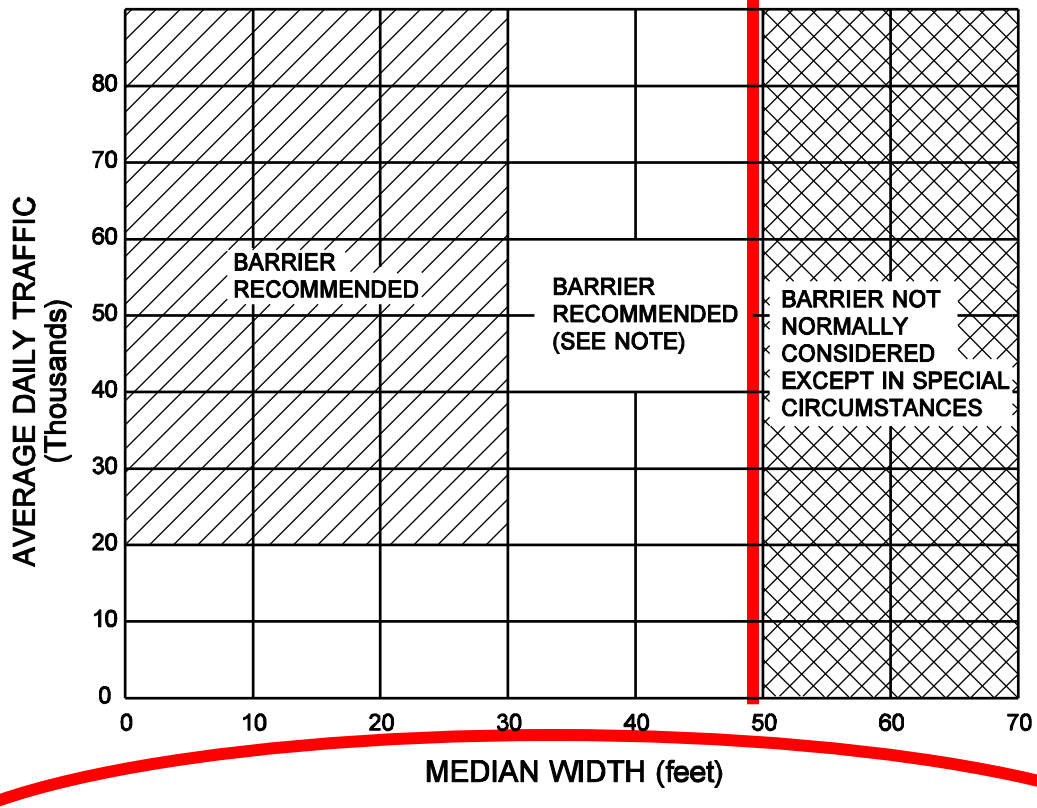
Barrier Recommended for medians less than 50’ wide



NOTE: States are encouraged to conduct a study for medians on their system to determine whether or not a barrier is appropriate in these locations.

Proposed Guidance

However, some flexibility is desired and the proposed guidance is intended to provide flexibility if a state finds that a barrier is not appropriate



NOTE: States are encouraged to conduct a study for medians on their system to determine whether or not a barrier is appropriate in these locations.

Proposed Guidance

It is recognized that the increased use of median barriers has some disadvantages.

- The initial costs of installing a barrier can be significant.
- In addition, the installation of a barrier will generally increase the number of reported crashes as it reduces the recovery area available.
- As a result, there will also be ongoing costs to repair the barrier and increased exposure of maintenance crews to traffic.

Proposed Guidance

- Another concern of a median barrier is that it will limit the options of maintenance and emergency service vehicles to cross the median.
- In snowy climates, a median barrier may also affect the ability to store snow in the median. There may be other environmental impacts depending on the grading required to install the barrier.

Proposed Guidance

- For these reasons, a one size fits all recommendation for the use of median barrier is not appropriate.

Proposed Guidance

- For locations with medians widths between 10 m [30 ft] and 15 m [50 ft] or where the average daily traffic (ADT) is less than 20,000, these guidelines allow flexibility when a study reveals that a barrier is not appropriate (not cost effective). To apply this flexibility, states are encouraged to conduct a study, such as a benefit/cost analysis, for medians on their system to determine whether or not a barrier is appropriate in these locations.

High Tension Cable Barrier

- Brifen
- Cass
- Marion Steel
- Blue Systems

Cable Barrier Placement

- Avoid area from 1’ to 8’ from the bottom of the ditch