



Project Summary

Texas Department of Transportation

0-5800: Symbols and Warrants for Major Traffic Generator Guide Signing

Background

Major Traffic Generators (MTGs) are important regional events or facilities which attract visitors from beyond a local community, city, or metropolitan area. MTGs usually require adequate signs or appropriate symbols to guide unfamiliar motorists from major corridors to these venues. However, the sign spacing along those major corridors is normally very limited. Therefore, it is important and necessary to identify MTG eligibility criteria as well as suitable symbols and/or signs for MTGs.

What the Researchers Did

Researchers: 1) reviewed the existing guidance and manuals used by federal, and state agencies that are related to the warrants and design of guide signing for MTGs, 2) conducted a survey of engineers inside and outside Texas on their experiences and opinions on MTG signing, and surveyed MTG executives and motorists on their needs, 3) developed fuzzy logic based algorithms and identified eligibility criteria for MTGs in Texas based on existing manuals in other states and the expert knowledge gathered from the engineer survey, and 4) recommended sign and symbol designs for Texas MTGs based on relevant federal and Texas manuals, and on a driving simulator test and computer slide show test.

What They Found

Researchers found that traffic generators in Texas should be considered as Major Traffic Generators (MTGs) only when they meet certain eligibility criteria, such as:

- Parking - a minimum of 1,000 vehicles in metropolitan and urban areas, 700 vehicles in suburban areas, and 400 vehicles in rural areas,
- Location - along either an interchange crossroad or a freeway that is within 8 miles of the MTG in rural areas, within 3 miles in suburban areas, or within 2 miles in metropolitan and urban areas,
- Visitors - at least 325,000 visitors per year in metropolitan areas, at least 300,000 visitors per year in urban areas, at least 200,000 visitors per year in suburban areas, and at least 80,000 visitors per year in rural areas, and
- Events - a minimum of 15 events per year in metropolitan areas, 10 events in urban areas, 8 events in suburban areas, and 6 events in rural areas.

Guide signing for Texas MTGs can include category-oriented symbols according to their MTG classification. Symbol designs should essentially be like those shown in the "Texas Manual on Uniform Traffic Control Devices" (TMUTCD) and in "Standard Highway Sign Designs for Texas". New symbol designs should be adopted by TxDOT based on research evaluations to determine road user comprehension, sign conspicuity, and sign legibility.

Research Performed by:

Texas Southern University (TSU)

Research Supervisor:

Fengxiang Qiao, TSU

Researchers:

Lijin Ma, TSU

Hui Wang, TSU

Lei Yu, TSU

Yan Zeng, TSU

Rong Zhang, TSU

Project Completed: 8-31-08

MTG guide signing can be a *supplemental guide sign* if there is sufficient space, or a *symbol sign plaque* if available space is limited.

For MTG supplemental guide signs, the legend and size should be the same as the guidelines prescribed for other supplemental guide signs. Accepted MTG symbols may be included. The sign color should be a white legend on a green or brown background in accordance with the TMUTCD. Only one supplemental guide sign for an MTG may be used on each interchange approach. If used, it is normally installed as an independent guide assembly. A supplemental guide sign should not list more than two MTGs. If more than two MTGs meet the signing criteria, the MTG with the greatest need for signing should be shown. If necessary, an MTG trailblazing sign can be used depending on the location, distance, and number of turns to the MTG. Where freeway space is not available for installing independent supplemental guide signs, dependent supplemental plaques may be installed on top of interchange signs to display an MTG word message.

For MTG symbol sign plaques, the legend should contain MTG symbols with the associated word message at the bottom. The message should display either the MTG category or the name of each MTG. The size of MTG symbols should be 30 x 30 inches when used on freeways or expressways. Where greater visibility or emphasis is needed, larger sizes should be used. Symbol sign enlargements should be in 6-inch increments. The word messages should be in letters at least 6 inches high. Where greater visibility or emphasis is needed, larger lettering can be used. The color of MTG symbol sign plaques should be a white legend on a green, blue, or brown background depending on the types of MTG services. MTG symbol sign plaques can be placed on the top of Advance Guide and Exit Direction signs at freeway interchanges. Where necessary, MTG symbol sign plaques can be installed on freeway ramps, such as on Exit Gore signs. The position of MTG symbol sign plaques on parent guide signs should follow the guidelines illustrated for Guide Sign Routing Plaques in the “Freeway Signing Handbook” (2008). Where necessary, a trailblazing MTG symbol sign plaque can be used, like airport symbol signs. At most, three symbol sign plaques can be placed at the top of a parent guide sign. When there are needs for other guide sign routing plaques, the priority for other routing plaques should be higher than MTG symbol sign plaques.

Not all facilities that meet the MTG criteria should automatically display their informational signing.

TxDOT should retain the authority to deny requests for signing where other non-technical standards cannot be met. TxDOT should also retain the authority to specify the appropriate MTG sign type, message content, size of sign, sign location, color, etc., in accordance with standards for acceptable signing practice.

What This Means

According to the findings from this research, it is recommended that further testing of more symbols and scenarios on selected MTGs as pilot studies be conducted, together with a more comprehensive evaluation of the impacts on drivers’ workloads, travel time, and safety. The research efforts in this project together with additional work could yield a guideline on MTG guide signing for Texas as a supplement to the TMUTCD.

For More Information:

Research Engineer - Wade Odell, TxDOT, 512-465-7403
Project Director - Ismael Soto, TxDOT, 361-808-2225
Research Supervisor - Fengxiang Qiao, TSU, 713-313-1915

Technical reports when published are available at:
<http://library.ctr.utexas.edu/index.html>

www.txdot.gov
keyword: research



This research was performed in cooperation with the Texas Department of Transportation and the Federal Highway Administration. The contents of this report reflect the views of the authors, who are responsible for the facts and accuracy of the data presented herein. The contents do not necessarily reflect the official view or policies of the FHWA or TxDOT. This report does not constitute a standard, specification, or regulation, nor is it intended for construction, bidding, or permit purposes. Trade names were used solely for information and not for product endorsement.