
Traffic Calming on Grattan Street

Grattan Street between
S. Main St. and S. Mason St.

Prepared by the City of Harrisonburg
Department of Public Works

December 4, 2019



INTRODUCTION

In early 2019, Public Works staff was contacted by a resident of E. Grattan Street with concerns about speeding on the road and the amount of traffic using the residential street as a cut-through route. The resident lives between S. Main Street and S. Mason Street and noted that drivers use Grattan Street as an alternative to Martin Luther King Jr. Way to travel between the two arterial streets. Staff and the resident took this concern to the Transportation Safety and Advisory Commission (TSAC) at its February, 2019 meeting, as this type of traffic pattern on a local street is a potential safety issue. The speeding issue was corroborated by a mobile speed radar unit placed on the street by the Harrisonburg Police Department, although with some concerns about the accuracy of that data. TSAC advised Public Works to gather additional traffic speed and volume data, to allow a more detailed assessment of the problem and possible solutions.

The Commission also approved of approaching the concerns in a similar manner to Neighborhood Traffic Calming efforts, but without formally enrolling the street in the Program, given that the concern was limited to one street segment as opposed to the whole neighborhood. The approach of the Neighborhood Traffic Calming Program to reducing speeding and cut-through traffic is to implement measures in a phased manner, starting with the least restrictive and least costly options, and progressing with more restrictive and/or costly measures, as needed, until the problem is abated. The study area for evaluation was determined to be E. Grattan Street between S. Mason Street and S. Main Street, shown in Figure 1 below.



Figure 1: Aerial image of the Study Area

At the subsequent TSAC meetings, in April, June and October, additional data was presented that confirmed the presence of cut-through traffic and that speeding is a concern on this street segment. A summary of the speed and volume data is provided in the following sections. TSAC and staff discussed multiple strategies to address the issues, including signal timing improvements at nearby intersections, as well as street design and operational changes. Staff and TSAC have identified a reduction of the speed limit on E. Grattan Street, to a new speed limit of 15 mph, as the appropriate action to take at this time, to address the issues. It was determined that the Code of Virginia requires an engineering study to be completed indicating the need, prior to any speed limit reduction below 25 mph. This document includes the engineering study and recommendation to City Council to reduce the speed limit to 15 mph on E. Grattan Street between S. Main Street and S. Mason Street.

CURRENT CONDITIONS ON THE STREET SEGMENT

Geometry

The 0.14-mile street segment of E. Grattan St. between S. Main Street and S. Mason Street has a pavement width of 20 feet with 4 feet of concrete gutter, which makes a total street width of 24 feet from face to face of the curb. This street segment has a 3-foot wide sidewalk on both sides, directly tied to the back of the curb.

In addition to the intersections at the end of the segment with S. Main Street and S. Mason Street, it has two other three-leg intersections, with S. Federal Street and Layman Avenue, and multiple residential driveways on both sides of the street.

Currently the street allows traffic in both directions with on-street parking on the north side. Per the City's current Design & Construction Standards Manual the required minimum width for a two-way street with parking on one side is 26 feet of pavement for a street that has less than 200 vehicle per day. That means the existing pavement width is 6 feet less than what current standards allow, and with a much higher traffic volume than the standard was established for.

Traffic Volumes

As discussed previously, traffic volumes and speed data have been collected on this segment multiple times. The daily traffic volumes, which range from 700 to 900 vehicles per day, clearly indicate that the segment is utilized more than a typical local street. The function of local streets is to provide access to destinations. In this case, the destinations are homes. It is expected that residential areas in close proximity to downtown (or other major destinations) will experience more trips than other residential areas. To assess the relative traffic volumes on E. Grattan Street, volume and speed data were also collected on neighboring Paul Street, for comparison. The volumes found on E. Grattan Street were 50% higher than those found on Paul Street. This comparison indicates that E. Grattan Street is used as a cut-through route, possibly to avoid the traffic signal at S. Main Street and Martin Luther King Junior Way, or because people consider it to be a faster route to get to destinations on the JMU campus. The absence of the complaint in prior years indicates that the issue is associated with new development in the area. Considering the traffic patterns observed, it is assumed that the Mason Street parking deck is the primary destination for cut-through traffic. Traffic counts can be found in Appendix A.

Speeding

The data collected show that the 85th percentile speed ranges between 32 and 35 mph, meaning that 85% of drivers drive at this speed or lower and the remaining 15% of drivers drive faster than this speed. Driving at this speed can make this route faster than using the main streets to reach destinations that are connected by this segment. Currently, the segment has a 25 mph speed limit like most other local streets. However, due to the substandard street width and the various other characteristics of the street previously described, safety risks would be present, even if drivers complied with the 25 mph speed limit. The most recently-collected data indicates that around 75% of drivers comply with the 25 mph speed limit, with about half of drivers traveling 20 mph or less.

On narrow streets with many potential conflict points, we rely on drivers to drive the speed that feels safe, which is often less than 25 mph. Streets having these characteristics are typically local, residential streets, and residents self-regulate their speeds because they directly accrue the benefit of maintaining safe conditions in their own neighborhood. Cut-through drivers, however, do not have the same incentive to contribute to traffic safety in the neighborhood, and it is evident that the majority of drivers on E. Grattan Street are not self-regulating their speed. Speed data can be found in Appendix A.

DISCUSSION

In response to the complaint of speeding and cut through traffic, the Public Works Department first analyzed the traffic signal operation at the intersection of S. Main Street and Martin Luther King Junior Way. If it was not timed to adequately service southbound left turns and westbound right turns, in addition to the other demands on the signal, the delay at the signal may have encouraged the use of E. Grattan as a cut-through route to circumvent the signal. The analysis looked at the potential for improvement from updating timing and reconfiguring the signal phasing. The analysis indicated that little can be achieved by changing the signal timing for the approaches. The S. Main Street/Martin Luther King Jr. Way intersection is part of a corridor coordination system that can only be modified after a study and retiming of the entire corridor to maintain the signal coordination. A study of S. Main Street, as well as the other major corridors in the City, is already scheduled for 2020, and will focus on optimizing the coordinated signal plans throughout the corridor. Opportunities to maximize throughput for these turning movements will be analyzed at that time. There is also potential to improve operational conditions at this intersection by changing the signal phasing configuration. However, the City is currently studying traffic impacts related to desired lane reconfigurations on Liberty and Main Street through downtown, which may impact volumes at this intersection. Analysis for signal phasing changes will be included in the 2020 S. Main Street signal timing corridor study, so that any impacts and mitigations identified in the downtown study can be considered in the analysis.

In addition to optimizing signal operations, staff and TSAC discussed possible solutions on E. Grattan Street. Multiple street design and operational modifications were discussed to address speeding and cut-through traffic. These are discussed below.

- Reduce speed limit – As described previously, it became apparent when observing the existing conditions on the street, that 25 mph is not the appropriate speed limit for the road. Staff and

the Commission agreed that communicating a 25 mph speed limit to drivers that do not live on the street, enables them to drive upwards of 32 mph without fear of being ticketed, as it is commonly understood that drivers get the benefit of the doubt until ~7 mph over the speed limit. The speed data suggests that this enforcement buffer is significantly being taken advantage of on E. Grattan Street. This is particularly problematic, when even 25 mph would be a high speed for this road. Staff and the Commission narrowed down on this as a primary issue to address in meeting the traffic calming objectives.

- Curb bump-outs – These are not feasible on this street segment due to the need to maintain a 20-foot street width for Fire Department vehicles, and adequate width for two-way traffic. They are general used to narrow a road to bring speeds down, however, E. Grattan Street is already narrow enough to induce lower speeds.
- Speed Humps – Speed humps could be implemented, but Public Works desires to install speed humps sparingly, as there are drawbacks to their implementation, in addition to the benefits they provide in reducing speeds. Some of the drawbacks include making snow and ice removal more difficult, greater impact on emergency vehicle wear and tear, the cost to construct and maintain them, as well as the localized noise nuisance they can create.
- Access Restrictions – Removing the ability to access the street from Liberty Street, as well as making it a one-way street were discussed. These are not bad options, but they are fairly impactful access restrictions that should not be used as a first step in traffic calming, if there are other options available.
- Removing on-street parking – On-street parking for single family homes in the downtown area is appropriate, and should not be further restricted to enable the local street to be used for non-local uses.

RECOMMENDED ACTION

As discussed above, staff and TSAC discussed the issue of communicating the safe speed to drivers by posting a reduced speed limit. A uniquely lower speed limit may provide drivers with an awareness of the street conditions that they previously had not observed. Staff and the Commission decided on 15 mph as the appropriate speed limit for the conditions on E. Grattan Street. The desired outcomes of this strategy are multiple. The first would be increased driver self-regulation of speed in compliance with the new lower speed limit. The second is the ability for police officers to enforce the safe speed limit. The third is that lower speeds, better enforcement abilities, and better signal operations may convince drivers to reconsider the use of E. Grattan Street as a cut-through route.

It is anticipated that the 15 mph speed limit will produce 85th percentile speeds less than 25 mph (the majority of traffic driving less than 25 mph). City Attorney and Police Department staff confirmed that speed limits below 25 mph are allowable per state enabling legislation (Code of Virginia 46.2-1300(A)), and are enforceable.

Aside from signal operational analysis to be conducted in 2020, the reduced speed limit is the only recommended action, at this time. Staff and TSAC believe this is the most appropriate starting point, as the least restrictive strategy considered. Public Works staff will evaluate its effectiveness, after an adjustment period of two to three months, and report the findings to TSAC. Evaluation will be delayed until James Madison University is in session, if the adjustment period ends on a University break. If the desired traffic calming objectives have not been met, staff and TSAC will consider what additional steps may be warranted.

SUMMARY & NEXT STEPS

In response to the concerns of residents on E. Grattan Street, City staff and the Transportation Safety & Advisory Commission reviewed existing roadway and traffic conditions and determined them to be a safety concern. TSAC recommends to staff and City Council a decrease of the speed limit to 15 mph on E. Grattan Street between S. Main Street and S. Mason Street, as an initial response. The goals of the speed limit decrease are to lower vehicle speeds on the road and discourage cut-through traffic from using the street.

Given this information, City Council will decide if the speed limit decrease will be implemented. If implemented, City staff will stay in contact with residents regarding whether the situation improves. At least one follow-up study will be completed, during a James Madison University spring or fall semester, to determine if vehicle speeds and cut-through traffic have decreased. If the problem persists, additional efforts will be considered.