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Chicago's red-light camera program has significant safety benefits

March 20, 2017 | By Megan Fellman (//for-journalists/staff-page/show/megan-fellman)

EVANSTON - Chicago's red-light cameras reduce serious injury crashes at intersections where they are placed and also have a measurable "spillover effect" that improves safety at intersections without cameras, according to a Northwestern University Transportation Center study (/http://www.transportation.northwestern.edu/research/report-redlightcameras.html) released today (March 20).

The research team found the Chicago red-light camera (RLC) enforcement program delivers significant safety benefits, and the 104-page report provides several recommendations to enhance the program's performance.

The report provides tools and analysis that can help the city identify existing and potential camera locations requiring further attention and notes that enforcing RLC violations occurring within fractions of a second after the light turns red might not provide significant safety benefits.

Hani S. Mahmassani (/http://www.transportation.northwestern.edu/people/mahmassni.html), director of the Transportation Center (/http://www.transportation.northwestern.edu/index.html), led the study on the effectiveness of the RLC program using available safety data. The team, including an expert advisory panel of traffic safety experts from across the country, conducted a rigorous analysis of existing RLC enforcement practices before arriving at its recommendations.

Based on the analysis, the report recommends continuation of the program. "Quantitative studies conducted in this project demonstrate significant safety benefits of the current RLC program," the report concluded.

The study was authorized by the Chicago City Council and commissioned by the Chicago Department of Transportation (CDOT). Commissioning the independent academic report was a major step CDOT took toward reforming the program in 2015 in cooperation with the City Council.

Mahmassani's RLC study team, including Northwestern colleague Joseph L. Schofer, corroborated the findings of other national studies that have shown camera enforcement correlates with an overall decrease in injury-producing crashes.

Mahmassani is the William A. Patterson Distinguished Chair in Transportation in the McCormick School of Engineering (/http://www.mccormick.northwestern.edu) . Schofer is a faculty associate of the Transportation Center and a professor of civil and environmental engineering and an associate dean at McCormick.

The report found that injury-producing crashes decreased by about 10 percent because of the camera program; more dangerous angle and/or turn crashes decreased by 19 percent. The study also found less dangerous and less frequent rear-end crashes increased by 14 percent, consistent with experience in other cities. For this portion of the study, the researchers used data from 2005 to 2007 (before red-light cameras were deployed) and data from 2010 to 2012 (after red-light cameras were mostly deployed).

Federally sponsored traffic safety research has shown that angle and turn crashes have a lost productivity cost to society that is about five times greater than the cost attributed to damage from rear-end crashes.

The Northwestern RLC researchers are the first to document that red-light cameras not only improve safety where they are placed but also improve behavior at intersections without cameras through a "spillover effect." The researchers estimated the spillover effect by comparing before- and after-crash data at 85 intersections where RLCs were installed in 2008 and 2009 with crash data for 103 intersections that were not equipped with cameras.

In its study, the Northwestern University Transportation Center's research team presented three key recommendations for strengthening the red-light camera enforcement program:

1. The Transportation Center has provided the city of Chicago with tools and analysis that can help identify camera locations that require further study as to whether they are meeting the expected safety benefits. The tools also help identify locations that currently lack camera enforcement but could benefit from the placement of cameras. The researchers recommend that the city review crash and other data on a routine annual basis using criteria specified by the study team and consider removing some cameras and installing others in new locations.
2. The study team found that enforcing violations that occur within fractions of a second after the light turns red might not provide significant safety benefits. The researchers note there is a legitimate "dilemma zone" faced by drivers as a light turns from yellow to red in which law-abiding drivers can be caught.
3. The researchers suggested the city improve transparency and public acceptance of the program by augmenting and improving the public reporting of the program, by grounding the program in clear safety benefits and by coordinating with an overall traffic safety program in the city that is not only based on camera enforcement.

The scope of the Northwestern RLC study included performing a comprehensive assessment of existing practices and benchmarking them against national best practices.

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