Westminster, CO, USA's Experience with Neighborhood Traffic Management

THE CITY OF WESTMINSTER, CO, USA, IMPLEMENTED A FORMAL TRAFFIC CALMING PROGRAM IN 1997 AND HAS INSTALLED TRAFFIC CALMING DEVICES IN A NUMBER OF NEIGHBORHOODS OVER THE PAST 8 YEARS. A REVIEW OF CURRENT TRAFFIC CALMING DEVICES AND TRAFFIC SPEEDS IN WESTMINSTER PROVIDES SOME GENERAL OBSERVATIONS IN TERMS OF THE EFFECTIVENESS OF THE DEVICES. THIS FEATURE SUMMARIZES THESE OBSERVATIONS AND GENERAL CONCLUSIONS.

BY PATRICIA B. NOYES AND MICHAEL E. NORMANDIN

INTRODUCTION

The City of Westminster, CO, USA, developed a traffic calming program in 1997 to guide the planning and implementation of traffic calming applications in the city. The plan addressed a number of key policy issues, including the neighborhood planning process, the approach to funding the implementation of devices and the toolbox of approved devices.

In 2004, the City reviewed the devices that had been put in place to date to determine if they had had a significant impact on speeds on neighborhood streets. This feature summarizes traffic conditions after implementation as well as general observations about the devices that may impact their effectiveness.

OBSERVATIONS

This section outlines the general observations of existing traffic calming devices in terms of the devices present and the current speeds on streets. Speed data collected prior to the installation of devices are provided where available.

Depew Court devices include a traffic circle, a speed hump and a raised crossing. Observed speeds through this area are in the 27–31 mile per hour (mph) range with 10-mph pace speeds mostly in the 20–30 range. Figure 1 shows Depew southbound approaching the speed hump. A driver can see the warning sign for the raised crossing even before passing over the speed hump. The spacing of devices and the visibility of additional devices reinforces the geometric changes that slow traffic at the device.

There are two speed humps on Eaton Street. A traffic circle exists with a raised crossing farther north at an elementary school. This series of devices provides for reasonable residential speeds ranging from 28 to 32 mph and 10-mph pace speeds of 20–30. Again, the effectiveness of these devices is likely due to spacing, providing a continual pattern of calming devices.

Kendall Street has two raised crosswalks about two blocks apart. The observed speeds in this area range from 28 to 32 mph with 10-mph pace speeds of 20–30. The 85th-percentile speed observed prior to installation was 32.5 mph. The raised crosswalks are somewhat less effective than the combination of devices in the area to the east along Eaton and Depew, where the 85th-percentile speeds are a bit lower. This is likely due to the spacing of devices and the minimal visual impact of the raised crossings (see Figure 2).

A raised crossing is located on Harlan Street at a park. Observed speeds south of the crossing are 30–31 mph with 10-mph pace speeds of 21–30. This device provides a focused and improved crossing for a school. Previous speed studies conducted in 1998 showed 85th-percentile speeds of 35 mph; speed studies conducted at that location after the raised crossing was installed showed 85th-percentile speeds of 29 mph.

Two raised crossings on Eaton Street do not provide adequate speed control for a residential area. The observed speed north of the devices for northbound traffic is 32 mph, and speeds ranging from 33 to 34 mph are observed between the crossings.

The southbound speed coming into the devices is 37 mph, indicating that the crossings do provide some reduction between and exiting the devices. The 10-mph pace speeds observed are 20–30 northbound and 26–35 southbound at both count locations.

Spacing and visual impact are probable explanations for the minimal impact on speeds. Figure 3 shows the visual impact of the crossings. The center refuge median provides some visual break, but landscaping or other vertical features would enhance the impact on drivers, as shown in the second photo from another city.

Speed observations on Vrain Street indicate that the two raised crossings have a positive impact on speeds adjacent to Cotton Creek Elementary School. Between the

Figure 1. Speed humps on Depew Court and Eaton Street.

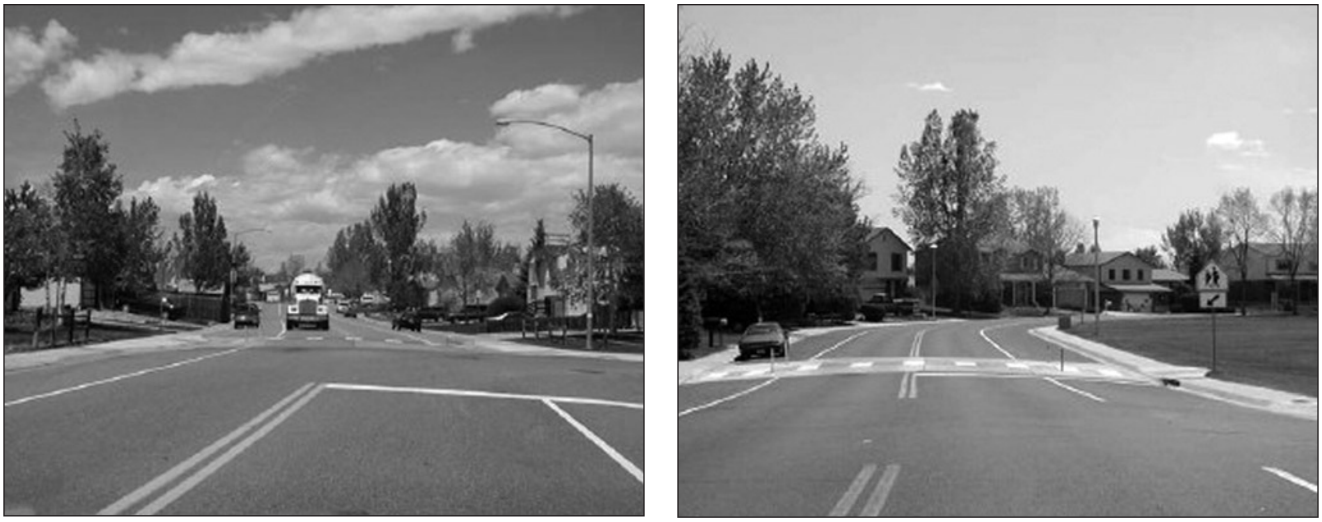

Figure 2. Raised crosswalks on Kendall Street and Harlan Street.

Figure 3a. Raised crossing with a refuge island on Eaton Street.

Figure 3b. Example of a raised crossing with a landscaped refuge island.

two crosswalks, the observed speeds are 29 mph with 10-mph pace speeds of 15–25 northbound and 20–30 southbound.

South of the first crossing, speeds are 28 mph for cars approaching the crossing and 32 mph for those exiting the school area, with a 10-mph pace speed of 20–30 in both directions. Speed studies conducted prior to installing the crossings found 85th-percentile speeds of 31 mph.

Devices on 99th Avenue include raised entry medians at each end and a series of three raised crossings between these medians. The observed speeds indicate that these devices are fairly effective in maintaining appropriate residential speeds through the area. Observed speeds range from 27 to 31 mph, with an exception of almost 39 mph eastbound between King Court and King Street. The 10-mph pace speeds are 20–30, with the exception of eastbound between Julian Court and Julian Way, where the 10-mph pace speed is 15–25.

Comparing the speeds prior to the improvements with those resulting from the treatment, 1997 85th-percentile speeds on 99th Avenue were 33–34 mph; 85th-percentile speeds after installations are 29 mph in the same location.

The frequency and regular pattern of devices is likely the explanation for their effectiveness. In the case of eastbound traffic between King Court and King Street, drivers have passed a hardscape median and there are no other devices until they reach the school.

Figure 4 illustrates the visual difference between a hardscape median and a landscaped median at the intersection of 99th and Northpark Avenue. The landscaping provides a visual break and softens the look of the roadway, providing a more residential feel.

Northpark Avenue has a series of devices to slow traffic and provide enhanced pedestrian crossings. Speeds observed between King Court and King Street range from 32 to almost 35 mph with 10-mph pace speeds of 20–30 eastbound and 25–35 westbound. There was very little difference between the 85th-percentile speeds observed in this location before and after the treatments were installed.

Figure 4. Hardscape and landscaped entry medians on 99th Avenue.

Between Hooker Street and Grove Loop, speeds are 32 to 34 mph with 10-mph pace speeds of 25–35 eastbound and 20–30 westbound. These speeds are higher than desirable in residential areas, where the desired 10-mph pace speed is 20–30. The devices shown in Figure 5 provide minimal visual break for approaching drivers.

The medians and curb extensions would be more effective if they continued a similar treatment to the original medians between Hooker Street and Federal Boulevard, shown in Figure 6.

Speeds between Hooker Street and Northpark Drive were reduced from the speed studies conducted prior to installation to speeds observed after installation. The 85th-percentile speeds before installation were 30–31 mph; those observed after installation are 27–29 mph.

132nd Avenue has a raised entry median, a raised crosswalk and a raised crossing. The observed speeds range from 28 to 36 mph with 10-mph pace speeds of 20–30 and 25–35. The higher 10-mph pace speeds were observed between the entry median and the raised crossing. The distance between devices at this location is significant, providing little reinforcement for slower speeds.

Speeds observed on Independence Drive are in excess of those desired in residential areas. This street has a series of devices including traffic circles and raised crosswalks and observed speeds ranged from 40 mph with a 10-mph pace speed of 30–40 to 30 mph with a 10-mph pace speed of 20–30.

The varying distance between devices is the likely explanation for the variable effect on speed control. The existing devices on Independence Drive do very little to break up the driver's line of sight or to change the character of the roadway.

Figure 5. A raised crossing with a refuge island on Northpark Avenue and a hardscape median on Northpark Avenue.

Figure 6. Landscaped median on Northpark Avenue.

The pedestrian crossing is not very visible until vehicles are virtually on the crossing. Similarly, the traffic circles may require drivers to slow through the intersection as they maneuver around the circle, but drivers still have a straight sight line through and beyond the circle well in advance of the circle.

GENERAL CONCLUSIONS

The streets where traffic calming efforts appear to be most effective are those that provide a regular and frequent pattern of devices, such as 99th Avenue or Eaton Street and Depew Court. In these cases, the devices also offer some limited visual breaks with center refuge medians or traffic circles. It should be noted, however, that the effectiveness of these devices would be enhanced further by additional visual breaks and roadway softening provided by landscaping.

The temporary traffic circle on 155th at Eaton Street does little to change the driver's perception of the street. It will slow traffic as it maneuvers through the circle but does little to minimize the straightaway appearance as the driver approaches. A landscaped traffic circle would significantly break the driver's sight line on the approach, making it more likely that the driver will slow well in advance of the circle. This would be more effective in changing the overall character of the roadway.

Although the cost associated with regular and frequent devices and landscaping may increase the cost of traffic calming, it may be in the interest of the city and the residents to consider the added effectiveness. If infrequent or standalone devices do little to impact speeds except immediately in the vicinity of the device, their usefulness is limited. If they are intended only to enhance a crossing or call attention to a unique situation, this may be appropriate. ■

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people and the profession

MEMBER UPDATES

Larry W. Cervenka, P.E., PTOE (M), joined Civil Associates Inc. in Dallas, TX, USA.

Jennifer Peek, P.E., PTOE (M), was named a principal of Walter P. Moore and Associates Inc. in Houston, TX, USA.

Srinivas Sangineni, P.E. (M), was named a principal of Walter P. Moore and Associates Inc. in Houston, TX, USA.

Delmar Kloeker, P.E. (FL), joined Traffic Engineering Inc. as a senior traffic engineer in Danville, IN, USA.

Harold Johnson III, P.E., PTOE (M), joined Short Elliott Hendrickson Inc. as a traffic engineer in Denver, CO, USA.

Holly Rybinski, P.E., PTOE (M), was named director of the Wilmington, DE, USA, office of Vollmer Associates.

OBITUARIES

ITE has been notified that the following ITE members recently passed away. We recognize them for their contributions to ITE and the profession, and we send condolences to their families.

Charles B. Fredrickson, P.E. (FL), of Woodland Hills, CA, USA, died on February 28, 2005. ■

Letters in parentheses after individuals' names indicate ITE membership status: A—Associate Member; AG—Affiliated Governmental Agency; EC—Esteemed Colleague; EI—Engineering Intern; F—Fellow; FL—Fellow Life; IA—Institute Affiliate; IC—Industry Council; M—Member; ML—Member Life; RET—Retired; and S—Student Member. Information reported here is based on news releases and other sources. If you have news of yourself or the profession that you would like considered for publication, please send it to Jennifer Kim, ITE Journal, *1099 14th St., NW, Suite 300 West, Washington, DC 20005-3438 USA; jkim@ite.org.*