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January 15, 2004

Mr. Kumar Neppalli, E.I.T.
Traffic Engineer
Town of Chapel Hill
306 North Columbia Street
Chapel Hill, NC 27516-2124

Dear Kumar:

I am writing to you today in my role as Principal Investigator for the research project "Expanding the Use of Photo Enforcement to Enhance Traffic Safety in North Carolina," which the Institute for Transportation Research and Education at NC State is conducting for the NC Governor's Highway Safety Program (GHSP). As you know, the Town of Chapel Hill and its red light running (RLR) cameras are playing a prominent role in our project. The reason for my letter is to remind you of the unique opportunity our project represents to answer a critical question and to ask that you recommend in your report to the Council that the RLR camera program in Chapel Hill continue until our project produces that answer.

The purpose of our project is, simply, to see whether red light running cameras increase safety. Contrary to the prevailing wisdom on both sides of the political debate on RLR cameras, the scientific fact is that we do not yet know whether cameras save collisions, injuries, and/or deaths. Allow me to quote from a recent prestigious, peer-reviewed, national report on the safety benefits of red light running cameras (*NCHRP Synthesis 310*, Transportation Research Board, 2003, p.40):

...it appears from the findings of several studies that, in general, RLR cameras can bring about a reduction in the more severe angle crashes with, at worst, a slight increase in the less severe rear-end crashes. However, there is not enough empirical evidence based on proper experimental design procedures to state this conclusively.

Unfortunately, to this point most of the studies of RLR cameras examined their effects on collisions when cameras were installed at the intersections with the highest numbers of collisions in a town. Of course collisions decrease at those intersections the next year—the same as they would if I waved a magic wand over them—but camera proponents attribute the collision "savings" they see to the cameras. This flaw is called

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“regression to the mean” and is very difficult to overcome when conducting studies in highway safety.

The study we are conducting for the GHSP with your help is designed to find the unbiased collision impacts of RLR cameras by overcoming this regression to the mean flaw. To overcome the flaw, the Town graciously let my research team recommend the intersections where cameras would be installed from a pool of intersections pre-qualified by your staff and the camera vendor. My team chose the camera locations randomly from the pool, with the remaining members of the pool becoming our “control” sites. This random selection and creation of control sites will allow us to mathematically account for regression to the mean once we have a full set of police-reported collision information from both sets of intersections.

I cannot emphasize to you enough what an extraordinary research opportunity the Town of Chapel Hill has presented us, and what a far-reaching impact our study could have if allowed to proceed. In the 12-year history of RLR cameras in dozens of jurisdictions across the US, no one has been allowed to make those random selections until this study. Without those random selections, an unbiased study is not possible. Without an unbiased study, hundreds of future camera installations across the US may inflict millions of dollars of fines for no good safety purpose, or jurisdictions may shy away from a tool that really does save collisions, injuries and deaths.

I also want to emphasize that my team and I are not camera proponents. If you examine our previous work on RLR cameras, you will see that we have been critical of many aspects of prior programs. See, for example, our previous GHSP report:

http://itre.ncsu.edu/highways/download/RLRfinalreport-exe_summary.pdf

We are only interested in uncovering the truth about RLR cameras: Do they save collisions, injuries, and deaths, or not? Your Town and the experiment we have begun there happen to be the best way to answer that question across US now, and may be the best for a long time to come.

To this point in our study, we have recommended two camera locations and monitored the collisions occurring at those locations (and the control sites) for approximately three months. However, that is not enough time to draw a firm conclusion from our study. To achieve an answer with reasonable statistical certainty, we believe that we will need to see collision data from the program sites until December 2004, including installation of the two other planned camera sites. Our thinking is that if the new cameras are installed in February, by December we will have about 50 months of camera operation at an intersection (two cameras for 15 months plus two cameras for 10 months). At an average of 4 collisions per intersection per month, this will provide a total of 200 or so collisions in the “after installation” period at camera locations. Standard statistical references in the highway safety area show that a sample of 200 or so collisions will allow us to reduce the uncertainty (the plus and minus) in our answer to about 15 percent, which is in line with accepted practice.

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Please also note that the Town of Chapel Hill has borne none of the costs of the evaluation to this point, and will not bear any through the end of our contract with GHSP on September 30, 2004. Beyond October 1, 2004, only a few person hours of effort by the Town staff will be necessary to gather the new collision data, enter the data into the easy-to-use analysis spreadsheet we have created, and extract an answer.

The Town of Chapel Hill has embarked on a unique study with us. We have a chance to find an answer to a question with major safety implications across the US. I therefore request that you allow the program to run on until we have our answer, at which point you may be confident in pulling the plug from a safety point of view as well as other points of view if we did not find a collision reduction.

Thank you for your assistance with the study to this point, and hope that you recommend that the Council continue the RLR program until our study is complete. Please call me (919-515-7733) or email me (hummer@eos.ncsu.edu) at any time to discuss any aspect of the project. Take care,

Sincerely,

Joe Hummer

Joseph E. Hummer, Ph.D., PE
Professor