



City of Davenport
Public Works Center

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April 28, 2016

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 with attachments 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 we have fulfilled the 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 three to 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 DOT 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. Our goal is not to ticket as many people as possible; it is to prevent as many crashes as possible. The yellow clearance times at the intersections are all 4.0 seconds with 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. Our fines are \$65 for red-light running tickets 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:

Camera Locations on DOT Routes

<u>Location</u>	<u>Red Light Cameras</u>				<u>Speed Cameras</u>			
	<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 & Welcome Way		X				X		
Harrison & 35th		X				X		
2700 block Brady St					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. We are in the process of adding signs and replacing others so that they are as visible as possible. Our cameras are not used instead of law enforcement, only to enhance it. All tickets are looked at by someone in law enforcement. The cameras are calibrated once per month to ensure accuracy.

I have met 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 3 full calendar years before installation (2001 – 2003) are compared to the past 5 years (2011 – 2015). Most of the red-light cameras were installed during the fall of 2004. I have attached a separate sheet for each location with the comparison of crash data and number of citations issued on a yearly basis. There is also an area at the bottom of each sheet summarizing the crashes that occurred in 2015, including which crashes occurred in the direction of enforcement. As you can see by the

chart below, the annual rate of red-light related crashes for the three intersections has dropped 66% overall and 81% for the direction of enforcement. I believe this proves the cameras have made a significant difference in safety.

RED LIGHT CRASHES AT INTERSECTIONS WITH CAMERAS ON STATE ROUTES 2011-2015									
Intersection	ALL DIRECTIONS			DIRECTION OF ENFORCEMENT ONLY			Total in dir of enforcement	Total Avg.	Dir of Enf Avg.
	Average	Average	Percent	Average	Avg.	Percent			
	2001-3	2011-15	difference	2001-3	2011-15	difference			
Kimberly at Welcome Way	8.33	3.40	-59%	4.33	0.40	-91%			
Harrison at 35th	5.33	1.00	-81%	4.67	0.60	-87%			
Kimberly at Brady	3.33	1.40	-58%	3.33	1.40	-58%			
Total	17.00	5.80	-66%	12.33	2.4	-81%			
2001-3									
Direction of infractions	NB	SB	EB	WB	Total				
Kimberly at Welcome Way	NA	13	6	6	25	13	8.33	4.33	
Harrison at 35th	NA	14	1	1	16	14	5.33	4.67	
Kimberly at Brady	5	NA	4	1	10	10	3.33	3.33	
2011-15									
Direction of infractions	NB	SB	EB	WB	Total				
Kimberly at Welcome Way	NA	2	6	9 (4 LT)	17	2	3.40	0.40	
Harrison at 35th	NA	3	0	2	5	3	1.00	0.60	
Kimberly at Brady	4	NA	3 (3 LT)	0	7	7	1.40	1.40	
Key									
Directions with cameras are shaded in.									
LT = left turn (protected left)									
NA = not applicable due to one-way street									

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 85th percentile speed on River Drive is still lower than what it was when it had a higher speed limit. Most of the crashes resulted in drivers being cited for following too closely and inattentive driving, but not right at the camera location. We have updated the crash data from recent years to reflect the totals that you provided with your annual report.

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. The recent speed studies were taken in 2016.

Brady Street near Columbia (35 mph speed limit)

Study before camera installation: Median speed 35.9 mph, 85th perc. speed 39.2 mph

Study after camera installation: Median 32.4 mph, 85th percentile 35.9 mph

Study of recent speeds: Median 35.1 mph, 85th percentile 37.7 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, 85th percentile 43.6 mph

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

Median speed 37.6 mph, 85th percentile 40.3 mph

Recent speeds with camera and 40 mph speed limit:

Median speed 38.8 mph, 85th percentile 42.2 mph

INTERSECTIONS (No speed data available before installation):

Kimberly at Brady (35 mph speed limit)

EB: Median speed 37.9 mph, 85th percentile 40.8 mph

NB: Median speed 38.6 mph, 85th percentile 41.2 mph

Kimberly at Welcome Way (35 mph speed limit)

SB: Median speed 34.6 mph, 85th percentile 38.9 mph

Harrison at 35th (35 mph speed limit)

SB: Median speed 36.2 mph, 85th percentile 38.8 mph

CITATION DATA

I have also included our citation data from DOT routes for the past 5 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. There was a 4.8% increase in violations from 2013 to 2014, but the total number of violations from 2014 is still 10.8% less than the total from 2011. The photo enforcement was removed from Kimberly and Elmore in April, 2015, so that played a role in the drop of red light citations. That intersection averaged only 200 speed citations per year, so it had little effect on the speed totals.

	<u>2011</u>	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>
Red Light	10,062	8238	9595	9650	7688
Fixed Speed	23,951	13,679	19,368	20,695	24,206
Total	34,013	21,917	28,963	30,345	31,894

As you recall, the DOT was involved in our process when we established the photo enforcement zones over 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 these 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 you agree. We both have the same goal of reducing crashes on highways in Iowa. We also believe 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. Our local hospital, Genesis Health Systems, reported that the monthly rate of trauma injuries in Davenport vehicle crashes has dropped 34% from the years before photo enforcement was first used here. They acknowledged that they "can't cite that traffic cameras are the only reason for the decline," but they added that they think the devices "are an important factor." We would not want to go back to the days when red-light running was more common throughout the city. Thank you for your time in reviewing our photo enforcement program. Please feel free to contact me with any questions you have about our program.

Sincerely,



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 & Deputy Director of Public Works, City of Davenport
Paul Sikorski, Police Chief, City of Davenport

Intersection: Kimberly Rd and Brady St

Year	Number of Crashes	Crash Types	RLR Violations Issued	Speed Violations Issued
2001	?	3 Broadside	N/A	N/A
2002	?	4 Broadside	N/A	N/A
2003	11	3 Broadside 4 Sideswipe 4 Rear End	N/A	N/A
2011	11	1 Broadside 3 Sideswipe 6 Rear End 1 Unk/Other	5339	3648
2012	17	1 Broadside 5 Sideswipe 10 Rear End 1 Unk/Other	4743	2541
2013	9	1 Broadside 2 Sideswipe 4 Rear End 2 Unk/Other	4989	2991
2014	11	2 Broadside 5 Sideswipe 3 Rear End 1 Unk/Other	5749	3090
2015	16	2 Broadside 5 Sideswipe 9 Rear End 0 Unk/Other	5191	3354

Speed limit 35 mph Red light enforcement EB, WB, NB; Speed enforcement NB, EB.

Red light cameras activated in 2004; speed cameras in 2007.

2015 notes: 1 of the 2 red-light crashes caused by turning driver who mistakenly looked at the green ball for through traffic instead of the red arrow for turning traffic (protected left turns only).

Only 2 of the rear end crashes occurred near the beginning of the red phase and none during the yellow phase.

Intersection: Kimberly Rd and Welcome Way

Year	Number of Crashes	Crash Types	RLR Violations Issued	Speed Violations Issued
2001	?	6 Broadside	N/A	N/A
2002	?	10 broadside	N/A	N/A
2003	17	9 broadside 3 Side Swipe 5 Rear End		
2011	14	3 Broadside 7 Sideswipe 4 Rear End 0 Unk/Other	1056	434
2012*	19	2 Broadside 9 Sideswipe 8 Rear End 0 Unk/Other	739	325
2013	21	3 Broadside 9 Sideswipe 8 Rear End 1 Unk/Other	1001	275
2014	18	4 Broadside 4 Sideswipe 10 Rear End 0 Unk/Other	1284	672
2015	19	5 Broadside 3 Sideswipe 9 Rear End 2 Unk/Other	1382	918

*Construction project in Summer 2012.

2015 Notes: One of the broadside crashes were caused by SB driver, which is the direction of enforcement. Of the 9 rear-end crashes, 3 were for SB (direction of enforcement). None of those 3 occurred during the yellow phase or near the beginning of the red phase, so the cameras could not have had an effect on them.

Intersection: 35th St and Harrison St

Year	Number of Crashes	Crash Types	RLR Violations Issued	Speed Violations Issued
2001	?	9 Broadside	N/A	N/A
2002	?	3 broadside	N/A	N/A
2003	10	4 broadside 4 sideswipe 2 Rear End		
2011	10	0 Broadside 1 Sideswipe 4 Rear End 2 Unk/Other	988	7633
2012	9	1 Broadside 3 Sideswipe 4 Rear End 1 Unk/Other	754	3040
2013	11	1 Broadside 3 Sideswipe 4 Rear End 2 Unk/Other	853	4977
2014	9	2 Broadside 1 Sideswipe 5 Rear End 1 Unk/Other	1108	7518
2015	9	2 Broadside 1 Sideswipe 0 Rear End 0 Unk/Other	1115	9570

2015 notes: None of the broadside crashes were caused by SB traffic, which is the only direction of enforcement at this intersection.
One of the broadside crashes occurred when signals were dark due to power outage.

Fixed Speed Cameras: Located in the 1200 block of E River Drive

Year	Number of Crashes	Crash Types	Speed Violations Issued
2004	?	?	N/A
2005	?	?	N/A
2011	6	1 Broadside 0 Sideswipe 5 Rear End 0 Unk/Other	1673
2012*	8	0 Broadside 3 Sideswipe 3 Rear End 2 Unk/Other	771
2013	4	0 Broadside 2 Sideswipe 1 Rear End 1 Unk/Other	1604
2014	4	0 Broadside 1 Sideswipe 1 Rear End 2 Unk/Other	2311
2015	9	1 Broadside 0 Sideswipe 8 Rear End 0 Unk/Other	3260

*Construction project in 2012 led to much less traffic.

Crash data collected between College Ave and Oneida Ave, a distance of 765 feet.

No available data for before camera installation.

Location was chosen after looking at a map with dots for speed related crashes and picking locations with a high concentration of dots.

5 of the rear end crashes were in the direction of enforcement (WB), but most occurred about 600 feet beyond the exact location of enforcement.

Fixed Speed Cameras: Located in the 2600 block of Brady St

Year	Number of Crashes	Crash Types	Speed Violations Issued
2005	?	?	N/A
2006	?	?	N/A
2011	3	2 Sideswipe 1 Rear End	8274
2012	3	1 driveway broadside 2 Sideswipe	6351
2013	3	3 Sideswipe	7117
2014	5	4 sideswipe 1 driveway broadside	6977
2015	1	1 sideswipe 0 driveway 0 broadside	7104

Speed limit 35 mph

Cameras activated in 2007; Northbound enforcement only.

The crashes in the above table are all mainline crashes between Columbia Ave and E 29th St, a distance of 900 feet.

No crash data available for before cameras were installed.

Location based on a map with dots at every speed-related crash and cameras were installed at locations with a high concentration of dots.

This camera is in advance of a school crosswalk and a business district with buildings very close to the edge of the road.