River Oaks Dr./159th St. (US 6) at Arthur St. Eastbound/Westbound Approaches

Automated Red-Light Camera Enforcement System Statistical Analysis and Evaluation

Submitted By:

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A Red Light Running (RLR) Photo Enforcement System was installed at the intersection of River Oaks Dr./159th St. (US 6) and Arthur St. (eastbound/westbound) on January 15, 2011, after finding limited success with other attempted measures to promote safer driving and improve compliance with traffic laws. As a condition of use, both Illinois law and the Illinois Department of Transportation require periodic statistical analyses / evaluations be conducted.

Specifically, the Illinois Compiled Statutes, 625 ILCS 5/11-208.6 Automated Traffic Law Enforcement System states:

(k-7) A municipality or county operating an automated traffic law enforcement system shall conduct a statistical analysis to assess the safety impact of each automated traffic law enforcement system at an intersection following installation of the system. The statistical analysis shall be based upon the best available crash traffic and other date, and shall cover a period of time before and after installation of the system sufficient to provide a statistically valid comparison of safety impact. The statistical analysis shall be consistent with professional judgment and acceptable industry practice. The statistical analysis also shall be consistent with the data required for valid comparisons of before and after conditions and shall be conducted within a reasonable period following the installation of the automated traffic law enforcement system. The statistical analysis required by this subsection (k-7) shall be made available to the public and shall be published on the website of the municipality or county. If the statistical analysis for the 36-month period following installation of the system indicates that there has been an increase in the rate of accidents at the approach to the intersection monitored by the system, the municipality or county shall undertake additional studies to determine the cause and severity of the accidents, and may take any action that it determines is necessary or appropriate to reduce the number or severity of the accidents at that intersection.

The Illinois Department of Transportation Safety Engineering Policy Memorandum, Safety 2-13, Automated Traffic Law Enforcement Systems: Red Light Running (RLR) Camera Enforcement Systems and Automated Railroad Grade Crossing (RGC) Enforcement Systems states:

Follow Up Evaluation
An Evaluation Report shall be prepared by the Permit Applicant one year after the installation and shall be prepared every three years thereafter. The Evaluation Report shall include the following:

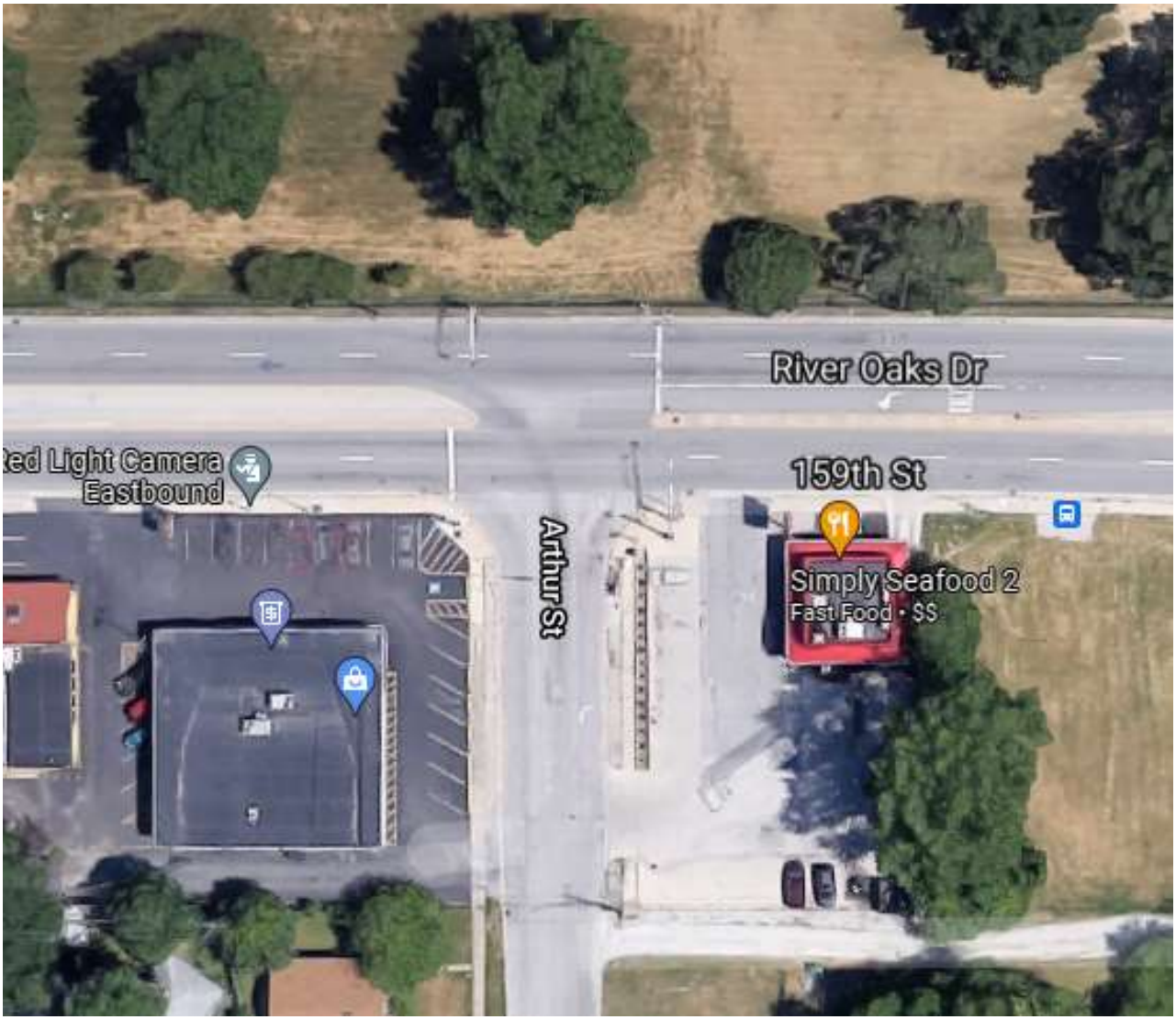
- *Intersection location(s);*
- *Date of implementation;*
- *RLR Camera System manufacturer and contractor name;*
- *Crash data specific to RLR location(s) for the three (3) year period prior to and for the period post RLR Camera installation;*
- *An analysis of the crash data, including a summary of any increase in crash types;*
- *Signal timing and other settings before and after RLR Camera installation;*
- *Traffic volumes before and after RLR Camera System installation; and,*
- *Summary of adjudication experience and results.*

The following statistical analysis and evaluation was performed through 2020.

Calendar year 2021 was not included, as the Illinois Department of Transportation (IDOT) has not yet completed collecting all data. The statistical analysis will be updated annually, as IDOT collected data becomes available for release.

River Oaks Dr./159th St. (US 6) & Arthur Street
Calumet City, IL

- RLR Photo Enforcement System monitors violations occurring on the eastbound and westbound approaches of the intersection
- RLR Photo Enforcement System installed: January 15, 2011
- Traffic signal timing strictly adheres to the guidelines for timing of clearances established by the Illinois Department of Transportation (IDOT), in accordance with the MUTCD standards. Neither the Vendor nor the City has access to or influence over the establishment of signal timings. Both entities understand that tampering with these timings would be a safety violation with significant consequences.



River Oaks Dr./159th St. (US 6) & Arthur St. - Northbound Approach

River Oaks Dr./159th St. (US 6) & Arthur St. - Eastbound Approach

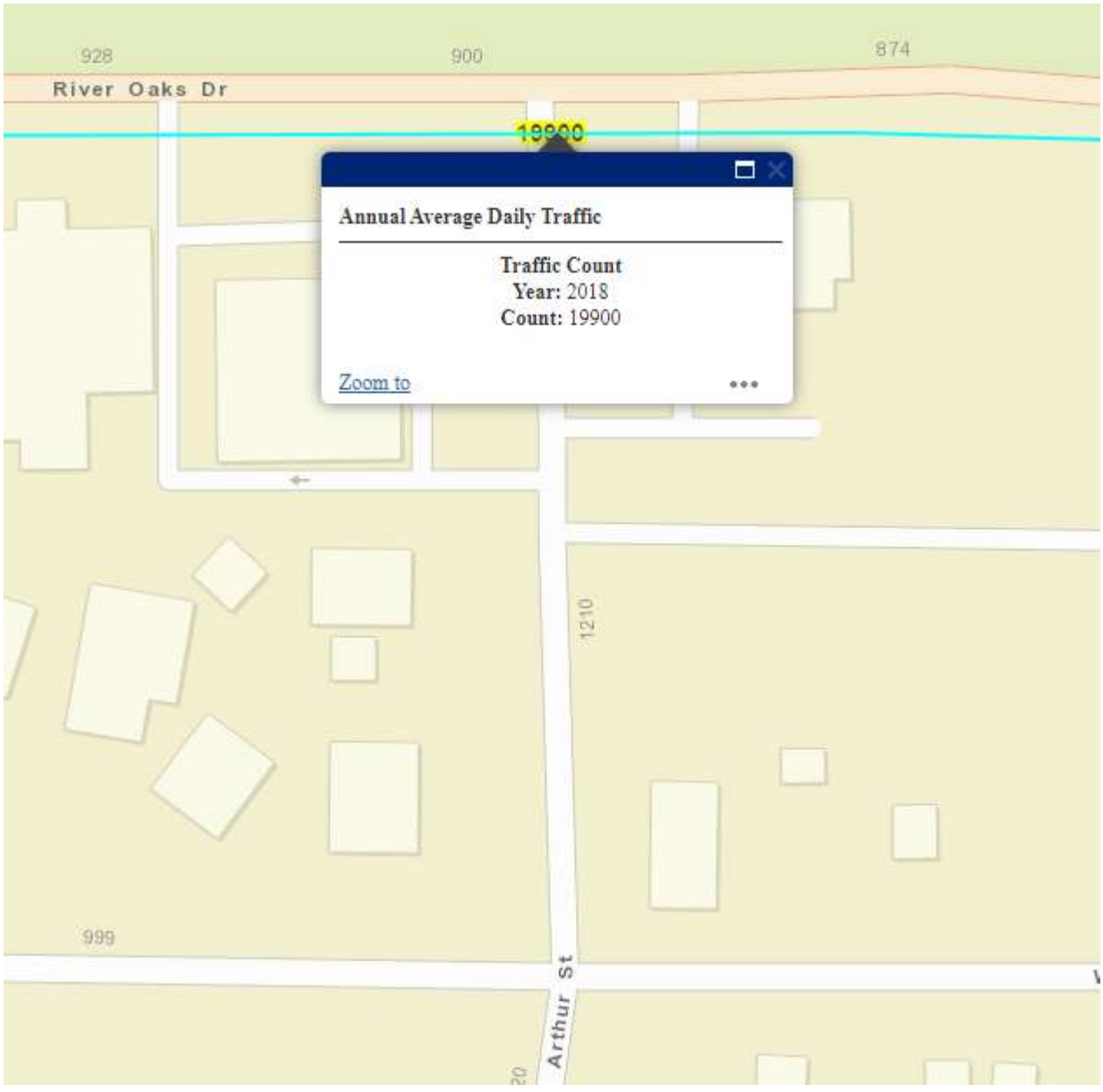
River Oaks Dr./159th St. (US 6) & Arthur St. - Westbound Approach

Average Daily Traffic

Data was obtained from the Illinois Department of Transportation's website www.gettingaroundillinois.com.

River Oaks Dr./159th St. (US 6) & Arthur St. (Eastbound/Westbound)

- 19,900 (2018)



Adjudication Experience

RLR camera violations are contested and adjudicated through an administrative hearing conducted each month. Adjudication data for the City's Automated Enforcement Program is shown below in Table 1.

CITY OF CALUMET CITY ADJUDICATION FOR AUTOMATED PHOTO ENFORCEMENT PROGRAM*		
YEAR /TOTALS	**LIABLE**	**NOT LIABLE**
2011	147	14
2012	187	8
2013	531	52
2014	215	29
2015	166	44
2016	391	113
2017	187	45
2018	206	44
2019	105	25
2020	91	27
2021	65	36
2022**	9	4
TOTAL:	**2,300**	**441**

**Adjudication totals include contested violations for entire program (all RLR cameras).*
***Adjudication totals through January 2022*

Table 1

The high-quality video footage and photographic evidence produced by the enforcement system is a contributing factor in a majority of the contested RLR violations being upheld by the Hearing Officer. The police officers assigned to review and approve/reject potential violations are vigilant in applying the same officer discretion and criteria they would if issuing an in-person citation, resulting in only highly prosecutable violations being mailed out.

Crash History and Analysis

- Table 2 includes crash data obtained from the Illinois Department of Transportation, detailing angle, turning, rear-end, and other type crashes occurring at the intersection pre/post RLR Photo Enforcement System installation.

ALL INTERSECTION APPROACHES

	Crashes								
	Rear-End (% of Total)		Angle (% of Total)		Turning (% of Total)		Other (% of Total)		Total
2008	1	33.3%	0	0.0%	2	66.7%	0	0.0%	3
2009	2	66.7%	0	0.0%	1	33.3%	0	0.0%	3
2010	4	100.0%	0	0.0%	0	0.0%	0	0.0%	4
Total:	7	70.0%	0	0.0%	3	30.0%	0	0.0%	10
2008-2010 Avg:	2.3		0.0		1.0		0.0		3.3
RLR Camera Installation 01/15/2011									
2011	1	50.0%	0	0.0%	0	0.0%	1	50.0%	2
2012	3	100.0%	0	0.0%	0	0.0%	0	0.0%	3
2013	1	50.0%	0	0.0%	0	0.0%	1	50.0%	2
2014	2	50.0%	0	0.0%	2	50.0%	0	0.0%	4
2015	1	50.0%	0	0.0%	0	0.0%	1	50.0%	2
2016	1	100.0%	0	0.0%	0	0.0%	0	0.0%	1
2017	0	0.0%	0	0.0%	0	0.0%	1	100.0%	1
2018	2	66.7%	0	0.0%	1	33.3%	0	0.0%	3
2019	1	25.0%	0	0.0%	3	75.0%	0	0.0%	4
2020	2	66.7%	1	33.3%	0	0.0%	0	0.0%	3
Total:	13	56.5%	1	4.3%	6	26.1%	3	13.0%	23
2012-2020 Avg:	1.4		0.1		0.7		0.3		2.5

- Other indicates the following: Pedestrian, Pedal Cyclist, Fixed Object, Sideswipe, Head-On and Unknown

Table 2

DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation, based upon information derived from multiple sources. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s). Additionally, for coding years 2015 to present, the Bureau of Data Collection uses the exact latitude/longitude supplied by the investigating law enforcement agency to locate crashes. Therefore, location data may vary in prior years, since the data prior to 2015 was physically located by bureau personnel. Given the subjective nature of the reporting process, the modifications in the incident locating protocols and the changes to the crash reporting thresholds effective 2009, the City of Calumet City acknowledges the potential for discrepancies in the final conclusions drawn.

Crash History and Analysis (continued)

- Table 3 includes crash data obtained from the Illinois Department of Transportation, detailing angle, turning, rear-end, and other-type crashes occurring at the intersection on the eastbound and westbound approaches only, pre/post RLR Photo Enforcement System installation.

EASTBOUND AND WESTBOUND APPROACHES ONLY
(PHOTO ENFORCED APPROACHES)

	Crashes								
	Rear-End (% of Total)		Angle (% of Total)		Turning (% of Total)		Other (% of Total)		Total
2008	1	50.0%	0	0.0%	1	50.0%	0	0.0%	2
2009	2	66.7%	0	0.0%	1	33.3%	0	0.0%	3
2010	4	100.0%	0	0.0%	0	0.0%	0	0.0%	4
Total:	7	77.8%	0	0.0%	2	22.2%	0	0.0%	9
2008-2010 Avg:	2.3		0.0		0.7		0.0		3.0
RLR Camera Installation 01/15/2011									
2011	1	50.0%	0	0.0%	0	0.0%	1	50.0%	2
2012	3	100.0%	0	0.0%	0	0.0%	0	0.0%	3
2013	1	50.0%	0	0.0%	0	0.0%	1	50.0%	2
2014	2	50.0%	0	0.0%	2	50.0%	0	0.0%	4
2015	1	50.0%	0	0.0%	0	0.0%	1	50.0%	2
2016	1	100.0%	0	0.0%	0	0.0%	0	0.0%	1
2017	0	0.0%	0	0.0%	0	0.0%	0	0.0%	0
2018	2	66.7%	0	0.0%	1	33.3%	0	0.0%	3
2019	1	25.0%	0	0.0%	3	75.0%	0	0.0%	4
2020	2	66.7%	1	33.3%	0	0.0%	0	0.0%	3
Total:	13	59.1%	1	4.5%	6	27.3%	2	9.1%	22
2012-2020 Avg:	1.4		0.1		0.7		0.2		2.4

- Other indicates the following: Pedestrian, Pedal Cyclist, Fixed Object, Sideswipe, Head-On and Unknown

Table 3

DISCLAIMER: The motor vehicle crash data referenced herein was provided by the Illinois Department of Transportation, based upon information derived from multiple sources. Any conclusions drawn from analysis of the aforementioned data are the sole responsibility of the data recipient(s). Additionally, for coding years 2015 to present, the Bureau of Data Collection uses the exact latitude/longitude supplied by the investigating law enforcement agency to locate crashes. Therefore, location data may vary in prior years, since the data prior to 2015 was physically located by bureau personnel. Given the subjective nature of the reporting process, the modifications in the incident locating protocols and the changes to the crash reporting thresholds effective 2009, the City of Calumet City acknowledges the potential for discrepancies in the final conclusions drawn.

Comparison of annual averages displays a 24.2% decrease in the total number of crashes at the intersection for all approaches and a 20.0% decrease on the eastbound/westbound (photo enforced) approaches post-camera installation.

The US Department of Transportation Project Development and Design Manual states that turning, angle or head-on crashes have a number of probable crash causes, to include:

- Large volumes of left /right turns
- Large total intersection volume
- Excessive speed on approaches
- Inadequate traffic control devices
- Poor visibility of signals

A red-light camera does not have the capability of directly influencing the volume of cars traveling through an intersection, vehicle speed, or the proximity of cars following one another. That is entirely at the discretion of the driver. Red-light cameras can however improve driver compliance with traffic control devices simply by their presence, along with warning signs indicating cameras are in use. They do in fact have the capability to "change driver behavior".

Analysis of all available data indicates the City of Calumet City's RLR Photo Enforcement Program has done just that – changed driver behavior – and has made a significant positive impact on traffic safety. The City feels strongly that continued use of automated enforcement, along with monitoring traffic crash data is necessary to ensure the highest level of traffic safety is achieved.