

April 30, 2014

Tim Crouch, P.E.  
State Traffic Engineer  
Office of Traffic and Safety  
Iowa Dept. of Transportation  
800 Lincoln Way – North Annex  
Ames, IA 50010

Re: Automated Traffic Enforcement Evaluation Report

Dear Tim:

This letter will serve as our annual report on the effectiveness of the automated traffic enforcement cameras on the primary routes in the City of Davenport. I believe that we have fulfilled the new requirements stated in Chapter 144 and will continue to submit reports by May 1 of each year.

As you know, Davenport was the first city in Iowa to install automated enforcement. We compiled four years of red-light crash data at many of our signalized intersections to see which ones were in need of photo enforcement. Some of the worst intersections had construction projects scheduled for the near future, so those were not considered for photo enforcement. I also changed the signal timing on some of the others to help reduce the red-light crashes. The intersections that were chosen had no obvious flaws in either signal timing or geometrics. We considered the use of the cameras to be a last resort in curbing red-light running crashes. A few years later, we added speed cameras to two locations that are not at intersections. Speed studies were done with the DOT and the speed limit on River Drive was raised from 35 to 40 mph so that the enforcement would be fair. We also have a mobile speed unit, but it is not used on the DOT primary routes.

Our enforcement guidelines are very fair to the driver. Speed tickets are issued to drivers who exceed the speed limit by 12 mph or more. Red-light running tickets are issued to drivers who are completely behind the stop bar when the signal turns red and then still proceed through the intersection. All of our cameras are clearly marked with signage. The one-way streets have signage on both sides of the street in advance of the cameras. The mobile unit operator also places a sign out in advance of the enforcement zone. Our goal is not to ticket as many people as possible; it is to prevent as many crashes as possible. The yellow clearance time at the intersections range from 4.0 to 4.5 seconds and all of them have a 1.0 second red clearance time. All of the clearance times meet or



exceed the minimum times from the ITE's yellow interval formula for roads with these speeds and incoming grades. One of the goals of this report is to try to make photo enforcement fairly uniform throughout the state. I don't know what the fines are for other municipalities, but our red-light running tickets are \$65 each and speeding tickets range from \$65 to \$150.

<u>MPH over speed limit</u>	<u>Fine</u>
12 through 20 mph	\$65
21 through 25 mph	\$85
26 through 30 mph	\$95
31 through 35 mph	\$110
36 through 40 mph	\$125
Over 40 mph	\$150

Here are the locations and directions of enforcement of our cameras:

	Cameras on Iowa DOT Routes							
	Red Light Cameras				Speed Cameras			
	<u>NB</u>	<u>SB</u>	<u>EB</u>	<u>WB</u>	<u>NB</u>	<u>SB</u>	<u>EB</u>	<u>WB</u>
Kimberly & Brady	X		X	X	X		X	
Kimberly & WW		X				X		
Harrison & 35th		X				X		
Kimberly & Elmore			X	X			X	X
2700 block Brady					X			
1400 block E River Dr								X

All of these locations meet the 10 minimum requirements stated in Chapter 144.5(306,307,318,321). None of the speed cameras are in the first 1000 feet of a lower speed limit. We have also complied with the signage requirements in 144.6(2). We do not have signs for drivers entering town, but we do have signs at all of the locations, as I stated earlier in this report. The signs indicate photo enforcement zones or red light photo enforcement, depending on the camera type. Our cameras are not used instead of law enforcement, only to enhance it. All tickets are looked at by someone in law enforcement and our mobile unit is clearly marked as a police vehicle and is manned by a law enforcement official. The cameras are calibrated once per month to ensure accuracy.

I have most of the evaluation requirements that are stated in 144.7(1). We did not collect all crash data at the intersections before the camera installation though. We only collected the red-light running crashes, which is the primary reason for the cameras. Therefore, this report will compare red-light crashes before and after the photo enforcement was installed. The 4 years before installation (2001 – 2004) are compared to

the past 3 years (2011 – 2013). As you can see, all red-light related crashes dropped 76% at these 4 intersections, which amounts to nearly 15 fewer red-light crashes per year. When only comparing the directions with photo enforcement, the decrease is 85%. I believe that this proves that the cameras have made a significant difference in safety.

I don't have as much data for the two stand-alone speed cameras though. Our data shows that the cameras have helped reduce speeds, even on River Drive where the speed limit was raised by 5 mph. The 85<sup>th</sup> percentile speed on River Drive is still lower than what it was when it had a higher speed limit. The Brady St location does not have many crashes right now, but we are still seeing some rear-end crashes in the general area of the River Drive camera. There have been 8 westbound rear-end crashes in the past 3 years, but only 3 other westbound crashes during this time period. We have not found any evidence that any of these were caused by drivers braking at the cameras. Five of the crashes occurred in the block after the camera location and 3 were in the block before the camera. Most were cited for following too closely and inattentive driving, but not right at the camera location.

RED LIGHT CRASHES AT INTERSECTIONS WITH CAMERAS ON STATE ROUTES 2011-2013								
Intersection	ALL DIRECTIONS					DIRECTION OF ENFORCEMENT ONLY		
	Average 2001-4	Worst year 2001-4	Total 2011-13	Average 2011-13	Percent difference	Average 2001-4	Avg. 2011-13	Percent difference
Kimberly at Welcome Way	8.0	11 ('02)	8	2.67	-67%	4.5	0.33	-93%
Kimberly at Elmore	7.0	9 ('03)	3	1.00	-86%	5.75	0.67	-88%
Harrison at 35th	4.0	9 ('01)	2	0.67	-83%	3.75	0.67	-82%
Kimberly at Brady	3.25	4 ('03)	3	1.00	-69%	3.25	1.00	-69%
<b>Total</b>	<b>22.3</b>			<b>5.33</b>	<b>-76%</b>	<b>17.25</b>	<b>2.67</b>	<b>-85%</b>
<b>2001-4</b>						<b>Total in dir of enforcement</b>		
<b>Direction of infractions</b>	<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>	<b>Total</b>			
Kimberly at Welcome Way	NA	18	10	4	32	18		
Kimberly at Elmore	1	4	12	11	28	23		
Harrison at 35th	NA	15	0	1	16	15		
Kimberly at Brady	7	NA	2	4	13	13		
<b>2011-13</b>						<b>Total in dir of enforcement</b>		
<b>Direction of infractions</b>	<b>NB</b>	<b>SB</b>	<b>EB</b>	<b>WB</b>	<b>Total</b>			
Kimberly at Welcome Way	NA	1	1	6 (4 LT)	8	1		
Kimberly at Elmore	1 (RTOR)	0	1 (LT)	1 (LT)	3	2		
Harrison at 35th	NA	2	0	0	2	2		
Kimberly at Brady	2	NA	1 (LT)	0	3	3		
<b>Key</b>			<b>Directions with cameras are shaded in.</b>					
RTOR = right turn on red								
LT = left turn								
NA = not applicable due to one-way street								

## **SPEED CAMERA DATA**

A speed study was conducted at the locations of the stand-alone speed cameras both before and after the installation of the cameras. Speed cameras were added to the intersections with red-light cameras a few years later when the original photo enforcement company was bought out. I don't have speed data from the time before those cameras were installed. These intersections had been on various lists produced by State Farm Insurance and the DOT as being some of the more dangerous in the city. City staff at that time believed that speeding and red-light running often went together as some people were speeding during the yellow clearance to avoid a ticket. We did not believe that exceeding the speed limit to get across the stop bar in the nick of time was very safe, so that's why speed cameras were added to most of the directions of the red-light enforcement. We did not add one to westbound Kimberly at Brady because the speed limit became lower about 500 feet in advance of that intersection. We did not think that would be fair to the driver and based on your 1000-foot requirement, you obviously agree. These areas are all on multi-lane, divided highways, so drivers are apt to speed more on these types of roads than on others. These cameras have served their purpose, which was to prevent people from speeding through intersections to beat the red light.

### **Brady Street near Columbia (35 mph speed limit)**

Study before camera installation: Median speed 35.9 mph, 85<sup>th</sup> perc. speed 39.2 mph

Study after camera installation: Median 32.4 mph, 85<sup>th</sup> percentile 35.9 mph

Study of recent speeds: Median 33.5 mph, 85<sup>th</sup> percentile 36.8 mph

### **River Drive near College (40 mph speed limit)**

Study before camera installation when street had 35 mph speed limit:

Median speed 39.0 mph, 85<sup>th</sup> percentile 43.6 mph

Speeds with camera and a 40 mph speed limit soon after camera installation:

Median speed 37.6 mph, 85<sup>th</sup> percentile 40.3 mph

Recent speeds with camera and 40 mph speed limit:

Median speed 38.9 mph, 85<sup>th</sup> percentile 42.4 mph

**INTERSECTIONS (No speed data available before installation):**

**Kimberly at Brady (35 mph speed limit)**

EB: Median speed 37.5 mph, 85<sup>th</sup> percentile 40.6 mph

NB: Median speed 38.0 mph, 85<sup>th</sup> percentile 40.9 mph

**Kimberly at Welcome Way (35 mph speed limit)**

SB: Median speed 34.2 mph, 85<sup>th</sup> percentile 38.8 mph

**Harrison at 35<sup>th</sup> (35 mph speed limit)**

SB: Median speed 34.5 mph, 85<sup>th</sup> percentile 37.0 mph

**Kimberly at Elmore (45 mph speed limit)**

EB: Median speed 38.5 mph, 85<sup>th</sup> percentile 42.2 mph

WB: Median speed 39.1 mph, 85<sup>th</sup> percentile 42.7 mph

**Crash data at signalized intersections with speed cameras (2011-13)**

**Directions of enforcement only, not including red-light crashes (3-year totals)**

**No speed-related crash data available before installation.**

**Kimberly at Brady**

EB: 4 rear-end & 1 sideswipe

NB: 6 rear-end, 2 head-on, 1 sideswipe

**Kimberly at Welcome Way**

SB: 1 rear-end, 1 sideswipe

**Harrison at 35<sup>th</sup>**

SB: 1 rear-end, 3 sideswipe

**Kimberly at Elmore**

EB: 11 rear-end, 2 sideswipe

WB: 12 rear-end, 1 sideswipe

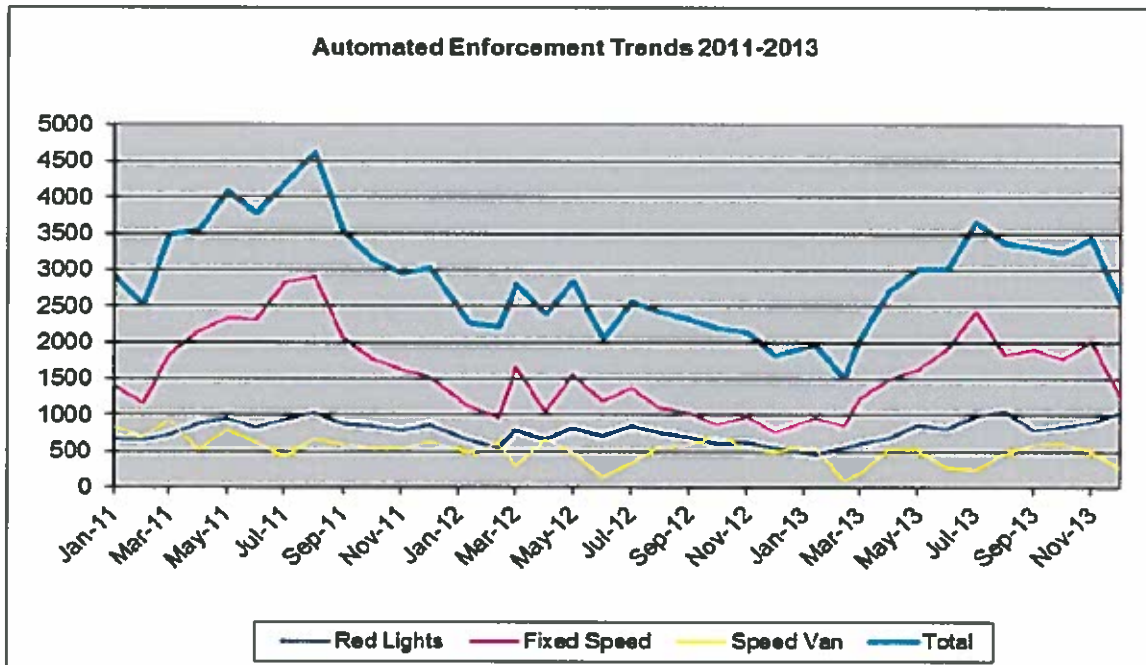
The crash reports at Kimberly & Welcome Way and at Harrison & 35<sup>th</sup> show excellent safety results. There were a fairly high number of rear-end crashes at the other two intersections, so we checked the reports to see if there was any correlation to the cameras. The vast majority of the rear-end crashes occurred far back from the stop bar and were due to drivers not expecting a backup that long. Nobody claimed that the person in front of him stopped abruptly for the cameras. Therefore, I don't believe that the cameras caused any of these rear-end crashes. Please keep in mind that these are 3-year totals, so WB Kimberly at Elmore averaged one rear-end crash every 3 months.

## CITATION DATA

I have also included our citation data for the past 3 years. The drop in 2012 was largely attributed to two major construction projects on River Drive and on Welcome Way. The cameras were out of commission for a few months which led to the large decline that year. It would be better to compare the number of citations in 2013 to the number in 2011, which shows a 19% decrease in total citations between those two years.

	<u>2011</u>	<u>2012</u>	<u>2013</u>
Red Light	10,062	8238	9595
Fixed Speed	23,951	13,679	19,368
Mobile Speed	7749	5946	4914
Total	41,762	28,002	33,877

Here is a graph of the data presented in a month-by-month basis. You will notice that the summer months are higher due to better driving conditions, though the summer of 2012 was way down due to the projects mentioned above.



As you recall, the DOT was involved in our process when we established the photo enforcement zones nearly a decade ago. We look forward to your involvement in the reevaluation process too. The traffic patterns in these areas have not changed much over the years, so we don't see any reason to remove any of the cameras. We are not looking to add any cameras in the near future either. The large reduction in red-light crashes has shown the effectiveness of our program and we hope that you agree. We both have the same goal of reducing crashes on highways in Iowa. We also believe that this program has raised awareness of the dangers of speeding and red-light running. The Police Department has noticed fewer red-light running incidents throughout the city since this program has been implemented. We would not want to go back to the days when running red lights was common throughout the city. Thank you for time in reviewing our photo enforcement program. Please feel free to contact me with any questions you have about our program.

Sincerely,

A handwritten signature in blue ink that reads "Gary Statz". The signature is written in a cursive style with a large, stylized "S" at the end.

Gary Statz, P.E.  
Traffic Engineer  
City of Davenport  
(563) 326-7754

CC: Jim Schnoebelen, P.E., District Engineer, IDOT District 6  
Brian Schadt, P.E., City Engineer, City of Davenport  
Donald Schaeffer, Assistant Police Chief, City of Davenport