

STATE OF NORTH CAROLINA
COUNTY OF WAKE

IN THE GENERAL COURT OF JUSTICE
SUPERIOR COURT DIVISION
10-CVS-019930

BRIAN CECCARELLI,
individually and as class representative,

Plaintiffs,

v.

TOWN OF CARY

Defendant.

AFFIDAVIT OF BRIAN CECCARELLI

BRIAN CECCARELLI, being first duly sworn, deposes and says:

1. The undersigned affiant is a Plaintiff herein. I have personal knowledge of the facts hereinafter stated and am competent to testify as a sworn witness to the matters contained herein. I am over the age of 18 years.
2. I am a resident of Wake County, North Carolina.
3. On November 6, 2009 at 09:27 PM I drove my vehicle east bound on Cary Towne Boulevard crossing its intersection with Convention Drive.
4. I observed from the signage that the speed limit on the relevant portion of Cary Towne Boulevard was 45 mph.
5. After seeing the yellow light I was unable to safely stop my vehicle before the traffic signal turned red in my path of travel.
6. I was issued a Notice of Violation of Cary Town Code 34-303 on November 10, 2009 by the Town of Cary. A true and correct copy of the Notice of Violation is attached to this Affidavit as Exhibit "A."
7. I paid the civil penalty of \$50 demanded by the Town of Cary.
8. I appealed this violation on December 2, 2009 and appeared before a panel established by the Town of Cary on January 20, 2010 which found that I did violate Cary Town Code 34-303.
9. I have retained Stam & Danchi, PLLC and William W. Peaslee, Attorney at Law PLLC to represent me in this class action.
10. Based on my education, training, and work experience, I am able to testify to the following principles regarding timing of the yellow light change interval and consequences of shortening its duration.
11. I received a received a B.S. degree in Physics from the University of Arizona in 1983.
12. I have worked as a physicist and engineer. My work experience includes consultation to

the North Carolina Department of Transportation's Engineering Department for a 6 month period.

13. After inquiring with the Town of Cary about the timing of the yellow light at the Cary Towne Blvd and Convention Drive intersection, I received an email from Michael J. Bajorek, Assistant Town Manager for the Town of Cary. On November 24, 2009, he confirmed (a) the yellow light duration was 4.0 seconds per the design plan dated 5/31/1991 and (b) that the posted speed limit was 45 mph. A true and correct copy of this email is attached to this Affidavit as Exhibit "B."
14. The signal plan dated 5/31/1991 for the intersection of Cary Towne Blvd and Convention Drive was based on an inaccurate speed limit of 35 mph on Cary Towne Blvd, rather than the actual speed limit of 45 mph. See Deposition Exhibit 14, Bailey Dep., 6/24/2011.
15. Using the actual speed limit of 45 mph, the yellow light duration at this intersection should have been 4.5 seconds. However, the yellow light duration was only 4.0 seconds based on the out-of-date sign plan. This duration was less than yellow light change interval specified by the Design Manual developed by the Signals and Geometrics Section of the North Carolina Department of Transportation.
16. The duration of the yellow light change interval at the intersection of Cary Towne Blvd and Convention Drive was not in full compliance with the Manual of Uniform Traffic Control Devices (MUTCD) because it was not determined with up-to-date, accurate information required by engineering practices.
17. Based on Safelight Cary citation totals from 2008-2010, it is clear that changing the yellow light duration affects red light violations. Graphing the number of citations by month shows that lengthening the yellow light duration at Cary Town Blvd and Convention Drive by 0.5 seconds in March 2010 decreased red light runners by 80%. A true and accurate graphical representation of the citations is attached to this Affidavit as Exhibit "C."
18. The Town of Cary already knew of the problem at this intersection when I was caught on 11/6/09. NCDOT sealed a signal plan on 11/4/09 with the correct speed limit and yellow light duration of 4.5 seconds. See Defendant's Exhibit A, Affidavit of Greg Fuller, P.E. This new plan had been requested by Cary engineers. However, the Town of Cary relied on the design plan dated 5/31/1991 through March 2010.
19. The signal plans of record for left turns at the intersections of (a) Kildaire Farm Road/Cary Parkway and (b) Walnut Street/Meeting Place set the yellow light to a duration so short that it creates a type I dilemma zone. A type I dilemma zone is a region on the road where, if the driver is in the zone, then upon seeing the light turn yellow, there is no solution to the question whether to stop or go. Either choice the driver makes results in running a red light. When the light turns yellow, there is not enough distance for a driver to stop, nor is there enough yellow time for the driver to proceed into the intersection before it turns red. If the yellow light is of longer duration, there is no dilemma zone. For further explanation see "Isaac Newton vs. Red Light Cameras: Short Yellow and Turns," Brian Ceccarelli, redlightrobber.com, 9/21/2011 attached as Exhibit "D."

20. a) The Town of Cary determines left turn yellow light arrow durations using the assumption that all vehicles approach the intersection at 20 to 30 mph, even though the legal speed limit is 45 mph. The assumption comes from a typo error beginning in the March 2002 edition of the North Carolina Department of Transportation Signals Design Manual. In editions prior to March 2002, the specification applies that assumption only to the computation of the all-red clearance interval, not to the yellow change interval. 20 to 30 mph is the speed vehicles travel while they are *within* the intersection, not as they approach the intersection. For further explanation see comments tracing the error chronologically in the NCDOT Change and Clearance Intervals formula of the Signals & Geometrics Section, Traffic Engineering and Safety Systems Branch attached as Exhibit "E."

The all-red clearance interval is the amount of time all drivers in all approaches to the intersection see a red light. The all-red comes immediately after a yellow. The all-red interval gives the necessary time for all vehicles to clear the intersection. Engineers set the all-red interval so that the slowest moving vehicle that had entered the intersection just as the light turned red, has time to clear the intersection before opposing traffic gets a green. The slowest vehicles within the intersection are the left turning vehicles. Engineers correctly assume that these left turning vehicles move at 20 to 30 mph within the intersection.

b) But by misapplying 20 to 30 mph as the approach speed for the yellow change interval, the Town of Cary creates a type I dilemma zone in the left lane. The Town of Cary sets the left turn yellow change interval to 3.0 seconds. Any driver approaching at the posted speed limit of 45 mph, who is from 293 feet to 198 feet from the intersection when the light turns yellow, will be forced to run a red light. The driver neither has the distance to stop safely, nor the time to proceed at the speed limit into the intersection while the light is still yellow.

Since drivers do need to slow down before initiating a turn, the dilemma zone is even larger. In the very least, the Town of Cary expects drivers to enter the intersection from 20 to 30 mph. But when the light turns yellow, Cary's 3.0 second yellow only allows the driver the time to decelerate to 33.5 mph. No less. Given the expected entry speed of 33.5 mph, the location of the dilemma zone is between 293 feet and 152 feet from the intersection. When the light turns yellow, the Town of Cary will force any vehicles within 293 feet and 152 feet from the intersection to run a red light.

c) By working the ITE Yellow Change Interval formula backwards, a 3.0 second yellow interval reduces the posted speed limit of 45 mph to an effective limit of 22.9 mph. The Town of Cary sets the speed limit in the left lane to 22.9 mph without notifying the driver of this reduction in the legal speed limit. That is, a driver who intends to follow all of the traffic laws will have to reduce his or her speed to 22.9 mph even when still a distant 293 feet from the intersection.

21. Based on Safelight Cary citation totals from 2008-2010, it is clear that changing the yellow light duration affects red light violations. Graphing the number of citations by month shows that shortening the yellow light for left turn lanes increased red light

runners by 1,000%. A true and accurate graphical representation of the citations is attached to this Affidavit as Exhibit "F."

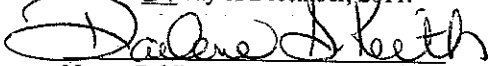
This the 2 day of December, 2011.



Brian Ceccarelli

STATE OF NORTH CAROLINA,
COUNTY OF WAKE

Sworn to and subscribed before
me this 2 day of December, 2011.



Notary Public

My Commission Expires: 852012

