

Prince George's County, Maryland
Department of Public Works and Transportation
Largo, Maryland

Specifications and Standards for Roadways and Bridges

SECTION IV-APPENDIX D Neighborhood Traffic Management Program



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Section IV – Appendix D - Neighborhood Traffic Management Program

CONTENTS

Chapter 1: Neighborhood Traffic Management Program.....	1
Introduction.....	1
NTMP Goals.....	1
NTMP Process	1
Chapter 2: Neighborhood Traffic Management Program Measures.....	3
Level I MEASURES	3
Speed Awareness Program.....	3
Special Pavement Markings	4
Level II MEASURES	4
One-Way Streets	5
Turn Prohibitions.....	5
Speed Humps	5
Traffic Circles	6
Roundabouts	6
Semi-Diverter.....	7
Chokers.....	7
Level III Measures	7
Diagonal Diverter	8
Full Closures.....	8
Chapter 3: Neighborhood Traffic Management Program Point Assignment System.....	10
Roadway Categories.....	10
Point System Criteria	10
Traffic volume	10
Speed	11
Traffic accidents	11
Elementary school or playground on the street.....	11
Major pedestrian generators	11
Sidewalk	11
Limited sight distance	11
Non-local traffic	11
Chapter 4: Neighborhood Traffic Management Program Point Assignment Worksheet	12
Chapter 5: Neighborhood Traffic Management Program Procedures	14
Traffic Management Requests And Department Response.....	14
Department's Response To Requestor And Neighborhood Meeting.....	14
Implementation of Approved NTMP Measures.....	14

CHAPTER 1: NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

INTRODUCTION

The Neighborhood Traffic Management Program (NTMP) for residential streets represents the commitment of Prince George's County and the Department of Public Works and Transportation (DPW&T; the Department) to promoting and encouraging the safety and livability of the County's residential communities. In an effort to reduce the impact of traffic on our neighborhoods, the NTMP provides a process for identifying, evaluating, and addressing undesirable traffic conditions related to speeding and excessive volumes.

This document describes traffic management measures available through the NTMP that can be implemented (Chapter 2), the methods used to evaluate the need for traffic management measures on a given street (Chapter 3), and the process whereby citizens and the County government work together to improve neighborhood traffic conditions through NTMP (Chapter 5).

NTMP GOALS

The Neighborhood Traffic Management Program has four primary goals:

- Improve neighborhood livability by reducing the speeds and impact of vehicular traffic on residential streets, while providing for the safe, efficient, and economical movement of persons and goods throughout the County.
- Promote safe and pleasant conditions for residents, pedestrians, bicyclists, and motorists on neighborhood streets, while preserving access for

emergency-vehicles, buses, and other users.

- Encourage and promote citizen involvement in all phases of NTMP.
- Make efficient use of County resources by ranking requested streets according to their NTMP point assignment scores and other factors.

NTMP PROCESS

When the Department receives a request from a community for traffic management changes on a particular residential street, the Department conducts traffic engineering studies to determine the type and severity of traffic problems occurring on the street and solicits the input of community residents. Using the NTMP's point assignment system (see Chapter 3), requested streets can be evaluated and rated according to their individual point scores, which reflect the prevailing traffic conditions on the given street. It should be noted that NTMP entails only the neighborhood streets and **does not include arterial and collector type roadways that are in our roadway system.**

These exempted roadways are classified as arterial/collector roadways and typically have a wider (right-of-way) that connects two major routes. Arterial/collector roadways are exempt from the installation of NTMP's physical devices as they are designed to accommodate higher volumes of traffic at relatively higher speed to handle increased capacity and also to minimize the reduction of emergency response times, especially for large trucks using these roadways.

If a residential street is found eligible (according to its point score and other factors), if the required approval of the residents has been obtained, and if the necessary funding is available, the Department will install traffic management

devices such as speed humps, traffic circles, or diverters, if found feasible. The Department will also make available through the NTMP traffic diversion measures such as one-way street patterns or turn prohibitions, if feasible. Educational measures such as the Speed Awareness Programs will also be considered.

CHAPTER 2: NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM MEASURES

All County streets qualify for traffic control devices in accordance with the Manual on Uniform Traffic Control Devices, the use of which is mandated by State law. This Manual, prepared by a national joint committee of municipal, county, and State officials, describes conditions or warrants which should be present prior to the installation of traffic control devices, including the multi-way stop control.

The NTMP measures used for residential communities have been classified in three levels, each progressively more restrictive to motorists using the street. This section describes the measures.

Note that the multi-way stop control, one of the most requested traffic control devices, is not included within the NTMP. The multi-way stop control may be warranted at locations with significant and approximately equal volumes on all approaches, where a correctable accident problem exists that cannot be solved using other means, or as an interim measure where a traffic control signal is urgently required. Due to the significant volumes required, a multi-way stop control is seldom warranted within residential neighborhoods. The multi-way stop has been shown to be ineffective in providing the desired state of reasonable and consistent speeds throughout the street, is detrimental to air and noise quality due to the number of starts and stops, and can cause safety problems, including vehicular crashes and serious pedestrian injuries, due to the high incidence of non-compliance.

TRAFFIC MANAGEMENT MEASURES

LEVEL I

Speed Awareness Program
Special Pavement Markings
Signs, including Speed Limit Signs

LEVEL II

One-Way Streets
Turn Prohibitions
Speed Humps
Traffic Circles
Roundabouts
Semi-Diverter
Chokers

LEVEL III

Diagonal Diverter
Full Closures

LEVEL I MEASURES

(REQUIRED POINTS SCORE = 50 POINTS)

Level 1 measures are passive in nature and include educational methods and special pavement markings. For some of these measures to be implemented, a civic association's involvement is required. Residents may also be required to participate in the educational measures.

Speed Awareness Program

The Speed Awareness Program is an educational measure intended to increase motorists' awareness of the speed at which they travel on neighborhood streets and to provide residents a positive outlet to show their concerns regarding speeding in their neighborhood. The program provides a Speed Monitoring Awareness Radar Trailer (SMART), which includes a radar unit, a



speed limit sign, and a digital speed display board that shows motorists the speed at which they travel. SMART is used during Speed Awareness Day events scheduled and attended by at least 10 members of a participating civic association.

The purpose of the Speed Awareness Program is to assist citizens' organizations throughout the County in addressing chronic speeding conditions on specific roadway sections by participating in "Speed Awareness Day" events.

A Speed Awareness Day is a 4- to 6-hour event during which a group of citizens (minimum 10 persons) assembles at a safe location adjacent to the targeted roadway to demonstrate their concern about speeding conditions. Typically, groups draw attention by conveying a positive message to passing motorists (e.g. "Safe at 25 MPH," "No Need to Speed," etc.) through the use of pre-printed signs and apparel. It is the sole responsibility of the citizens' organization to plan, schedule, and publicize the event and to provide the necessary signs, T-shirts, etc.

For its role, the Department provides and monitors a Speed Monitoring Awareness Radar Trailer (SMART) and provides loaner safety vests for the partic-

ipants. The Department will also request that at least one Prince George's County Police Department officer be present during the event.

Requests for scheduling of Speed Awareness Day events are coordinated through the Department's Traffic Safety Division.

Special Pavement Markings

Special pavement markings include the installation of shoulder/parking lanes and center left-turn lanes to narrow the travel path in an effort to reduce speeds. These special lanes are used on streets which are at least 36 feet wide, and they have



Special Pavement Markings

the greatest benefit on streets where limited on-street parking occurs.

LEVEL II MEASURES

(REQUIRED POINTS SCORE = 60 POINTS)

Level II measures include traffic control devices and physical measures which control access to neighborhoods, change travel patterns, and regulate the flow of traffic through the neighborhood. Prior to implementation of a Level II measure, a petition must be signed by the affected residents.

One-Way Streets

One-way streets are used to deter cut-through traffic by changing the traffic pattern in a neighborhood. They should be implemented only after careful study, as they may cause speeding conditions due to the lack of opposing traffic, and they may increase emergency-vehicle response times. To be implemented, one-way streets require a convenient parallel street and approval by residents of both streets. They should not be implemented on streets wider than 26 feet or when alternative routes are not available.

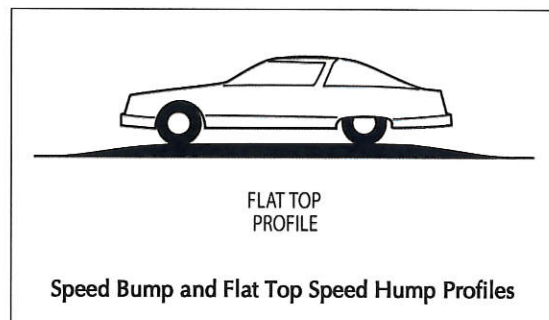
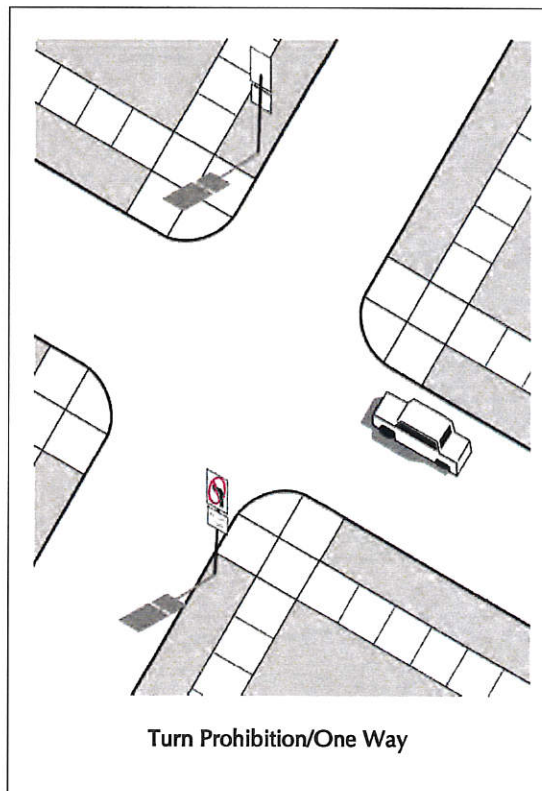
Turn Prohibitions

Turn prohibitions are used to deter cut-through traffic by prohibiting entry into and out of a neighborhood on streets which primarily experience a peak hour through-traffic problem. Turn prohibi-

tions should be implemented only after careful study as they may divert traffic to nearby residential streets or to intersections with an existing congestion problem. Turn prohibitions shall not be considered for residential collector streets. Turn prohibitions require police enforcement to be effective.

Speed Humps

Speed humps are raised sections of pavements designed to reduce speeds on residential streets. They may also reduce through traffic volumes where suitable alternative routes are available. Speed humps are not to be confused with speed bumps: humps have a more gradual rise and have not been found to create safety or operational problems. Humps are used in a series and are usually spaced from 600 to 1000 feet apart. They should not be installed at driveways, on severe grades or curves, near intersections, or on streets wider than 40 feet. Locations without curb and gutter must be considered carefully as such locations may encourage motorists to use the shoulders to avoid the hump. The type of speed hump currently used by the Department is the flat-top profile, which is designed for use on roads with an average week-day traffic (AWDT) volume of fewer than 5,000 vehicles. Streets with an AWDT of more than 5,000 vehicles must be stu-



died carefully prior to the installation of any feasible device. The County's experience with flat-top humps has shown they reduce speeds to between 24 and 30 miles per hour (MPH) throughout the entire street.

Traffic Circles

Traffic circles are raised islands placed at four-way intersections. Used only on residential streets, circles are intended to reduce the speed of traffic by reducing the street's width and forcing motorists from their normal travel path. The circles are installed in a series and are spaced from 600 to 1,000 feet apart to maintain a reasonable speed throughout the street. Traffic circles offer the neighborhood an opportunity for community enhancements, as landscaping may be placed within the raised islands. (Prior to installation of traffic circles, a civic or homeowners' association needs to sign a maintenance agreement to maintain the landscaped area.) Traffic circles differ from roundabouts (see below) in that motorists turning left at traffic circles are not required to drive around the island placed within the intersection. This type of operation is



Traffic Circle

required due to the difficulty experienced by truck operators in making left-turn movements when they are required to drive around the island. Stop signs are retained on the minor street approaches, and the normal right-of-way rules prevail. To limit the number of conflicts within the intersection, it is recommended that the greater of the minor streets' AWDT be limited to fewer than 1,000 vehicles per day and that the street's width not exceed 36 feet. Traffic circles may be supplemented by other raised traffic islands on a street where unevenly spaced intersections would lead to improperly spaced traffic circles. These islands (which vary in shape) are placed at T-intersections and mid-block locations; they cause a lateral (horizontal) shift in traffic, thereby slowing motorists.

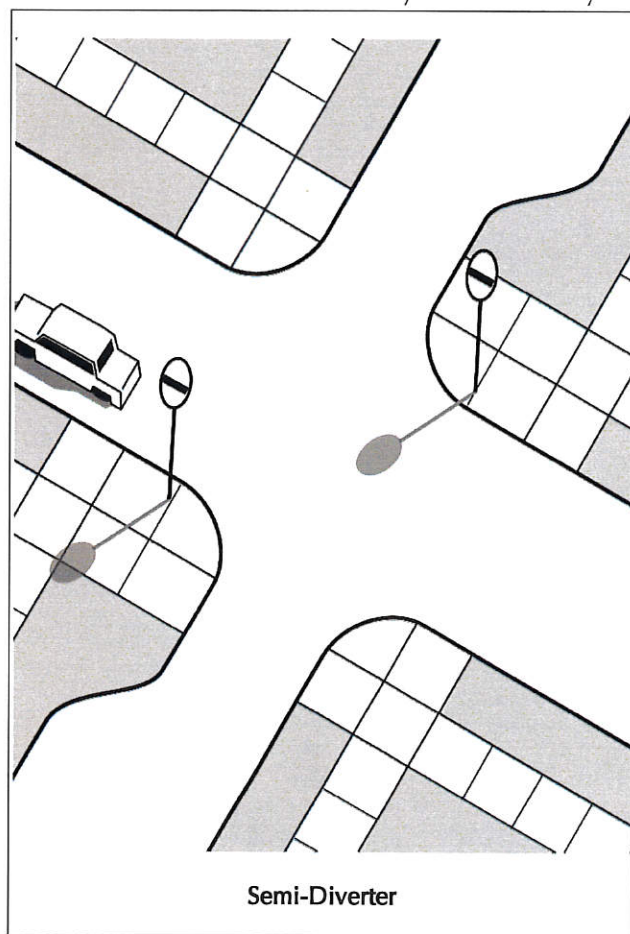
Roundabouts

Like traffic circles, roundabouts have a circular raised island in the center of an intersection. In addition, divisional islands are used on some or all of the approaches to prevent traffic from making direct left turn movements in front of the center island. Roundabouts are large enough for trucks and buses to traverse, and KEEP RIGHT and ONE WAY signs are placed to establish a counter-clockwise flow of traffic around the island. Roundabouts are appropriate where traffic circles are desired but the minor street AWDT exceeds 1,000 vehicles per day, and on streets wider than 36 feet. Roundabouts have YIELD signs on each approach and provide the added benefit of reducing delays to side-street traffic by giving equal vehicular right of way. They also reduce intersec-

tion related accidents by slowing approaching motorists and eliminating direct left turns.

Semi-Diverter

Semi-diverters are the narrowing of street approaches to intersections. In conjunction with Do Not Enter signs, these devices are used to prevent access into a neighborhood. Semi-diverters are installed to address through traffic problems by modifying traffic patterns in the same manner as one-way streets, while still allowing two-way traffic beyond the prohibition. Because of their effect on traffic patterns, semi-diverters should be installed only on streets which have an adequate alternative route to serve diverted traffic. Because they can be easily



violated, police enforcement is required to obtain the full benefits of semi-diverters

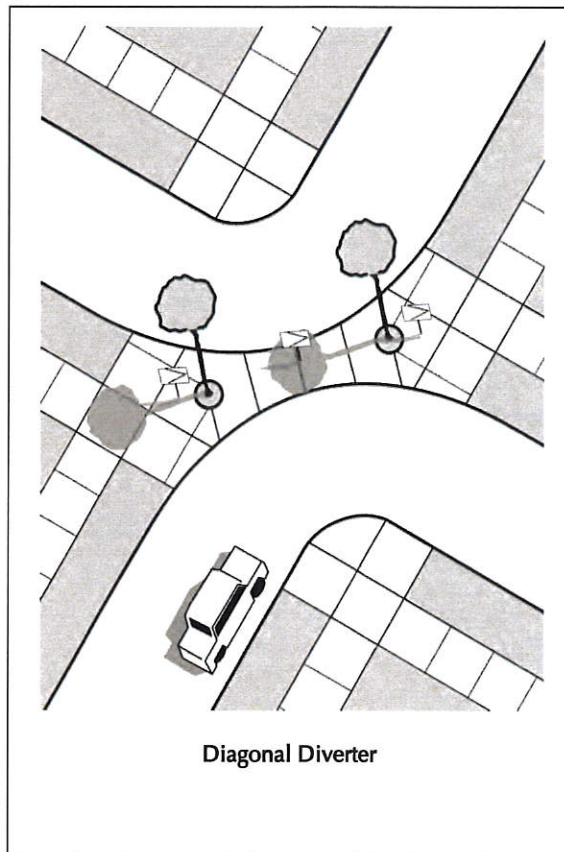
Chokers

Chokers are the narrowing of streets, either at an intersection or midblock location, to reduce the speed of motorists. The narrowing is usually accomplished by reconstructing the curb line to extend into the street in a "bulb" fashion, but can also be achieved by providing an island in the center of the street (reverse choker). Chokers are similar in appearance to semi-diverters, but two-way traffic is maintained. The primary advantages of chokers are safer pedestrian movements due to a reduction in the distance and time it takes to cross the street, and an improved neighborhood appearance when properly landscaped. Due to the limited effect on travel speeds and volumes when used alone, chokers should only be used in conjunction with other physical measures such as traffic circles or roundabouts.

LEVEL III MEASURES

(REQUIRED POINTS SCORE = 80 POINTS)

Level III measures are used solely for the purpose of addressing severe through-traffic problems. These measures have the greatest detrimental impact on the residents of the neighborhood and should be considered only after all other measures have been shown to be ineffective. In addition to requiring a petition (as in Level II), Level III measures require a public hearing to give the general public an opportunity to express their concerns. Due to the severe impact on travel patterns, Level III measures should not be considered on residential collector streets.



Diagonal Diverters

Diagonal diverters are raised curbed and landscaped areas placed diagonally at intersections. These devices convert the intersections into two unconnected streets with sharp turns. They are strategically located to prevent direct movements through a neighborhood while still allowing the through movement to occur over a longer distance. The additional time it takes to traverse the neighborhood discourages through traffic. Diverters should only be used as part of a system of neighborhood traffic management devices, as individual installations do not benefit the neighborhood as a whole.

Full Closures

Full closures are the most effective, but also the most restrictive, neighborhood traffic management devices used to deter through traffic. They involve removing or completely blocking the paved area at a strategic point and constructing turn-arounds.

Full closures should only be considered when all other traffic management devices have been found to be ineffective in addressing the neighborhood's problem. Full closures should only be considered at locations where a reasonable alternate route exists and where the impacts to the neighborhood and the general traveling public are considered acceptable.

Note: The Department reserves the right to implement or install NTMP measures to address critical safety issues directly attributable to excessive traffic speeds or volumes, even if the generally required community support is not received. Once any NTMP physical measure is installed, it shall only be removed or modified if it is determined that the measure is the direct cause of a traffic safety problem.



CHAPTER 3: NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM POINT ASSIGNMENT SYSTEM

For the purposes of NTMP, a *residential street* is defined as a County-maintained roadway with substantial residential development (with lot sizes of two acres or smaller) fronting both sides of the street, and which does not function as a rural or major collector or as an arterial road. The following methodology is used to develop a numerical score for each requested residential street. Scores are used to rate the requested streets according to their prevailing traffic conditions and to determine which level of NTMP measures is appropriate for the subject street. A high score, available funding, and other factors are used to determine which roadways will proceed to the next NTMP phase, which may involve direct community participation in educational measures such as the Speed Awareness Program or obtaining the required community approval for the installation of such measures as speed humps and traffic circles.

ROADWAY CATEGORIES

The initial step in determining a requested residential street's point score is to identify the roadway category into which the street falls. The NTMP recognizes six categories of residential streets:

- *Minor secondary residential:* A 26-foot-wide (or narrower) local access street.
- *Major secondary residential:* A 26-foot-wide (or narrower) street which functions as a main access point to a neighborhood or as a through street.
- *Minor primary residential:* A 36-foot-

wide street which functions as a main access point to a neighborhood or as a through street, but does not directly connect two major streets.

- *Major primary residential:* A 52-foot-wide street which functions as a main access point to a neighborhood or as a through street, but does not directly connect two major streets.
- *Minor residential collector:* A 36-foot-wide street which directly connects two major roadways. This type of street, along with the major residential collector described below, serves a significant volume of commuter traffic.
- *Major residential collector:* A 52-foot-wide street which directly connects two major roadways.

Given the wide variety of roadways throughout the County, many of which are constructed to non-standard designs and which have unique functions, some streets for which measures are requested may not comfortably fall into any of the above categories. However, it is expected that through the use of sound traffic engineering judgment, each street will be assigned an appropriate category to which it is most closely related.

POINT SYSTEM CRITERIA

Once a requested street has been categorized, a point system using eight criteria is used to determine the street's score

Traffic volume

Points are assigned according to the street's category and the desirable AWDT for that category. The desirable AWDT is based on the street's width, function, and the type of traffic which it should handle, considering the overall local roadway network. Points are assigned according to how much greater (by percentage) the

current AWDT volume on the requested street is than the desirable AWDT volume for the street category into which it falls (see the [Neighborhood Traffic Management Program Point Assignment Worksheet](#) in Chapter 4 for details about the traffic volume and other criteria).

- *30 points maximum score*

Speed

Points are assigned according to how many miles per hour the measured 85th percentile speed on the requested street is over the posted speed limit. The 85th percentile speed indicates that 85 percent of vehicles on a particular street are traveling at this speed or below, as measured by a spot speed study. The 85th percentile speed is a nationally recognized standard.

- *35 points maximum score*

Traffic accidents

Points are assigned based on the street's accident rate (accidents per million vehicle miles) for the three most recent years for which accident data is available. Adjustment factors of 2 and 1.5 are used, respectively, for converting accident rates into score points for Primary and Secondary residential streets.

- *30 points maximum score*

Elementary school or playground on the street

Five (5) points are assigned to a street on which an elementary school or a playground is located.

- *5 points score*

Major pedestrian generators

Five (5) points are assigned to a street which has one or more major pedestrian generators within one-quarter mile of the street. Major pedestrian generators in-

clude schools, libraries, parks, playgrounds, major bus stops, and stores.

- *5 points score*

Sidewalk

Points are assigned according to how much (by percentage) of the street does not have sidewalk. The points are calculated by multiplying the percentage of the street without sidewalk by 10. For example: 80% (without sidewalk) $\times 10 = 8$ points. If the majority of the street's section(s) without sidewalk has adequate walking areas, 5 points are subtracted from the tabulated points. To continue the above example: 8 points $- 5$ points $= 3$ points. An adequate walking area is defined as a gravel, paved, or grassy area at least five (5) feet wide and that is unobstructed and reasonably level.

- *10 points maximum score*

Limited sight distance

Five (5) points are assigned to a street with uncorrectable and extensive sight distance limitations due to such conditions as vertical or horizontal curves, vegetation, or parked vehicles.

- *5 points score*

Non-local traffic

Five (5) points are assigned to a street on which a majority of the current AWDT volume is comprised of non-local (cut-through) traffic. It is expected that non-local motorists (typically commuters) may not be as sensitive to a neighborhood's safety needs as the neighborhood's residents. In addition, non-local motorists may be less receptive to neighborhood-sponsored educational measures such as the Speed Awareness Program.

- *10 points maximum score*

NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM

POINT ASSIGNMENT WORKSHEET

STREET NAME _____
 FROM _____ TO _____
 STAFF _____ DATE _____

1) **VOLUME (AWDT)** _____ ** **POINTS**
 (Max. 30 Points)

Road Category	Desirable AWDT	Desirable PHV	Current AWDT		
		if exceeded (10 Points)	(10 Points)	(20 Points)	(30 Points)
* Secondary Residential	600 vpd	100 vpd	600-750	751-900	> 900
Primary Residential	2000 vpd	200 vpd	2000-2500	2501-3000	> 3000
Residential Collector	3000 vpd	300 vpd	3000-3750	3751-4500	> 4500

Secondary Residential - 26'; (or narrower) local access road.

Primary Residential - 36' primary residential road which may function as a through road but does not directly connect two major roads.

Residential Collector - 36' through road which directly connects two major roads.

2) **85TH PERC. SPEED** _____ **#VALUE! POINTS**
POSTED SPEED LIMIT _____ (Max. 35 Points)

		MPH OVER POSTED SPEED LIMIT			
		< 6 MPH	6-10 MPH	11-15 MPH	> 15 MPH
*	Secondary Residential	5	15 Pts.	25 Pts.	35 Pts.
	Primary Residential	5	15 Pts.	25 Pts.	35 Pts.
	Residential Collector	5	15 Pts.	25 Pts.	35 Pts.

3) **ACCIDENT RATE** = **0** X 1.5 (Primary Road) = **0** Points
 X 2.0 (Secondary Road) = **0** Points
Plus add (Pedestrian = 5 Pts, Fatal = 10 Pts) = **0** Points

Accident Rate = $\frac{\# \text{ accidents} \times 1,000,000}{1095 \times \text{AVPD} \times \text{road length}}$ **POINTS**
 (Max. 30 Points)

STREET NAME _____
DATE _____

4) **ELEMENTARY SCHOOL OR
PLAYGROUND ON ROADWAY** 0 **POINTS**
(Yes = 10 Points)

5) **MAJOR PEDESTRIAN GENERATORS** _____ **POINTS**
(Yes = 5 Points)

(Schools, libraries, parks, playgrounds, major bus stops, stores, etc. within 1/4 mile radius of subject road.)

6) **SIDEWALK** 0 **POINTS**
(Max. 10 Points)

(% of roadway without sidewalk on at least one side multiplied by 10. Example: 70% X 10 = 7 pts.)

7) **LIMITED SIGHT DISTANCE** 0 **POINTS**
(Yes = 5 Points)

(Uncorrectable and extensive sight distance conditions due to vertical or horizontal curves)

8) **CUT THROUGH TRAFFIC** 0 **POINTS**
(Yes = 10 Points)

SHEET 1: #VALUE! POINTS

SHEET 2: #VALUE! POINTS

TOTAL: #VALUE! POINTS

CHAPTER 5: NEIGHBORHOOD TRAFFIC MANAGEMENT PROGRAM PROCEDURES

TRAFFIC MANAGEMENT REQUESTS AND DEPARTMENT RESPONSE

Requests for neighborhood traffic management can be made by community organizations, individual residents, or elected officials.

When a request is received, the Department will conduct a traffic study of the requested street in order to obtain traffic volume, speed, and accident information. In addition, information on pedestrian safety and the street's physical conditions will be gathered. The Department will review this information and assign points to the studied street, as described in the preceding section, NTMP's Point Assignment System (page 9).

According to the street's point score and the study's overall findings, the staff will recommend the appropriate level of NTMP measures to address the street's prevailing conditions. (A minimum score of 50, 60, or 80 points is required for a street to be eligible for Level I, II, or III measures, respectively.)

If the street is eligible for either Level II or III NTMP measures, further review will be made to determine whether the street's physical conditions (horizontal curvature, grade, drainage, etc.) will allow the safe installation of traffic management devices and to ensure that emergency-vehicle and bus access will be maintained. Also to be assessed at this point is the probability that the installation of traffic management devices on a particular street may divert traffic onto other residential streets. If a

significant volume of traffic is expected to be diverted onto other streets, those streets will be identified and evaluated for the installation of traffic management devices.

If a street is found not to be eligible for any level of NTMP measures, the staff will always review the street to ensure that all of the appropriate traffic control devices are in place in accordance with the *Manual on Uniform Traffic Control Devices*.

DEPARTMENT'S RESPONSE TO REQUESTOR AND NEIGHBORHOOD MEETING

The original requestor will be informed in writing of the study's results and the Department's recommendations. If the requested street is eligible for NTMP measures, the requestor will be informed regarding the next step in the process, which involves scheduling a meeting between the neighborhood residents and the Department's staff. At this meeting, details about the various NTMP educational measures (such as the Speed Awareness Program), the installation of physical traffic management devices (traffic circles, speed humps, etc.) or the implementation of traffic diversion measures (one-way street patterns, turn prohibitions, etc.) will be discussed. The required community approval process (by agreement, petition, and/or public hearing) for the selected measure will also be discussed.

IMPLEMENTATION OF APPROVED NTMP MEASURES

When the Department receives the required neighborhood agreement to participate in educational measures or the required approval for either the traffic management devices or traffic diversion

plans, it will proceed as follows:

For educational measures, schedule and coordinate Speed Awareness Days;

For traffic diversion measures, install the appropriate traffic control devices (signs) to establish one-way streets or turn prohibitions; and

For the installation of traffic management devices, place the eligible street on a candidate list for installation, which will be prioritized according to each street's point score, the initial date of request for the street, available funding, schedule of resurfacing of that particular street, and other factors.

After any of the described measures have been installed, the Department will monitor the street and the residents' input to determine the effectiveness of the utilized measures and their impact on the surrounding road network.