



Red Light Running Camera (Photo Enforcement) Engineering Safety Analysis Template



Highway Operations Section
Traffic Engineering Division
Virginia Department of Transportation
1401 East Broad Street
Richmond, Virginia 23219

February 19, 2008

VDOT Traffic Signal Photo Enforcement Engineering Analysis Template

Local Jurisdiction: _____ VDOT District: _____
(County/City/Town)

Intersection: _____
Street Name (Route #) at Street Name (Route #)

This Study performed under the direction of _____
(licensed professional engineer)

A. INTERSECTION & SIGNAL DATA

1. Signal Visibility

a. Minimum Sight Distance to Signal

Approach	Grade	Speed Limit (mph)	Measure (ft)	Required (ft)*

*See attached table of minimum sight distance requirements from the MUTCD.

- b. Are "SIGNAL AHEAD" signs present? Yes No
 Are "SIGNAL AHEAD" signs needed? Yes No
 Are other warning signs present in the vicinity of the intersection? Yes No
 Explain: _____

c. Information on Signal Heads

Approach	Lens Size	Lens Type (LED or Bulb)	Back Plates (Yes or No)

2. Pavement and Markings Data

- a. Stop bars in "good" condition? Yes No
 Explain: _____

- b. Lane lines "clearly" visible? Yes No
 Explain: _____

- c. Crosswalks "clearly" marked? Yes No
 Explain: _____

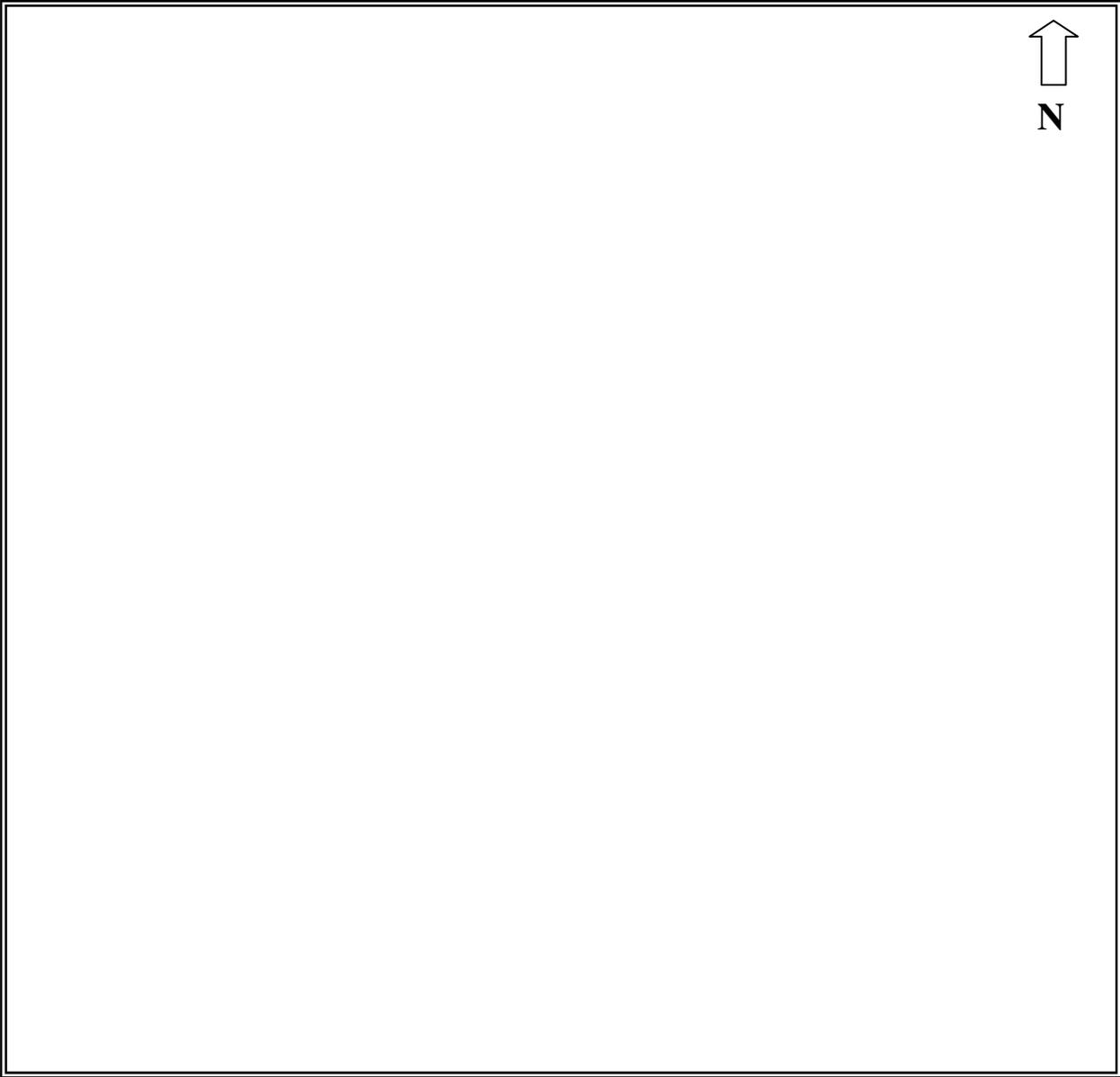
d. Pavement conditions (ruts, potholes, cracking, etc.)?

- Good Explain: _____
- Fair Explain: _____
- Poor Explain: _____

e. Pavement surface treatments exist? (rumble strips, texturing, pavers, etc.)

- Yes Explain: _____
- No _____

3. Provide diagram of intersection including: pavement markings, width of lanes and medians, location of signal heads and signs, locations of loops/detectors, and grades.



B. SIGNAL TIMING & TRAFFIC DATA

1. Clearance Intervals

Approach	Posted Speed Limit	Grade	Width of Intersection	Yellow Interval		All Red Interval	
				Existing	Calculated*	Existing	Calculated*

*Reference TE Memo 306 provided in Appendix E for calculation of Clearance Intervals

2. Include existing controller settings for each phase and each time-of-day. Information should include applicable settings such as minimum green, max 1 & 2, passage, minimum gap/ext, protected-permissive, lead-lag, yellow and all red, walk and ped clearance time, recall settings, offsets, cycle length, etc. Include analysis of peak hour conditions and a determination of whether signal timings are contributing to red-light running problem.

a. Does signal timing or phasing factor in as a possible contributor to RLR at this intersection?

Yes Explain: _____

 No

b. List comments or recommendations on potential signal timing or phasing changes:

3. Vehicle Detection Data

Approach	Detection Type (loop, video, etc.)	Detector Location (measured from stop bar)

4. Traffic Volume Data

Approach	Daily Volumes		Peak Hour Volumes	
	Total	Heavy Vehicles	Total	Heavy Vehicles

C. CRASH & ENFORCEMENT DATA

1. Three-Year Crash Data

Collision Type	3-year Total	Number of Injury Crashes	Number of Fatal Crashes	Crashes Associated With Red-Light-Running
Angle				
Rear End				
Head On				
Sidewsipe				
Pedestrian				
Bicyclist				
TOTAL				

2. Crash Rate

- a. Number of crashes per million entering vehicles: _____
- b. Locality rate for comparison (if available): _____

3. Violation Rate

- a. Number of red light running citations per year issued by law enforcement at the evaluated intersection, if available.
 Number: _____ Year: _____

b. Observed Violations

Date: _____
 Time Period: _____

Approach	Traffic Volume	Number of Violations

4. Enforcement and Operational Issues

- a. Describe the difficulty experienced by law enforcement officers in patrol cars or on foot in apprehending violators.

- b. Describe the ability of law enforcement officers to apprehend violators safely within a reasonable distance from the violation.

- c. Are pedestrians at risk due to violations? Yes No
 Explain: _____

 Number of pedestrians per hour? _____
 Pedestrian crosswalk provided? Yes No
- d. Have there been any changes to the operations of the intersection (signal timing, restriping, or increased enforcement) within the past three years? Yes No
 Explain: _____

Minimum Sight Distance

85th Percentile Speed (mph)	Minimum Sight Distance (ft)
20	175
25	215
30	270
35	325
40	390
45	460
50	540
55	625
60	715

Table 4D-1 *Manual on Uniform Traffic Control Devices*, (Revision 1, Nov 2004) Transportation Research Board (TRB), Washington, DC, 2003