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Reference: Town of Pulaski Traffic Study - Pulaski, Virginia

Subject: Speed Study

Mr. Smythers:

This letter summarizes the results of a speed study that was performed by Ramey Kemp & Associates, Inc. (RKA) for the Town of Pulaski, Virginia. The purpose of this study was to evaluate existing travel speeds of drivers on East Main Street (VA 99), Washington Ave (US 11), and VA 611 to determine if speed limit modifications are appropriate.

Speed Limit Considerations

When establishing a speed limit along a roadway, there are several factors to consider including the 85th percentile speed, roadway geometry, crash history, sight distance, surrounding development, and access management.

It is important to note that lowering speed limits below the 85th percentile speed does not encourage compliance with the posted speed limit and can create enforcement issues that place an undue burden on law enforcement agencies.

85th Percentile Speed

As defined by the Federal Highway Administration (FHWA), the 85th percentile speed is the speed at or below which 85 percent of the drivers travel on a road segment. This is considered to be the speed most drivers feel is safe and reasonable for roadway and weather conditions. The 85th percentile speed can be used as an indicator to determine if posted speed limits are generally aligned with driver behavior.



Study Area Roadways

East Main Street, VA 99, is a state route, and has a cross-section that varies between two-lane and four-lane undivided within the study area. The two-lane undivided section of East Main Street, located east of VA 611, has a posted speed limit of 35 miles per hour (mph) with no sidewalks. The four-lane section of East Main Street has a posted speed limit of 35 mph with sidewalks. VA 611 is a state route, two-lane undivided facility with a posted speed limit of 35 mph. US 11 is a U.S. route, four-lane divided facility with a posted speed limit of 45 mph in the northeastern side of the Town. The section of US 11 to the south of downtown is a two-lane undivided facility with a posted speed limit of 25 mph. Based on VDOT data, the roadways studied are functionally classified as minor arterials or other principal arterials.

Data Collection

Traffic speed and volume data were collected for 7-days in May 2022 while schools were in session at the following six locations (refer to the attached figure for a more detailed illustration of the study locations):

1. East Main Street (VA 99) between Union Avenue and Newbern Road
2. East Main Street (VA 99) east of Xaloy Way
3. Washington Avenue (US 11) south of 2nd Street SE
4. US 11 north of Windsor Avenue
5. VA 611 between Monte Vista Drive and Medallion Drive
6. VA 611 between Hedgerow Lane and Longview Road

Figure: General Tube Count Locations

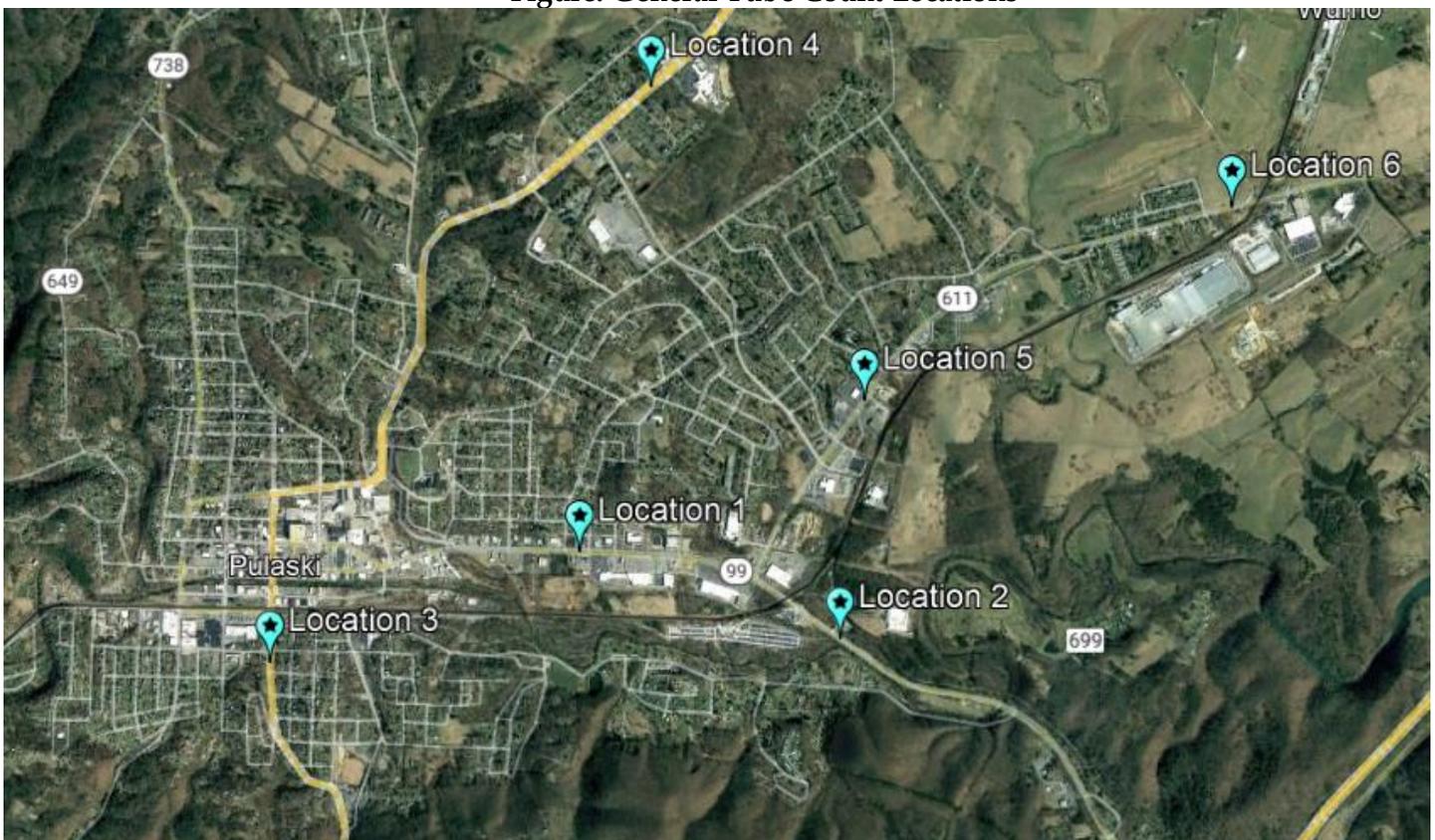


Table 1 provides a summary of the traffic speeds and volumes collected at the noted locations. The count data is attached for reference.

Table 1: Speed Study Data

Study Data	Study Locations					
	1	2	3	4	5	6
Posted Speed Limit (mph)	35	35	25	45	35	35
85 th Percentile Speed (mph)	36	48	32	50	40	45
	+ 1 mph	+ 13 mph	+ 7 mph	+ 5 mph	+ 5 mph	+ 10 mph
Weekday Traffic Volumes (vpd)	8,700 - 11,000	6,900 - 7,500	3,400 - 3,700	11,000 - 11,600	6,800 - 7,600	6,500 - 7,100
Maximum Speed Range (mph)	61-65	76+	61-65	76+	76+	76+
Maximum Speed Occurrence Rate	3	2	1	7	2	5

Data collection locations 2, 4, and 6 are located near the edge of town limits. Near locations 2 and 6, the speed limits transition from 55 mph to 35 mph heading into town. Near location 4, the speed limit transitions from 55 mph to 45 mph heading into town. The 85th percentile speeds at these locations are 5 mph to 13 mph over the posted speed limit. These relatively high speeds are not unexpected due to the speed limit transitions and drivers continuing to lower their speeds when approaching more dense areas of town. The 85th percentile speed at locations 1 and 5, which are along the same roadways as locations 2 and 6 but closer to downtown, show a decreased gap between the speed limit, indicating that drivers are continuing to decrease speeds once they enter town limits.

The 85th percentile speed at data collection location 3, on Washington Street south of downtown, is 7 mph over the posted speed limit. Lowering the speed limit at this location is not expected to increase driver compliance. Additionally, Washington Street is a US route in this area (US 11) and a major north-south connector through the town.

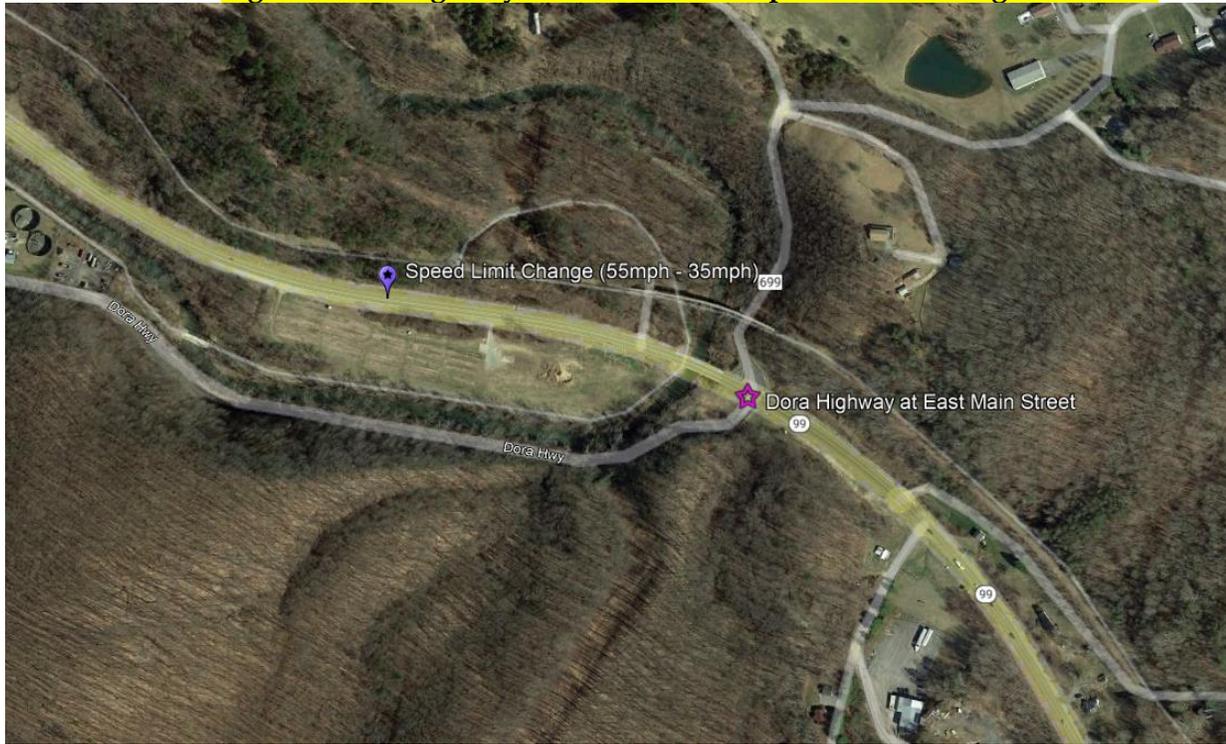
East Main Street (VA 99) at Dora Highway

The intersection of East Main Street (VA 99) and Dora Highway is slightly more than one-half mile east of data collection location 2, which shows a recorded 85th percentile speed 13 mph over the posted speed limit. The speed limit at this intersection is 55 mph. The speed limit changes to 35 mph approximately 0.2 miles west of the intersection. The intersection is also located within a horizontal curve which may make it more difficult for some drivers on the minor approaches to see and accurately assess the speed of approaching vehicles on VA 99.

Crash reports provided by the town show six reported crashes at the intersection of East Main Street (VA 99) in the last three and a half years. Several crashes involved driver-reported visibility issues of vehicles on East Main Street as well as apparent miscalculations in vehicle speeds and distances.



Figure: Dora Highway Intersection and Speed Limit Change Locations



Additionally, the town is progressing with plans for a park just west of this intersection on the parcel outlined in the image below. It is likely the park will increase the potential turning movement conflicts along East Main Street with vehicles slowing to enter and exit the park.

Figure: Park Parcel



Based on the speed study results as well as the additional factors presented, it is recommended that a transitional speed limit of 45 mph be posted in this area to begin decreasing vehicles speeds from 55 mph before they reach the Dora Highway intersection. This 45-mph speed limit should start at the existing speed limit drop to 35 mph just west of Dora Highway and continue east of the Town limits on East Main Street (VA 99). The extent of the 45-mph zone outside of Town limits will require coordination with and approval from VDOT.

VA General Assembly House Bill 1903

Effective March 1, 2021, HB 1903 “authorizes local governing bodies to reduce the speed limit to less than 25 miles per hour, but not less than 15 miles per hour, in a business or residence district”. This bill allows localities to lower speed limits on ‘local’ VDOT roads in the identified areas without a speed study. This may be an option for the town to consider in the downtown area as part of a place-making project. This reduction could increase the attractiveness of walking or biking downtown instead of driving.

Conclusions

Generally, as drivers approach the downtown portion of Pulaski, there is reasonable compliance with the posted speed limits. Based on the speed study results and additional safety and development information provided by the town, it is recommended that a transitional speed limit of 45 mph be placed along VA 99 encompassing the Dora Highway intersection. The town should coordinate with VDOT to develop consensus and determine the extent of the 45-mph zone as portions of VA 99 are outside of the eastern town limit.

If you have any questions or concerns, please do not hesitate to contact me at 919-872-5115.

Sincerely,
Ramey Kemp Associates

Jessica McClure, PE
State Traffic Engineering Lead

Attachments: Study location details
Field Data