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June 30, 2006

Mr. Lawrence Jackson, P. E.  
Director of Public Works  
**City of Los Alamitos**  
3191 Katella Avenue  
Los Alamitos, CA 90720

**Subject: Traffic Signal Timing at (2) City Intersections**

Dear Mr. Jackson:

Hartzog & Crabill, Inc. (HCI) has prepared the timing parameters for all of the City-maintained traffic signals to comply with the MUTCD 2003 and supplement requirements. More specifically, the two city intersections that are part of the Automated Red light Photo Enforcement program are set up as follows:

1. For the through traffic lanes of Katella Ave. intersecting with Los Alamitos Blvd. and Bloomfield Ave. the Yellow light timing requirement is 3.6 seconds and these are set to 4.0 seconds for margin.
2. For the reduced speed, protected approach left turn lanes of Katella Ave. intersecting with Los Alamitos Blvd. the Yellow arrow-timing requirement is 3.0 seconds and these are set to 3.2 seconds for margin.

Per the City's request, the intention of this letter is provide a statement that the existing signal timing at the above two (2) intersections is found to be in conformance with the MUTCD 2003 with California Supplement guidelines for yellow and all-red clearance times.

Our overall signal timing experience has traditionally been to follow the guidelines in the Caltrans Traffic Manual, and since May 2004, we now use the similar guidelines found in the MUTCD 2003 with California Supplement. It is important to note the State of California Supplement, as the majority of guidelines from the prior Traffic Manual have recently been reviewed, incorporated, and adopted into this State Supplement. Within these recent State of California guidelines, it remains that there are a few set-timing guidelines given (i.e., yellow, all-red, pedestrian clearance) and the majority of timing parameters are still left up to the discretion of the Traffic

*Consulting Traffic Engineers to Government Agencies*

Certified Copy

I declare under penalty of perjury that the attached document(s) to which this is affixed, is (are) a true copy(s) of the original document(s) on file with the Los Alamitos Police Department.	
# Pages: <u>3</u>	Date: <u>8-1-06</u>
Name / ID #: <u>J. Brown #93</u>	
Title: <u>Records Specialist</u>	
Los Alamitos Police Department	

Mr. Lawrence Jackson, P. E.

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Engineer.

Therefore, since there are set minimum suggested Yellow times given per approach speed along with optional All-Red timing data to consider, HCI states that the Yellow and All-Red timing parameters conform with the MUTCD 2003 with California Supplement clearance timing parameters at these two (2) and all City-maintained intersections.

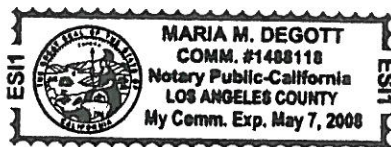
We sincerely hope that this explanation/statement provides an overall understanding that City-maintained intersections are following established signal timing standards. If you have any questions or need more information please call us at (714) 731-9455.

Very truly yours,  
**HARTZOG & CRABILL, INC.**

  
Gerald J. Stock,  
P. E., T. E.  
Vice- President  
City & Traffic Engineering Services







# CALIFORNIA ALL-PURPOSE ACKNOWLEDGEMENT

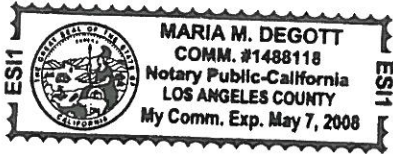
State of California

County of Los Angeles

On July 10, 2006 before me, Maria M. DeGott Notary Public,  
Name and Title of Officer (e.g., "Jane Doe, Notary Public")

personally appeared Gerald John Stock,  
Name(s) of Signer(s)

personally known to me -OR-  proved to me on the basis of satisfactory evidence to be the person(s) whose name(s) is/are subscribed to the within instrument and acknowledged to me that he/she/they executed the same in his/her/their authorized capacity(ies), and that by his/her/their signature(s) on the instrument the person(s), or the entity upon behalf of which the person(s) acted, executed the instrument.



WITNESS my hand and official seal.

Maria M. DeGott  
Signature of Notary Public

### OPTIONAL

Though the information below is not required by law, it may prove valuable to persons relying on the document and could prevent fraudulent removal and reattachment of this form to another document.

### Description of Attached Document

Title or Type of Document: Engineering Letter dated June 30, 2006

Document Date: June 30, 2006 Number of Pages: 2

Signer(s) Other Than Named Above: none

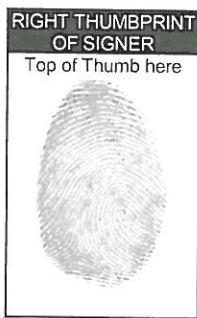
### Capacity(ies) Claimed by Signer(s)

Signer's Name: Gerald J. Stock

- Individual
- Corporate Officer
- Titles(s): \_\_\_\_\_
- Partner -  Limited  General
- Attorney-in-Fact
- Trustee
- Guardian or Conservator
- Other:

Signer's Name: \_\_\_\_\_

- Individual
- Corporate Officer
- Titles(s): \_\_\_\_\_
- Partner -  Limited  General
- Attorney-in-Fact
- Trustee
- Guardian or Conservator
- Other:



Signer Is Representing:  
\_\_\_\_\_  
\_\_\_\_\_

Signer Is Representing:  
\_\_\_\_\_  
\_\_\_\_\_

<b>TRAFFIC OPERATIONS POLICY DIRECTIVE</b>	NUMBER <b>05-01</b>	PAGE 1 OF 4
KARLA SUTLIFF, DIVISION CHIEF (Signature) <i>Karla Sutliff for S+I.A.</i>	DATE ISSUED 01/26/05	EFFECTIVE DATE 01/26/05
SUBJECT Minimum Yellow Light Change Interval	DISTRIBUTION <input type="checkbox"/> All District Directors <input checked="" type="checkbox"/> All Deputy District Directors - Traffic Operations <input type="checkbox"/> All Deputy District Directors - Maintenance <input type="checkbox"/> All Deputy District Directors - Construction <input type="checkbox"/> All Deputy District Directors - Design <input type="checkbox"/> All Deputy District Directors - Transportation Planning <input type="checkbox"/> Chief, Division of Engineering Services <input checked="" type="checkbox"/> Chief Counsel, Legal Division <input checked="" type="checkbox"/> Publications (California Supplement Website) <a href="http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/index.htm">http://www.dot.ca.gov/hq/traffops/signtech/mutcdsupp/index.htm</a> <input type="checkbox"/> Headquarters Division Chiefs for:	
DOES THIS DIRECTIVE AFFECT OR SUPERSEDE ANOTHER DOCUMENT? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	IF YES, DESCRIBE	
WILL THIS DIRECTIVE BE INCORPORATED IN THE MUTCD 2003 CALIFORNIA SUPPLEMENT? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO	IF YES, DESCRIBE Section 4D.10 - Yellow Change and Red Clearance Intervals	

**DIRECTIVE**

MUTCD 2003 California Supplement Section 4D.10, Yellow Change and Red Clearance Intervals, is revised to make it clear that the posted speed limit or the prima facie speed limit are to be used in determining the minimum yellow light change interval. This Directive is effective immediately.

Certified Copy

I declare under penalty of perjury that the attached document(s) to which this is affixed, is (are) a true copy(s) of the original document(s) on file with the Los Alamitos Police Department.

# Pages: 4 Date: 8-1-06  
 Name / ID #: J. Brown #95  
 Title: Records Specialist

Los Alamitos Police Department

**IMPLEMENTATION**

MUTCD 2003 California Supplement Section 4D.10 Yellow Change and Red Clearance Intervals policy is amended. The revised policy is as follows:

**Section 4D.10 Yellow Change and Red Clearance Intervals****Support:**

The purpose of the yellow signal indication is to warn traffic approaching a traffic signal that the related green movement is ending or that a red indication will be exhibited immediately thereafter and traffic will be required to stop when the red signal is exhibited.

The following methodology in this section provides guidance for establishing the "minimum yellow light change interval" for traffic signals. This methodology is essentially the same as included in Section 9-04.5 of the Caltrans 1996 Traffic Manual. The 1996 Manual used the term "approach speed" for the minimum yellow interval, which caused some confusion for the courts. The methodology in this section uses the posted speed limit or prima facie speed limit instead of the approach speed. At the December 8, 2004 meeting of the California Traffic Control Devices Committee (CTCDC) there was discussion regarding the desirability of changing the methodology because some public agencies are using automated enforcement systems. The CTCDC recommended that the methodology in this section be reevaluated after a period of one year. During this one-year period, the Committee will examine whether changes in the methodology would be appropriate.

**Standard:**

**The minimum yellow light change interval shall be in accordance with Table 4D-102. The posted speed limit, or the prima facie speed limit established by the California Vehicle Code (CVC) shall be used for determination of the minimum yellow light change interval for the through traffic movement.**

**The minimum yellow light change interval for a protected left-turn or protected right-turn phase shall be 3.0 seconds.**

**Option:**

The minimum yellow light change interval for the through movement and the protected left-turn or protected right-turn may be increased based on a field review or by using appropriate judgement. That judgment may be based on numerous factors, including, but not limited to, 85th percentile speed, intersection geometry and field observation of traffic behavior.

**Table 4D-102 Minimum Yellow Light Change Interval**

Posted Speed or Prima Facie Speed		Minimum Yellow Interval
<u>mph</u>	<u>km/h</u>	<u>Seconds</u>
25 or less	40 or less	3.0
30	48	3.2
35	56	3.6
40	64	3.9
45	72	4.3
50	80	4.7
55	89	5.0
60	97	5.4
65	105	5.8

Table 4D-102 is based on the following formula:

$$T = t + V/2d$$

T = The minimum yellow light change interval (second)

V = Posted speed or prima facie speed, (m/second or ft/second)

d = Deceleration Rate (3.05 m/second/second or 10ft/second/second)

t = Reaction time (1 second)

**BACKGROUND**

The methodology in Section 4D.10 provides guidance for establishing the "minimum yellow light change interval" for traffic signals. This methodology is essentially the same as was included in Section 9-04.5 of the Caltrans 1996 Traffic Manual. The 1996 Manual used the term "approach speed" for the minimum yellow interval, which caused some confusion for the courts. The methodology in this section uses the posted speed limit or prima facie speed limit instead of the approach speed. At the December 8, 2004 meeting of the California Traffic Control Devices Committee (CTCDC) there was discussion regarding the desirability of changing the methodology because some public agencies are using automated enforcement systems. The CTCDC recommended that the methodology in this section be reevaluated after a period of one year. During this one-year period, the Committee will examine whether changes in the methodology would be appropriate.

## DEFINITIONS

When used in this Traffic Operations Policy Directive, the text shall be defined as follows:

- 1) **Standard** - a statement of required, mandatory, or specifically prohibited practice. All standards text appears in **bold** type. The verb **shall** is typically used. Standards are sometimes modified by Options.
- 2) Guidance - a statement of recommended, but not mandatory, practice in typical situations, with deviations allowed if engineering judgement or engineering study indicates the deviation to be appropriate. All Guidance statements text appears in underlined type. The verb should is typically used. Guidance statements are sometimes modified by Options.
- 3) Option - a statement of practice that is a permissive condition and carries no requirement or recommendation. Options may contain allowable modifications to a Standard or Guidance. All Option statements text appears in normal type. The verb may is typically used.
- 4) Support - an informational statement that does not convey any degree of mandate, recommendation, authorization, prohibition, or enforceable condition. Support statements text appears in normal type. The verbs shall, should and may are not used in Support statements.

## ATTACHMENTS

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