

# Survey of Neighborhood Traffic Management Performance and Results

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## Introduction

In 1996, our first survey Neighborhood Traffic Management generated over 160 responses from agencies in North America, outlining the type of measures used by various agencies. As a follow up to that information (see last section of this paper), transportation professionals through North America were surveyed regarding performance and results they have achieved using Neighborhood Traffic Management (NTM). Surveys were issued to 1,000 members of the ITE Traffic Engineering Council (which includes many consultants) and to each District 6 section in February 1997. Surveys were completed by about 120 agencies representing 27 states in the USA, five provinces in Canada and one agency from New Zealand. These data can be viewed and downloaded on the District 6 web page at [www.westernite.com](http://www.westernite.com). As surveys continue to arrive, the data is updated on the web page. The information provided is intended to be used by all agencies and researchers evaluating effectiveness of NTM.

There were two elements of this survey: 1) performance and results using various NTM measures, and 2) legal issues surrounding NTM. The objective of this survey is to produce a broad set of data regarding NTM measures to improve the understanding of the range of possible results using actual before

and after studies to support findings. This survey sought **actual** data and surveys conducted that substantiate speed and/or volume changes with NTM. It also requested surveys of public satisfaction or perception of these measures following installation. Additionally, since a common concern about NTM is liability, we surveyed the agencies to find out to what extent this concern is reality.

The survey results are summarized in spreadsheets organized by each NTM measure, including the performance and results data from each responding agency. An overview spreadsheet summarizes the contacts for each agency (including phone, fax and e-mail) to allow further exchange of information among professionals. The performance data is organized into the following groups:

- Speed Humps
- Traffic Circles
- Chokers/Curb Extensions/Medians
- Diverters/Road Closures
- Narrow Streets
- Neighborhood Traffic Watch Programs
- Selective Traffic Enforcement Programs
- Speed Trailer/Reader Board Programs
- Legal Issues

## Summary of NTM Measures Studied

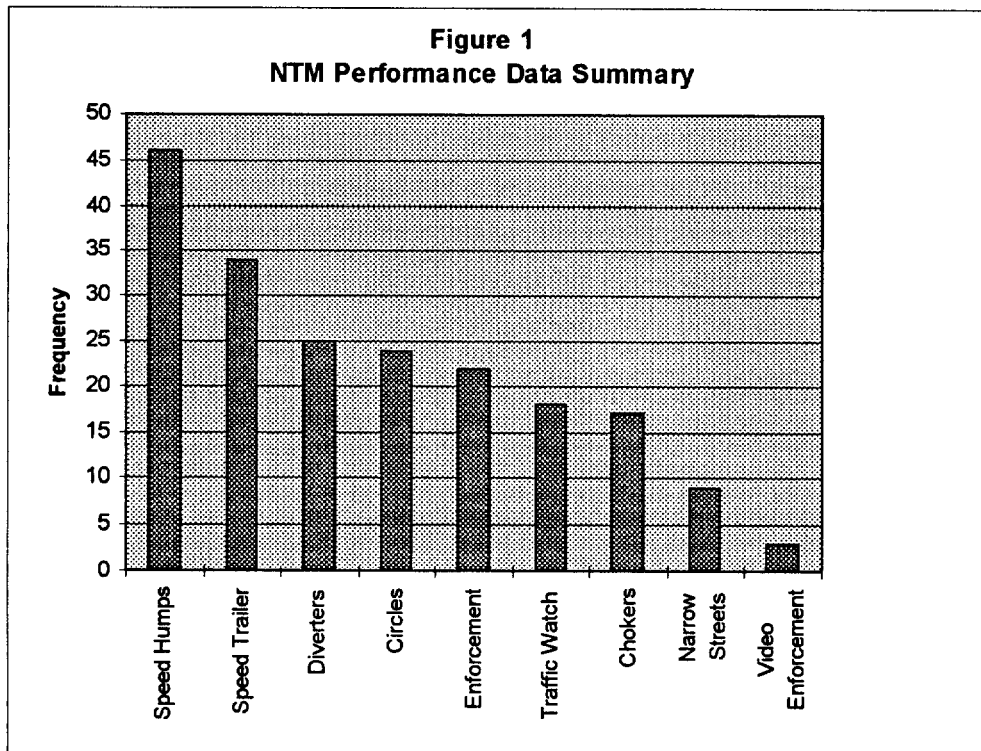
The following sections outline the survey findings organized by NTM measure, followed by the legal survey findings.

Many of the responding agencies have not collected any performance related data regarding their NTM programs. Nearly 40% of the agencies indicated they had no data available. Of the remaining 60%, substantial data has been collected on the use of speed humps. Speed trailer/reader boards, diverters, traffic circles and traffic

enforcement are other measures with significant research available on performance. Figure 1 summarizes the frequency of agencies with data on various NTM measures.

## NTM Performance and Results

The available before and after data evaluating speed humps is readily available from many agencies across the United States. Data for other measures is not as well documented. Table 1 summarizes the data for each NTM measure.



**Table 1  
NTM Performance Data**

		Speed Reduction (MPH)			Volume Change (ADT)			
Measures	No. of Studies	Low	High	Average	Low	High	Ave.	Public Satisfaction
Speed Humps	262	1	11.3	7.3	0	2922	328	79%
Speed Trailer	63	1.8	5.5	4.2	0	0	0	90%
Diverter	39	-	-	.4	85	3000	1102	72%
Circles	26	2.2	15	5.7	50	2000	280	72%
Enforcement	16	0	2	2	0	0	0	71%
Traffic Watch	85	.5	8.5	3.3	0	0	0	98%
Chokers	32	2.2	4.6	3.3	45	4100	597	79%
Narrow Streets	4	5	7	4.5	0	0	0	83%

Based upon the survey findings, speed humps appear to produce the greatest speed reduction and have high public satisfaction. Other physical features of the street (circles or narrow streets) produce the next highest speed reduction. Management measures, such as traffic watch and speed trailers also produce significant speed reductions. Enforcement and diverters did not produce as great of speed reductions in the studies provided by the responding agencies.

Some NTM measures have shown great propensity to divert traffic. This can be both a blessing and a disturbance - good for residents fronting the affected route and bad for the surrounding areas that receive the diverted traffic. Based upon the survey results, diverters have the greatest impact on traffic flows followed by chokers, speed humps and circles. The other NTM measures do not appear to impact traffic flows.

The public clearly has a love/hate relationship with NTM measures. Many of the survey responses identify that support received by neighbors and the

general dissatisfaction by citywide users. This dissatisfaction has been great enough in several cases to lead to removal of the NTM measures. Based upon the survey results provided, the public has a high satisfaction for passive NTM measures such as the speed trailer/reader boards and neighborhood watch programs. Both of these measure engage the affected parties in a direct manner. The public appears to perceive the group of physical-but-passive measures in the next highest category (elements such as narrow streets, speed humps and chokers). The lowest category of public satisfaction appears to come from more active measures such as diverters and enforcement.

### **Legal Issues Surrounding NTM**

For years traffic engineers has used the mantra of liability as a justification to not consider NTM. Clearly, no agency enters into NTM without careful consideration and design development. The outcome has been significant as indicated in the survey findings. While

the survey did not provide a complete picture of the number of NTM devices deployed in the field, it did provide a clear trend regarding legal issues. Out of over 1,000 speed humps represented by nearly 50 agencies in the survey, only two lawsuits have been raised regarding speed humps based upon survey findings. Additionally, only one of these suits resulted in a claim/settlement. The agencies reported that they encounter well over 1,500 lawsuits a year regarding various transportation related issues. Only 6 lawsuits were identified in this survey group to be associated with NTM. Many

of the agencies indicated that they have not encountered lawsuits regarding their NTM installations. In fact, the only measures that have had suits raised against them have been significant physical features, such as medians, diverters and humps. Table 2 summarizes the findings of the survey. Table 2 also provides an indication of the inventory of NTM devices in the field throughout North America. It is clear that speed humps (over 800 devices reported compared to the next highest of 46 chokers) are the most prevalent (cost and ease of construction being one key reason).

**Table 2  
Survey of NTM Lawsuits**

Measure	Number of Devices Reported	Agencies Reporting Lawsuits		Paid Claims
		Yes	No	
Speed Humps	807	2	41	1
Circles	30	0	29	0
Chokers/Medians	46	2	21	1
Narrow Streets	2	0	15	0
Diverters	19	2	24	0

### **Neighborhood Traffic Management Survey of 1996**

A similar survey format was used in 1996 to identify the level of use of neighborhood traffic management within North America. Twelve traffic management measures were listed for agency staff to indicate whether they had used them in their community and if written standards or criteria existed for their application. Fax responses were received by 165 agencies, representing 38 states in the USA and six provinces in Canada. The responses to the survey are provided in an Excel

spreadsheet that can be viewed on the ITE District 6 web page ([www.westernite.com](http://www.westernite.com)). A few observations can be made in reviewing the responses:

- Western states are clearly making greater attempts to utilize a wide range of neighborhood traffic control measures than states east of District 6.
- Undulations/humps/bumps are the most common measure where criteria/standards exist in

communities (50 communities with standards).

- Throughout North America, selective traffic enforcement is the most commonly used Neighborhood Traffic Management measure.
- Many cities (particularly in the east) referenced stop signs as neighborhood traffic management measures, even though MUTCD clearly states that “STOP signs should not be used for speed control” (section 2B-5).
- Speed wagons/trailers are commonly used by agencies throughout North America. While this may not seem to many people to be a Neighborhood Traffic Management measure, the wagons do impact vehicle speeds on roadways. Based upon project work performed in Milwaukie, Oregon. I was able to compare multiple days of vehicle speed data at a similar location with and without a speed wagon. The 85th percentile speeds on the roadway were 5 MPH lower with the speed wagon than without the speed wagon (34 MPH compared to 29 MPH).
- Some cities are testing photo radar, a technique where the device that looks like a speed wagon is equipped with a photo device that records vehicle license number and driver for issuing tickets. This is being tested in Oregon by the Cities of Portland and Beaverton in school areas and neighborhood zones. The performance studies are being conducted this year.

- Many cities in the west are testing use of narrower local street designs to preserve lower vehicle speeds. The most common width used was 28 feet for this measure.
- The City of Portland gets the award for the most Neighborhood Traffic Management measures used in a community. They indicated they have used them all (except Woonerfs, a European concept of local street design). Some agencies responded with not applicable, indicating no use of NTM measures. It is important to know the number of cities who do not address Neighborhood Traffic Management as well as those that are active in the area.

Beyond the basic comparisons between communities, the summary provides transportation engineers a prototype of what other agencies are able to accomplish within their budgets to meet neighborhood needs. While many cities are very aggressive in creatively serving neighborhood traffic management needs, other cities (particularly eastern cities) are not. All cities face increasing budget pressures and the survey shows that many agencies are clearly very innovative in addressing the public's needs within their budgets.

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