



Lexington-Fayette Urban County Government
DEPARTMENT OF ENVIRONMENTAL QUALITY & PUBLIC WORKS

Jim Gray
Mayor

David L. Holmes, Esq.
Commissioner

**DIVISION OF TRAFFIC ENGINEERING
MEMORANDUM**

TO: Shevawn Akers, 2nd District Councilmember

FROM: Roger T. Mulvaney, P.E., Acting Traffic Engineer Manager

DATE: December 15th, 2014

SUBJECT: Ferndale Pass & Buck Lane Multiway Stop Study

Based on a request from your office, a warrant study was completed at the intersection of Ferndale Pass & Buck Lane to determine the feasibility of installing a multiway stop at this intersection. *Manual on Uniform Traffic Control Devices (MUTCD) – 2009 Edition* criteria were used in the analysis of the intersection to determine if a multi-way stop was warranted at this location. The following is the warrant criteria used in the analysis:

Guidance:

The decision to install multiway stop control should be based on an engineering study.

The following criteria should be considered in the engineering study for a multiway STOP sign installation:

- A. Where traffic control signals are justified, the multiway stop is an interim measure that can be installed quickly to control traffic while arrangements are being made for the installation of the traffic control signal.
- B. A crash problem, as indicated by 5 or more reported crashes in a 12-month period that are susceptible to correction by a multiway stop installation. Such crashes include right- and left-turn collisions as well as right-angle collisions.
- C. Minimum volumes:
 1. The vehicular volume entering the intersection from the major street approaches (total of both approaches) averages at least 300 vehicles per hour for any 8 hours of an average day, and
 2. The combined vehicular, pedestrian, and bicycle volume entering the intersection from the minor street approaches (total of both approaches) averages at least 200 units per hour for the same 8 hours, with an average delay to minor-street vehicular traffic of at least 30 seconds per vehicle during the highest hour, but
 3. If the 85th percentile approach speed of the major-street traffic exceeds 40 mph, the minimum vehicular volume warrants are 70 percent of the above values.
- D. Where no single criterion is satisfied, but where Criteria B, C.1., and C.2 are all satisfied to 80 percent of the minimum values. Criterion C3 is excluded from this condition.

Option:

Other criteria that may be considered in an engineering study include:

- A. The need to control left-turn conflicts.
- B. The need to control vehicle/pedestrian conflicts near locations that generate high pedestrian volumes.
- C. Locations where a road user, after stopping, cannot see conflicting traffic and is not able to reasonably safely negotiate the intersection unless conflicting cross traffic is also required to stop; and
- D. An intersection of two residential neighborhood collector (through) streets of similar design and operating characteristics where multiway stop control would improve traffic operational characteristics of the intersection.

Multiway stop signs comprise a form of intersectional control that may enhance or diminish traffic safety. The *Manual on Uniform Traffic Control Devices (MUTCD)* defines warrant criteria to determine whether multiway stop signs would have a greater potential for a positive or a negative impact on traffic conditions. The *MUTCD*'s warrants for multiway stop controls focus on two areas of concern: (1) traffic volumes and congestion and (2) a collision history that would be susceptible to correction with the installment of multiway stop signs.

The average 8-hour traffic volume which was collected on the major approaches of Buck Lane revealed 200 vehicles per hour or 67% of the volume required. The average 8-hour traffic volume which was collected on the minor approach of Ferndale Pass revealed a total of 104 vehicles per hour or 52% of the volume required. **The major and minor street approaches do not meet volume criteria.**

A review of the collision history at this intersection revealed two (2) collisions in the 3 years prior to this analysis, with no more than one (1) collision in any 12-month period. Based on the warrant criteria, that is, a collision history of five (5) or more collisions in a 12-month period that are susceptible to correction by installation of a multiway stop, **the collision warrant is not met.**

As part of this study, the Division of Traffic Engineering conducted a field and geometric review of the intersection. Buck Lane and Ferndale Pass are both classified as a local street, are 30' wide, and do not have centerline markings.

Conclusion: Based on observations of how Ferndale Pass & Buck Lane functions as a collector route with respect to how traffic comes into the Masterson Station area through this intersection, the Division of Traffic Engineering does not object to the installation of multiway stop controls at this location.

If you have any questions, please contact me at rmulvaney@lexingtonky.gov or via Lexcall 311.

Sincerely,



Roger T. Mulvaney, P.E.
Division of Traffic Engineering

RTM/blr

cc: David L. Holmes, Esq., Commissioner of Environmental Quality & Public Works
 Dowell Hoskins-Squier, PE, Director of Traffic Engineering
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