



# Traffic Systems Design Directive

169 Brick Store Landing Road, Smyrna, DE

Number (Year - #)

2015-1

Requestor Name: Steve Harr, WRA

Date Submitted: 4/22/2015

Applicable Chapter / Section / Page / Figure in current manual: See attached

Description of Current Practice: See attached

Requires modification to Traffic Design Manual?

- Yes
- No

Recommended Change: See attached

Date Received: 4/22/15

Received By: Manuel C. Fite, III

Based upon the conditions presented, it is recommended that this be approved as an updated Traffic Systems Design Practice and included as a revision to the Traffic Design Manual (if applicable).

Recommended By: [Signature]  
Requestor

Date: 4/22/15

Recommended By: [Signature]  
Design / Construction / Safety / Studies Manager

Date: 4/23/15

Approved By: [Signature]  
(Signature)

Date: 4/23/15

Status / Date Completed: \_\_\_\_\_

**CHAPTER IV**

**Page 99, Section E, Item 2c**

**Provision:**

$$YCI = 1.4 + \frac{1.47(S + 7)}{22.4 + 64.4g}$$

**Suggested Revision:**

$$YCI = 1.2 + \frac{1.47(S + 7)}{22.4 + 64.4g}$$

**Support:** Only a clarification to have the equation match recommendation in the text – the Traffic Design Manual already states: “*DelDOT has adopted a value of 1.2 seconds for all yellow change interval calculations, which is greater than the NCHRP Report 731 recommendation, but less than the 85th percentile.*”

**Page 103, Section E, Item 2d, Left Turns and Split Phasing**

**Provision:** “The only change is the estimated 10<sup>th</sup>-percentile speed ( $S_{10}$ ) used in the equation to calculate  $t_c$  is 15 mph as suggested in the *ITE Journal* article.”

**Suggested Revision:** “The only change is the estimated 10<sup>th</sup>-percentile speed ( $S_{10}$ ) used in the equation to calculate  $t_c$  is 20 mph as suggested by *NCHRP Report 731* and *ITE guidelines*.”

**Support:** DelDOT historically used AASHTO left-turning speeds based on turning radius, which typically resulted in a 20 mph left-turning speed. This former practice generally resulted in adequate change and clearance intervals; therefore, applying the 20 mph speed recommended in multiple engineering publications is generally consistent with DelDOT’s former engineering practice that resulted in modest, not extraordinary, clearance values. Further, for atypical circumstances, specific red clearance intervals are assessed and adjusted based on case-by-case evaluations of both safety and capacity.

**Page 103, Section E, Item 2d, Other Requirements**

**Provision:** “Red clearance intervals for main-street movement pairs (phases 1, 2, 5, 6 as shown in **Figures IV-7 and IV-8**) shall match in each direction.”

**Suggested Revision:** “Red clearance intervals for main-street through movements (phases 2 and 6 as shown in **Figures IV-7 and IV-8**) shall match in each direction.”

**Support:** DelDOT’s former practice of matching only the main street through all-red intervals is adequate – the need for additional matching “pairs” is not required for coordination and/or “motorist expectancy” purposes