Village of Olympia Fields
Red Light Running Camera System Follow-up Evaluation Report for Years 2011, 2015, 2016
Intersection of Lincoln Highway (US 30) at Orchard Drive (Westbound approach)

Overview

The Village of Olympia Fields (here in after referred to as the "Village") is submitting the follow-up RLRC Safety Report for the years 2011, 2015, and 2016 for the intersection of Lincoln Highway (US 30) at Orchard Drive. Additional reports, as required by Illinois Department of Transportation (IDOT), will be submitted every 3 years.

The Red Light Running Camera System was installed on August 31, 2009 by Redflex Traffic Systems after the Olympia Fields Police Department found limited success with other attempted measures to promote safer driving. Those measures included daily, random enforcement actions taken by Olympia Fields Police Officers. The Village installed Red Light Running Camera Enforcement System at this location due to on-going poor driving behavior and due to the accident history at this location. Roadway construction for Northbound Orchard Drive caused camera downtime from 5/14/2012 to 2/24/2014.

The existing system is currently enforcing the westbound direction. This intersection is located approximately three miles east of Interstate 57 and three quarters of a mile west of Western Avenue.

Updated pictures of the intersection are shown in **Exhibits 1 thru 4**, and the aerial photo provided by Google Maps is shown in **Exhibit 5**.

- **Exhibit 1** is Westbound Lincoln Highway (US 30)
- **Exhibit 2** is Eastbound Lincoln Highway (US 30)
- **Exhibit 3** is Southbound Orchard Drive
- **Exhibit 4** is Northbound Orchard Drive

The area adjacent to the intersection is residential with private home developments on three of the four quadrants:

1. Northwest - Olympia Fields housing development
2. Northeast - Olympia Fields housing development
3. Southwest - Park Forest housing development
4. Southeast - Calvary United Protestant Church with access drive on Orchard Drive

Park and Churches are located within one block, north and south, of the intersection. Commercial areas (Retail, Medical, Business, and Restaurants) are within one-half mile east and west of Orchard Drive. The Metra Station is one-half mile away, to the west, with parking lots on the north and south sides of Lincoln Highway. There are parallel sidewalks on the north and south sides along Lincoln Highway.

Lincoln Highway Westbound approach at Orchard Drive - Exhibit 1

Lincoln Highway Eastbound approach at Orchard Drive - Exhibit 2

Orchard Drive Southbound approach at Lincoln Highway - Exhibit 3

Lincoln Highway Northbound approach at Orchard Drive - Exhibit 4

Lincoln Highway (US 30) at Orchard Drive - Exhibit 5

Red Light Running (RLR) Camera Enforcement Systems

In accordance with Public Act 94-0795 the Village has entered into a contract with a vendor, Redflex Traffic Systems. The technology installed by Redflex Traffic Systems allowed us to differentiate between actual red light violations and false triggers. False triggers include vehicles stopping after the white stop line, funeral processions, emergency vehicles, drivers yielding to emergency vehicles, drivers making

Legal turns on red after coming to a complete stop and drivers being directed through the intersection by an authorized person directing traffic. The package from Redflex includes three still images of the violator's vehicle and a 12 second video of the violation. The digital images will clearly show the traffic signal heads and the vehicle behind the stop line at the point the driver triggered the enforcement system. Furthermore the attached video will provide definitive proof of the traffic signal sequence with 6 seconds of video both before and after the violation. This will allow reviewing officers a detailed account of the violation and assist them to determine actual violations from false triggers.

Lincoln Highway (US 30) at Orchard Drive Crash Analysis and History

Lincoln Highway state road connecting several different villages. Orchard is a local collector serving the nearby neighborhoods. Crash data, including 3 years prior to the Red Light Running camera system installation, has been attached to the report detailing driving behavior at the intersection.

Crash data for the intersection prior to and following the installation of the camera systems are shown in the below table. Please see attached Safety Report, at the end of this report.

	Village of Olympia Fields Crash Data 2005-2007 vs 2011, 2015 and 2016					
Lincoln Highway (US 30) at Orchard Drive						
	Type of Crash					
Year	Turning	Sideswipe	Head On	Rear End	Other	**Total**
2005*	4	0	0	0	13	17
2006*	1	0	0	0	13	14
2007*	0	0	0	0	11	11
2011	2	0	0	9	1	12
2015	5	0	0	6	2	13
2016	8	0	0	5	0	13
Total	20	0	0	20	40	80

*Data from initial RLC Proposal 9/3/2008.

Table 1 – Crash Data Before and After Camera Installation

The U.S. Department of Transportation Project Development and Design Manual states that turning and angled crashes at an intersection have a number of probable crash causes. The most likely causes for these types of crashes include the following:

- Large volumes of traffic turning left and/or right
- Large total volume at the intersection
- Excessive speed at approaches
- Inadequate traffic control devices
- Poor visibility of signals

While red light cameras can neither decrease the volume of vehicles entering the intersection, nor the amount of turning traffic, traffic volumes are considered during the initial Justification Report analysis. The remaining crash causes can be addressed with the implementation of red light cameras. First, signage stating that the intersection is red light photo enforced is placed ahead of the signalized intersection in an effort to decrease excessive speeding and increase awareness while traveling on the enforced approach. Finally, 12 inch LED signals are installed at every photo enforced intersection to help increase visibility of the traffic signal heads.

Intersection Operations

There were no signal timing changes after the Red Light Running Camera System was installed. Prior to the construction, traffic signal heads were not 12 inch Light Emitting Diode (LED) signal heads. As part of the construction process the LED signal heads were installed. The 2009 Average Daily Traffic (ADT) on Lincoln Highway was approximately 37,500 Vehicles per Day (VPD) during the year the camera system was installed. After the installation of the camera system, the 2011 ADT was 28,900VPD while it was at 27,200 VPD in 2013. The ADT was 31,200 VPD along Lincoln Highway in 2015 and increased to 34,700 VPD in the year 2017. The ADT along Orchard Dr is 8,050 VPD. The ADT information was obtained from www.gettingaroundillinois.com.

Recommendations

Redflex Traffic Systems and the Village of Olympia Fields are both satisfied with the functionality of the camera equipment and the accuracy of the violations being issued. Since the inception of the camera installation, the data from Table 1 shows that intersection crashes have decreased by an average 10%. This number was found by taking the average number of crashes, 3 years before the camera activation and then comparing it to the average of crashes in the years 2011, 2015, and 2016 after the activation of the system.

Based on the typical causes of crashes, turning volumes are typically addressed with geometric changes which may include extending turn-lane storage lengths to allow for longer queues thereby decreasing the amount of thru lane blockage, and possibly also decreasing the chance of a rear end collision caused by drivers not expecting the through lanes to come to a stop while waiting to make a turn.

Crashes are most likely caused by a large influx of volume leading to a decreased level of service at the intersection thus increasing delay and increasing the motorist's frustration which may lead to a driver taking an unnecessary and aggressive risk to clear the intersection against the red signal.

Additional monitoring by the Village of Olympia Fields and an increase in speed enforcement along busy corridors can decrease corridor and intersection speeds throughout the Village.

The last two crash causes, inadequate traffic control devices and poor visibility of signals, do not seem to be a factor in crashes due to the high visibility of the LED signal heads installed and the additional signage prior to and at the intersection.