West Broad Street Traffic Study

Prepared for the Town of Plainville
by Central Connecticut Regional Planning Agency (CCRPA)

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Background

West Broad Street is a short residential street in Plainville between the intersection of Broad, Bohemia and Red Stone Hill and the Bristol Town Line. Residents on W. Broad St. are concerned about both the speed and volume of traffic on their road. The Town conducted a public meeting to address the concerns of their citizens and requested CCRPA to look at the issue through a transportation planning lens. The primary problem is the high level of cut-through traffic that exists on a road insufficiently designed to handle the load. The safety and quality of life for the residents are compromised by this mismatch of road purpose and actual use. The higher speed and volume of traffic would be better served by the minor arterials of Bohemia St., W. Main St., and Red Stone Hill. These roads are designed to deliver traffic from collector roads to freeways, as well as, between urban centers. Broad Street has the functional classification of collector, which means it is designed to funnel traffic between local streets and arterials.

Data Collection

CCRPA conducted traffic counts to determine the traffic volume and speed of cars traveling on W. Broad St. and other key roads in the study area. While putting out and taking in the counters, CCRPA made observations of traffic in the area to "get a feel" for the situation that may not be readily detectable in the data. CCRPA also talked with a couple area residents who were enthusiastic to share their perspective.

Table 1 Study Area Traffic Volumes

Volumes		**Average Daily Traffic (ADT)**	
	NB/EB	SB/WB	Total
Bohemia St	703	801	1,504
Broad St	3,810	3,319	7,129
Red Stone Hill	1,575	1,843	3,418
W Broad St	565	752	1,317
Red Stone St	958	1,158	2,116
Rogers Rd	392	457	849

The observations confirmed there to be a relatively high number of vehicles using W. Broad St. as a cut-through route, many of which traveled above the speed limit. The two temporary speed bumps located on W. Broad St. seemed to have little traffic calming effect.

The traffic counts were conducted over the course of one week in August. Table 1 shows the average daily traffic from these data. W. Broad St. is shown to have comparable traffic volume to the arterial road of Bohemia St., which confirms the anecdotal accounts of cut-through traffic. If the traffic was primarily local or neighborhood in nature, we wouldn't expect to see more than 1,000 vehicles per day. There is also a disparity between westbound (toward Bristol) and eastbound (toward Plainville) traffic. Approximately 200 more vehicles on average per day travel toward Bristol and the Stop and Shop plaza than toward Broad Street and Plainville center.

Figure 1 Map of the Study Area

Figure 2 Traffic Volumes (15-minute intervals)

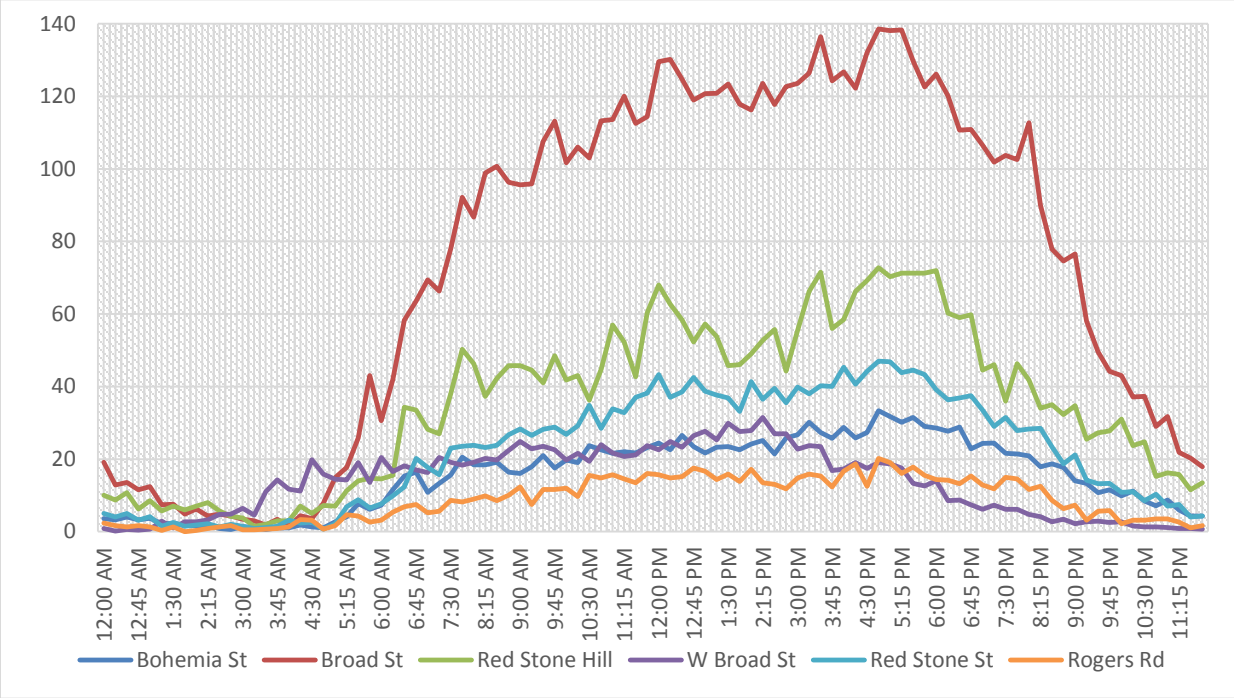
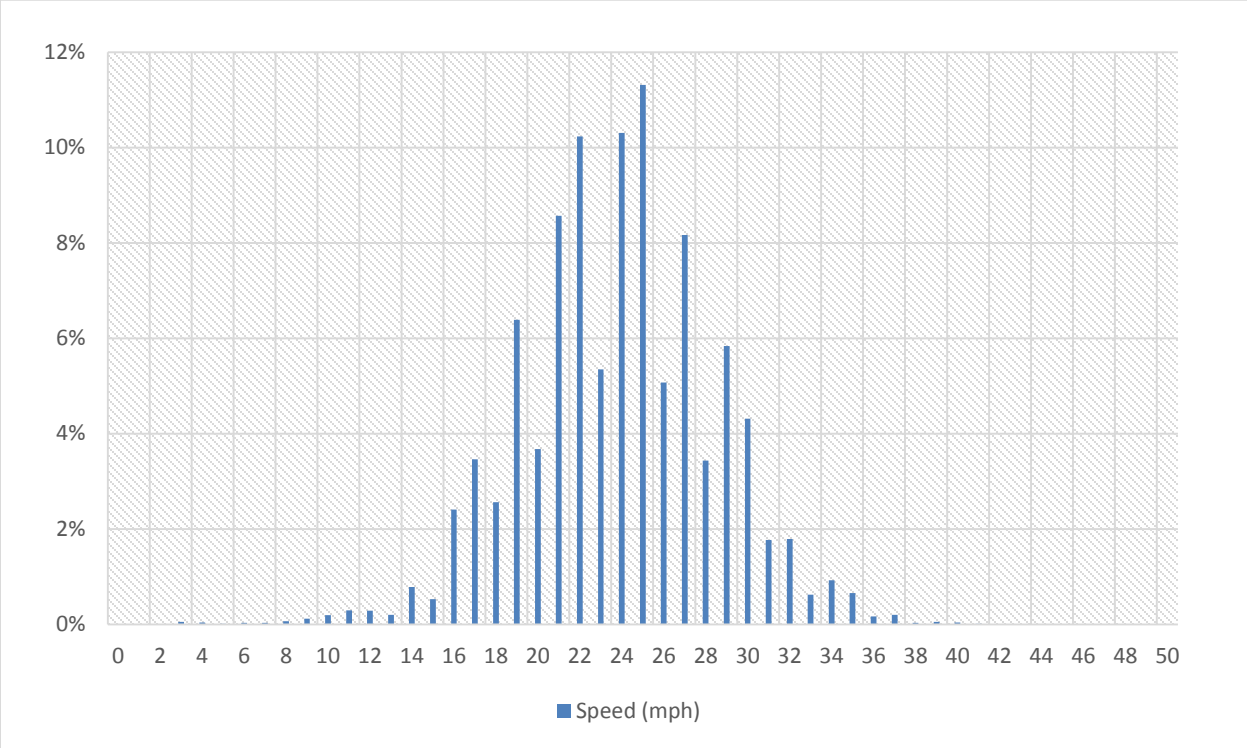


Figure 3 West Broad Street Traffic Volumes (Hourly)

Figure 3 shows the split between eastbound and westbound traffic on West Broad Street. In general westbound traffic is greater than eastbound traffic, which should be taken into account when evaluating potential solutions.

Figure 4 Vehicle Speeds on West Broad Street



The speed of the cut-through traffic was the other concern for West Broad Street residents. The speed limit is 25 mph and nearly 45 percent of vehicles were found to be traveling above this limit despite the traffic counter being placed near one of the temporary speed bumps. The speeds were not shown to be gratuitously fast with only a couple percent of vehicles clocked at over 35 mph and only 5 out of the total 9,440 vehicles counted traveling 40 mph or greater.

Potential Solutions

Once it has been established that the volume and speeds of cut-through traffic on West Broad Street is higher than desired, a full array of potential solutions can be examined to determine which ones are both practical and economically feasible. Solutions fall into two general categories:

1. Modifications/traffic calming measures to West Broad Street.
2. Adjacent arterial/road improvements.

For the purposes of this study only changes to West Broad Street have been considered. The range of possibilities is listed below.

Speed Bumps/Humps

Speed bumps are narrow mountable obstructions installed on the pavement surface across travel lanes, intended to cause vehicles to slow to almost a full stop. Speed humps utilize larger vertical radii that result in wider widths and a gentler crossing by vehicles.

Advantages: Inexpensive and effective at slowing vehicles

Disadvantages: Could be noisy to residents, may impair snow removal, and could impact emergency vehicles

Speed Tables

Wide mountable obstructions installed on the pavement surface across travel lanes, and intended to cause vehicles to slow. Speed tables are wider _ at-top speed humps, are gentler on vehicles, and they can be used on higher order roads than bumps or humps, because they allow a smoother ride and higher speeds.

Advantages: Slows traffic, Smoother ride than bumps/humps

Disadvantages: Could be noisy to residents, may impair snow removal, cost more than speed bumps/humps, not as effective in reducing speeds as humps/bumps

Chicanes

A series of fixed objects, usually extensions of the curb, which alter a straight roadway into a zigzag or serpentine path to slow vehicles. Can also be created by alternating on-street parking between sides of street.

Advantages: Slows motorists, easily negotiated by larger vehicles, noise is not an issue, and potential to increase trees, landscaping and water runoff treatment

Disadvantages: Potential for motorist collision with the chicane, landscape maintenance needed

Neighborhood Mini-Traffic Circles

A small circular or oblong island used in the middle of intersections and intended to force vehicular traffic to slow and negotiate around it. When used in residential areas, they can be landscaped for aesthetic or barrier purposes, and may have mountable curbs to facilitate movement of emergency vehicles.

Advantages: Slows motorists, improves safety
Disadvantages: Maneuvering can be difficult for larger vehicles

Chokers

Narrowing of a street, often mid-block, sometimes near an intersection. May be done with curb extensions, landscaping or edge islands in the street. They can be marked as crosswalks. Can leave the street section with two narrow lanes or be taken down to one lane, requiring approaching drivers to yield to one another.

Advantages: Reduces speeds and volumes of motorists
Disadvantages: May divert traffic to alternate streets, potential for motorist collision with choker

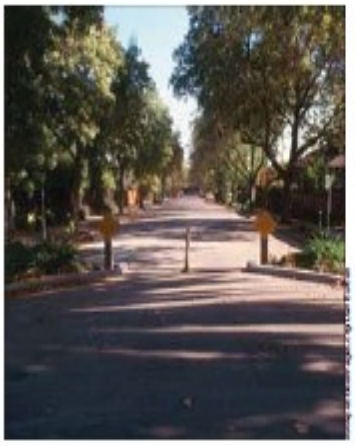
Half Closures/Semi-diverters

Barriers that block travel in one direction for a short distance on a two-way street.

Advantages: Diverts through traffic to other routes
Disadvantages: May cause circuitous routes for local residents and emergency vehicles

Full Street Closures

Barriers placed across an entire width of the street to completely close the street to through-traffic, usually leaving full pedestrian and bicycle access.



Advantages: Reduces cut-through traffic and speeding, Maintains non-motorized access
Disadvantages: Adds traffic to adjacent streets, reduces circulation and interconnectedness of street network

Locations for Potential Physical Features

Chicanes & Bulb-Outs

Chicanes with median features