

# TRAFFIC UNIT

**DATE:** June 29, 2016

**To:** Paul S. Shafer, Chief of Police

**FROM:** Chris O'Neill, Traffic Sergeant

**SUBJECT:** 2016 Red Light Camera Follow-Up Evaluation Report

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## Overview

The City of Highland Park is submitting a Follow-Up Evaluation Report for the intersection of U.S. Route 41 and Park Avenue West. Additional reports from this point on, as required by the Illinois Department of Transportation (IDOT), will be submitted every three (3) years hereafter. The first Red Light Camera Follow-Up Evaluation Report was submitted on May 2, 2013.

The Red Light Running Camera (RLR) System was installed on June 30, 2010 by Redflex Traffic Systems (Manufacturer) and City Lights, LTD (Contractor), after finding limited success with other attempted measures to promote safer driving and improve compliance with traffic laws.

The enforcement site is the westbound approach on Park Avenue West at Route 41 and southbound U.S. Route 41 at Park Avenue West at the intersection.

Prior actions taken to promote traffic safety at the intersection included a no turn on red restriction for both eastbound and westbound Park Avenue West traffic at U.S. Route 41, reduced speed limits on U.S. Route 41 south bound north of Park Ave West (50 mph) and north bound (40 mph) south of Park Avenue West, rumble strips built into the pavement on northbound U.S. Route 41 south of Park Avenue West, stop light pre-warning signs/signals, reflective border inserts on U.S. Route 41 traffic signals, overhead streetlights for intersection illumination and directed & random traffic enforcement activities by the Highland Park Police Department. The City of Highland Park elected to install photo enforcement at the intersection due to on-going poor driving behavior which included crash volumes and red light violations.

Pictures of the intersection are shown in **Exhibits 1-2**, and an aerial photo courtesy of Google Maps is shown in **Exhibit 3**:

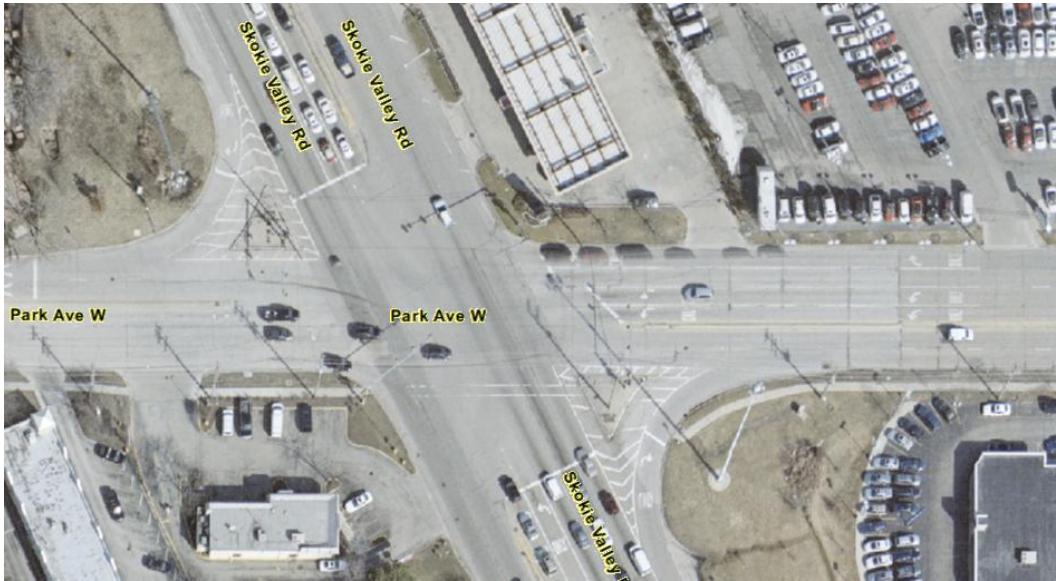
**Exhibit 1**  
**Westbound Park Avenue West at U.S. Route 41**



**Exhibit 2**  
**Southbound U.S. Route 41 at Park Avenue West**



**Exhibit 3**  
**U.S Route 41 and Park Avenue West Intersection**



**Red Light Running (RLR) Camera Enforcement Systems**

In accordance with Public Act 94-0795 the City of Highland Park entered into a contract with Redflex Traffic Systems. The technology deployed by Redflex Traffic Systems allows the City of Highland Park to differentiate between red light violations and false triggers. False triggers include vehicles stopping slightly beyond the stop bar (screeching stop), funeral processions, emergency vehicles, drivers yielding to emergency vehicles or extreme weather conditions. The evidence package from each violation incident includes three (3) still digital images and a twelve (12) second video. The digital images clearly show the traffic signal heads (active phase) and the vehicle behind the stop bar at the point the driver triggered the photo enforcement system. Furthermore, the attached video, six (6) seconds prior and six (6) seconds after the triggering of the RLR system, provides definitive proof of sequence, thus allowing trained sworn personnel involved with the review process to distinguish red light violations from false triggers.

**U.S. Route 41 and Park Avenue West  
Southbound and Westbound approaches**

- There were no traffic signal timing changes before or after the RLR camera system was installed
- At the time of system installation, 12" Light-emitting diode (LED) traffic signal heads were already in place

U.S. Route 41 serves as an expressway for traffic traveling to and passing through the City of Highland Park. Park Avenue West serves as an arterial street for traffic traveling in and through the City of Highland Park.

## Crash History and Analysis

Staff has tracked available overall reported crash data for the intersection of U.S. Route 41 and Park Avenue West both prior to and since the implementation of the RLR camera system (Exhibit 4). Staff also conducted a further analysis of the available reported crash data to determine if there has been an increase or decrease in reported crashes specific to automated RLR camera system approaches (Exhibit 5).

**Exhibit 4**

YEAR	INTERSECTION	TOTAL # OF ACCIDENTS	# OF INJURY ACCIDENTS	PRIMARY CAUSE(S)	ENFORCEMENT
Prior to Installation of Red Light Running Camera System					
2008	U.S. Route 41 & Park Ave West	64	7	Speed/ILU/TCD/ ROW/DUI/	*1494
2009	U.S. Route 41 & Park Ave West	62	6	Speed/FTC/DUI/TCD/	*642
Following Installation of Red Light Running Camera System					
*2010	U.S. Route 41 & Park Ave West	60	4	Speed/ILU/FTC/TCD/DUI/	*679
2011	U.S. Route 41 & Park Ave West	46	6	Speed/ILU/FTC/DD/	*734
2012	U.S. Route 41 & Park Ave West	64	10	Speed/FTC/ROW/DUI/DD/	*1093
2013	U.S. Route 41 & Park Ave West	67	10	Speed/FTC/DD/ROW/DUI/	*969
2014	U.S. Route 41 & Park Ave West	57	6	Speed/FTC/DD/ROW/DUI	*813
2015	U.S. Route 41 & Park Ave West	60	11	Speed/FTC/DD/DUI/TCD	*701

\* Enforcement listed indicates traditional enforcement activities conducted by police officers conducting traffic stops.

\* The RLR system was installed on June 30, 2010. A two-week warning period was conducted from June 30, 2010 through July 13, 2010. See Exhibit 5 for red light camera citation history data for each respective year.

**Exhibit 5**

Month	RLC Citations	Reported Crashes on Red Light Enforcement Approaches	
		Injury	Non-Injury
July-10	718	0	3
August-10	962	0	3
September-10	968	0	2
October-10	907	0	2
November-10	732	0	3
December-10	777	0	1
<b>2010 Totals</b>	<b>5064</b>	<b>0</b>	<b>14</b>

## Crash History and Analysis (continued)

Exhibit 5 (Continued)

Month	Citations	Reported Crashes on Red Light Enforcement Approaches	
		Injury	Non-Injury
January-11	746	0	1
February-11	647	0	2
March-11	795	0	4
April-11	789	0	1
May-11	1034	0	2
June-11	1027	0	0
July-11	*213	0	0
August-11	*0	0	4
September-11	*0	0	2
October-11	*0	0	1
November-11	*24	0	2
December-11	*144	0	2
<b>2011 Totals</b>	<b>5419</b>	<b>0</b>	<b>21</b>

\*On July 11, 2011 the City of Highland Park experienced a severe weather event which caused power failures at the intersection of U.S. Route 41 and Park Avenue West. The power failures compromised the amber light timing at the intersection which resulted in the RLC system being shut down.

\* From July 18, 2011 through November 22, 2011, the RLC system remained shut-down due to construction on the I-PASSAGE System on U.S. Route 41. Provisions with the IDOT red light camera permit require that the system be shut-down in the event of construction.

\*On December 13, 2011 Redflex reported that sensors for the red light camera approaches had reached their service life expectancy. As a result, periodic shut-downs were experienced on different approaches until such time that all affected sensors could be replaced on February 2, 2012.

### Infrastructure Improvements

On December 13, 2011 the Department of Public Works installed "No Turn on Red Ahead" pre-warning signs on Park Avenue West on both the west bound and south bound approach prior to the intersection, to further warn motorists of the no turn on red restriction onto Route 41 at the intersection.

## Crash History and Analysis (continued)

Exhibit 5 (Continued)

Month	RLC Citations	Reported Crashes on Red Light Enforcement Approaches	
		Injury	Non-Injury
January-12	*103	0	3
February-12	747	0	4
March-12	*727	1	1
April-12	*240	0	0
May-12	900	0	2
June-12	*730	0	4
July-12	*0	1	6
August-12	*0	1	4
September-12	*372	1	0
October-12	818	0	3
November-12	769	1	2
December-12	738	0	0
<b>2012 Totals</b>	<b>6144</b>	<b>5</b>	<b>29</b>

\*On March 27, 2012 the IDOT deactivated power to the red light cameras at Route 41 and Park Avenue West to allow a contractor to conduct improvements on the traffic controller cabinet at that location. Red light camera system reactivation occurred on April 18, 2012.

\*On June 23, 2012 the IDOT deactivated power to the red light cameras at Route 41 and Park Avenue West to allow a contractor to continue construction improvements on infrastructure at that location. The red light cameras were re-activated on September 7, 2012. Upon re-activation of the red light cameras, it was determined that the south bound U.S. Route 41 sensors were failing and in need of replacement. Full re-activation was completed on September 14, 2012.

**Exhibit 5 (Continued) 2013 to 2015 Time Period**

Month	RLC Citations	Reported Crashes on Red Light Enforcement Approaches	
		Injury	Non-Injury
January-13	671	1	1
February-13	620	0	2
March-13	764	1	4
April-13	649	0	1
May-13	842	0	2
June-13	739	1	3
July-13	513*	1	2
August-13	787	0	1
September-13	577	1	1
October-13	435*	0	2
November-13	158*	0	5
December-13	563	0	2
<b>2013 Totals</b>	<b>7318</b>	<b>5</b>	<b>26</b>

On July 9, 2013 through July 12, 2013 it was discovered that the red light camera housing for the west bound Park Avenue right turn approach was out of alignment. This caused the “No Turn on Red” sign which is posted at the north east corner of U.S. Route 41 @ Park Avenue West to be out of camera view in the red light camera violation photographs and video. Redflex was contacted to resolve the matter. While the matter was being corrected, Redflex did not forward any red light camera violations for any approaches to the Police Department for July 13<sup>th</sup> or 14, 2013. Redflex reset the affected red light camera housing and on July 15, 2013 the Police Department resumed reviewing and approving right turn on red, red light camera violations.

On July 19<sup>th</sup>, 2013 Police Department staff observed that the red light camera housing for the west bound Park Avenue right turn approach was again out of alignment. Redflex was contacted and review and approval of right turn on red violations on west bound Park Avenue West at Route 41 was suspended. On July 25, 2013 Redflex had re-aligned the red light camera housing back on-line and the Police Department resumed reviewing and approving right turn on red violations for the west bound Park Avenue West at U.S Route 41. Redflex did not send the Police Department any red light camera violations on July 24, 2013.

After consultation with Corporation Council, it was determined that a total of 96 right turn on red violations would not be approved or prosecuted due to the no turn on red sign being out of camera photograph and video view. Redflex was advised and asked to consider crediting the City for the 96 red light camera right turn on red violations that the City elected not to approve and prosecute. On July 30, 2013 Police Department staff and Redflex staff reviewed the matter and Reflex agreed to provide credits for July, 9, 10, 11, 12, 13, 14 and 24, 2013 which was reflected on the July 2013 monthly invoice.

On October 28, 2013 the Illinois Department of Transportation (IDOT) began a resurfacing project at the intersection of U.S. Route 41 and Park Avenue West that was scheduled to be completed on October 29, 2013. The entire intersection surface, including the stop-bars was grinded, re-surfaced and re-striped. Due to the IDOT construction at the intersection, the red light cameras were de-activated on October 28, 2013 at 6:00 a.m.. IDOT approved the re-activation of the red light cameras on Friday, November 22, 2013. The westbound Park Avenue West approach was re-activated on November 22, 2013.

Redflex replaced the sensors for the southbound U.S. Route 41 approach at Park Avenue West on December 2, 2013. Redflex agreed to provide a credit to the City for the time the red light cameras were turned off due to the IDOT resurfacing construction.

**Exhibit 5 (Continued) 2013 to 2015 Time Period**

Month	RLC Citations	Reported Crashes on Red Light Enforcement Approaches	
		Injury	Non-Injury
January-14	411	0	4
February-14	362	0	3
March-14	498	0	3
April-14	586	0	4
May-14	698	0	2
June-14	806	0	1
July-14	793	0	4
August-14	798	1	1
September-14	606	0	6
October-14	607	2	5
November-14	521	1	2
December-14	560	0	3
<b>2014 Totals</b>	<b>7246</b>	<b>4</b>	<b>38</b>

**Exhibit 5 (Continued) 2013 to 2015 Time Period**

Month	RLC Citations	Reported Crashes on Red Light Enforcement Approaches	
		Injury	Non-Injury
January-15	542	0	3
February-15	222*	0	1
March-15	455	0	1
April-15	615	0	5
May-15	718	1	3
June-15	842	1	2
July-15	899	0	2
August-15	761	0	6
September-15	740	0	1
October-15	522	0	3
November-15	446	0	2
December-15	488	0	1
<b>2015 Totals</b>	<b>7028</b>	<b>2</b>	<b>30</b>



On February 5, 2015 Redflex reported that the westbound Park Avenue West right turn lane sensor failed. Redflex worked with their maintenance vendor and IDOT to obtain a permit to conduct maintenance. The sensor was replaced and operational on February 24, 2015. As a result, there was a substantial de-crease in right turn on red detections and violations from February 5, 2015 to February 24, 2015. New sensors were obtained and installed during the month of February.

During the first week of October 2015, IDOT replaced the “No Turn on Red” sign for the west bound Park Avenue West approach at U.S. Route 41 with a larger sign which measures 4 feet tall by 3 feet wide. The other “No Turn on Red” signs at the intersection remained the same size.

### **Yearly Red Light Camera Citation Totals**

	<b><u>Violations</u></b>
<b>2010</b>	<b>5064*</b>
<b>2011</b>	<b>5419</b>
<b>2012</b>	<b>6144</b>
<b>2013</b>	<b>7318</b>
<b>2014</b>	<b>7246</b>
<b>2015</b>	<b>7028</b>
<b>2016</b>	<b>Pending</b>

\*Red light cameras became operational on June 30, 2010. Violation data for 2010 is for July 15 through December.

Red light and no turn on red violations continue to occur on camera covered approaches at a high rate each year. This continues to occur despite on-going traditional traffic enforcement (involving marked police vehicles), the established red light camera system and the required posted “Red Light Photo Enforced Signs” (4) in place on camera covered approaches.

### **Crash History and Analysis (Continued)**

As shown in Exhibit 4 crash totals at the intersection of U.S. Route 41 and Park Avenue West have remained fairly consistent over the years 2008-2015. Overall traffic crashes reduced 23% in 2011 when compared to 2010 traffic crashes despite red light camera system shut-downs.

As indicated in Exhibit 5, injury crash totals remained at zero for red light camera approaches from July of 2010 and during the entire 2011 year. However, in 2012 injury crash totals for red light camera approaches totaled five. These reported injury crashes primarily occurred in the south bound U.S. Route 41 approach where the speed limit is 50 mph. Injury crashes also occurred in the north bound approach to U.S. Route 41 south of Park Avenue West, an area not enforced by red light cameras. As indicated in Exhibit 5, injury crashes in red light camera covered approaches were reduced in 2013 (5), 2014 (4) and 2015 (2). Yearly non-injury crashes in red light camera covered approaches remain fairly consistent since 2011 (21), 2012 (29), 2013 (26), 2014 (38), 2015 (30). The increase in 2014 (38) may be attributed to increased traffic volume at the intersection and severe winter weather conditions during first quarter 2014.

The majority of crashes at the intersection of U.S. Route 41 and Park Avenue West are primarily caused by a failure to reduce speed, improper lane usage, following too closely and right-of-way violations. U.S. Route 41 continues to experience a very high volume of vehicle and truck traffic each year which contributes to crash potential and traffic volume. No fatal crashes have occurred at or near the intersection during the last six years.

The U.S. Department of Transportation Project Development and Design Manual indicate that turning, angle or head-on crashes have a number of probable crash causes. Probable causes of these types of crashes include the following:

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

While red light cameras cannot truly decrease the volume of vehicles entering the intersection, nor the amount of turning traffic, traffic volume and compliance with traffic control devices should be considered. The remaining crash causes can be addressed by the implementation of red light cameras. Signage stating that the intersection is red light photo enforced is placed before the signalized intersection in an effort to decrease excessive speeding, obtain compliance with traffic control devices and increase awareness while traveling on the enforced approach.

In addition to the pre-existing “No Turn on Red” signs on Park Avenue West for the west and east approach at U.S. Route 41, the City of Highland Park posted an additional “No Turn on Red Ahead” pre-warning sign on Park Avenue West for both approaches prior to the intersection of U.S. Route 41 and Park Avenue West in an effort to improve compliance with the right turn on red restriction.

Also note that 12” LED signals with a reflective border were installed at the intersection of U.S. Route 41 and Park Avenue West to increase awareness and visibility of the traffic signal. The red light camera system is augmented by traditional law enforcement traffic enforcement efforts.

## Adjudication Experience

Disputed red light camera violations are adjudicated through an administrative hearing which is conducted Highland Park City Hall each month. Red light camera adjudication data for the intersection of U.S. Route 41 and Park Avenue West for 2010, 2011 and 2012 is shown in Exhibit 6.

Exhibit 6

<b>CITY OF HIGHLAND PARK ADJUDICATION FOR RED LIGHT CAMERA ROUTE 41 AND PARK AVE</b>		
<b>MONTH TOTALS</b>	<b>LIABLE</b>	<b>NOT LIABLE</b>
JULY	23	2
AUGUST	37	-
SEPTEMBER	41	2
OCTOBER	37	-
NOVEMBER	19	-
DECEMBER	25	-
<b>2010 TOTAL</b>	<b>182</b>	<b>4</b>
JANUARY	31	-
FEBUARY	19	-
MARCH	20	-
APRIL	31	1
MAY	25	1
JUNE	51	-
JULY	13	1
AUGUST	0	-
SEPTEMBER	0	-
OCTOBER	0	-
NOVEMBER	1	-
DECEMBER	7	-
<b>2011 TOTAL</b>	<b>198</b>	<b>3</b>
JANUARY	3	-
FEBUARY	18	2
MARCH	34	-
APRIL	8	-
MAY	39	-
JUNE	24	-
JULY	0	-
AUGUST	0	-
SEPTEMBER	12	-
OCTOBER	29	-
NOVEMBER	22	-
DECEMBER	13	-
<b>2012 TOTAL</b>	<b>202</b>	<b>2</b>
<b>PROGRAM TOTALS</b>	<b>621</b>	<b>9</b>

Exhibit 6 shows that the majority of red light camera photo enforcement hearings, 98.6% in 2010, 2011 and 2012 were found liable. Video and photographs of red light violations have proven to provide compelling evidence of violations. The review process by trained sworn staff appears to be highly efficient.

Red light camera adjudication data for the intersection of U.S. Route 41 and Park Avenue West for 2013, 2014 and 2015 is shown on the following page in Exhibit 7.

**Exhibit 7**

<b>CITY OF HIGHLAND PARK ADJUDICATION FOR RED LIGHT CAMERA ROUTE 41 AND PARK AVE</b>		
<b>CITY OF HIGHLAND PARK ADJUDICATION FOR</b>		
<b>MONTH TOTALS</b>	<b>LIABLE</b>	<b>NOT LIABLE</b>
JANUARY	14	-
FEBUARY	29	-
MARCH	20	-
APRIL	13	-
MAY	14	-
JUNE	28	-
JULY	14	-
AUGUST	27	-
SEPTEMBER	25	1
OCTOBER	21	-
NOVEMBER	20	-
DECEMBER	10	-
<b>2013 TOTAL</b>	<b>235</b>	<b>1</b>
JANUARY	14	-
FEBUARY	16	-
MARCH	25	-
APRIL	23	-
MAY	12	1
JUNE	25	1
JULY	12	-
AUGUST	18	-
SEPTEMBER	42	-
OCTOBER	17	1
NOVEMBER	18	-
DECEMBER	9	-
<b>2014 TOTAL</b>	<b>231</b>	<b>3</b>
JANUARY	19	-
FEBUARY	14	-
MARCH	23	-
APRIL	30	2
MAY	12	-
JUNE	18	-
JULY	28	-
AUGUST	50	2
SEPTEMBER	42	1
OCTOBER	16	-
NOVEMBER	24	1
DECEMBER	19	-
<b>2015 TOTAL</b>	<b>295</b>	<b>6</b>
<b>PROGRAM TOTALS</b>	<b>761</b>	<b>10</b>

Exhibit 7 shows that the majority of red light camera photo enforcement hearings, 98.68% in 2012, 2013 and 2014 were determined to be liable. Video and photographs of red light violations continue to provide compelling evidence for prosecuting violations. The review process by trained sworn staff appears continues to be highly efficient.

## **Red Light Camera Infrastructure**

Redflex and the City of Highland Park are both generally satisfied with the functionality of the red light photo enforcement camera equipment and the associated red light camera photo-enforcement pre-warning signs which aid in achieving compliance with the existing traffic signals and right turn on red restriction signs on west bound Park Avenue West at U.S. Route 41.

Due to the compelling video and photographic evidence of red light and no turn on red violations, red light camera photo enforcement continues to be an effective method of supplementing traditional traffic enforcement methods and has been highly supported by the Administrative Hearing Officer when violations are disputed by vehicle owners in court.

## **Crash History Summary**

Crash totals at the intersection of U.S. Route 41 and Park Avenue West have remained fairly consistent over the years. Route 41 continues to experience a very high volume of vehicle and truck traffic each year which contributes to crash potential and traffic volume.

When compared to 2010 traffic crashes, overall traffic crashes were reduced 23% in 2011 despite red light camera system shut-downs. Injury crash totals in red light camera approaches from July of 2010 and the 2011 year remained at zero. However, 2012 injury crash totals for red light camera approaches totaled five. Injury crashes in red light camera covered approaches were reduced in 2013, 2014 and 2015. These reported injury crashes primarily occurred in the south bound U.S. Route 41 approach where the speed limit is 50 mph. Injury crashes also occurred in the north bound approach to U.S. Route 41 south of Park Avenue West, an area not enforced by red light cameras. Yearly non-injury crashes in red light camera covered approaches remain fairly consistent since 2011, 2012, 2013, 2014, 2015. The non-injury crash increase in 2014 may be attributed to increased traffic volume at the intersection and severe winter weather conditions during first quarter 2014. The vast majority of crashes at the intersection of U.S. Route 41 and Park Avenue West are primarily caused by a failure to reduce speed, improper lane usage, following too closely and right-of-way violations.

Another factor contributing to crashes at U.S. Route 41 and Park Avenue West are large intersection traffic volumes leading to a decreased level of service at the intersection, increased delay & anticipation during green lights and increased motorist frustration which may lead to a driver taking unnecessary and aggressive risks.

Two other cited U.S. Department of Transportation Project Development and Design Manual crash causes are inadequate traffic control devices and poor visibility of signal. These should not be a factor in crashes at the intersection of U.S. Route 41 and Park Avenue West due to high visibility traffic signal heads, extensive signing, and infrastructure improvements at the intersection.

While red light cameras cannot truly decrease overall traffic volume, traffic volume, speed and proximity of vehicles entering an intersection or the amount of turning traffic volume, red light cameras and red light camera photo enforcement warning signs can have the ability to reduce traffic crashes and improve compliance with traffic control devices.

The Police Department will continue to monitor vehicle speeds and conduct traffic enforcement along busy corridors in the City of Highland Park in an effort to reduce vehicle speeds and crash potential. In addition, the deployment of our speed radar trailer and radar sign devices along busy corridors can also decrease both corridor and intersection speeds throughout the City of Highland Park and reduce crash potential.

## **Area Trends**

A red light camera system is currently in operation along the U.S Route 41 corridor in Gurnee at the highway intersection of U.S. Route 41 and Delaney Road for the purpose of reducing crashes and improving compliance with traffic signals. Red light camera systems are also in operation at other intersections in Gurnee and also in Libertyville, North Chicago, Northfield, Wauconda, and Waukegan.

## **Recommendation**

Police Department staff is recommending that the City of Highland Park continue to utilize red light cameras at the highway intersection of U.S. Route 41 and Park Avenue West to supplement traditional traffic enforcement efforts for the purpose of improving traffic safety by reducing crashes, obtaining compliance with traffic signals and no right turn on red restrictions.

The City of Highland Park will continue to monitor monthly and yearly crash data at the intersection to determine if it is necessary to take further action to reduce the number of and/or the severity of the crashes at the intersection.