

Evaluation of 2016 Automated Traffic Enforcement Report

City of Davenport

Introduction:

Automated traffic enforcement (ATE) is one of many safety countermeasures that can be used to enhance roadway safety. Automated enforcement may involve the enforcement of red-light running violations and speed limit violations. The city of Davenport uses ATE systems to enforce red-light running and speed violations at three signalized intersections on the primary highway system. In addition, they use ATE systems to enforce speed violations along two urban arterials on the primary highway system.

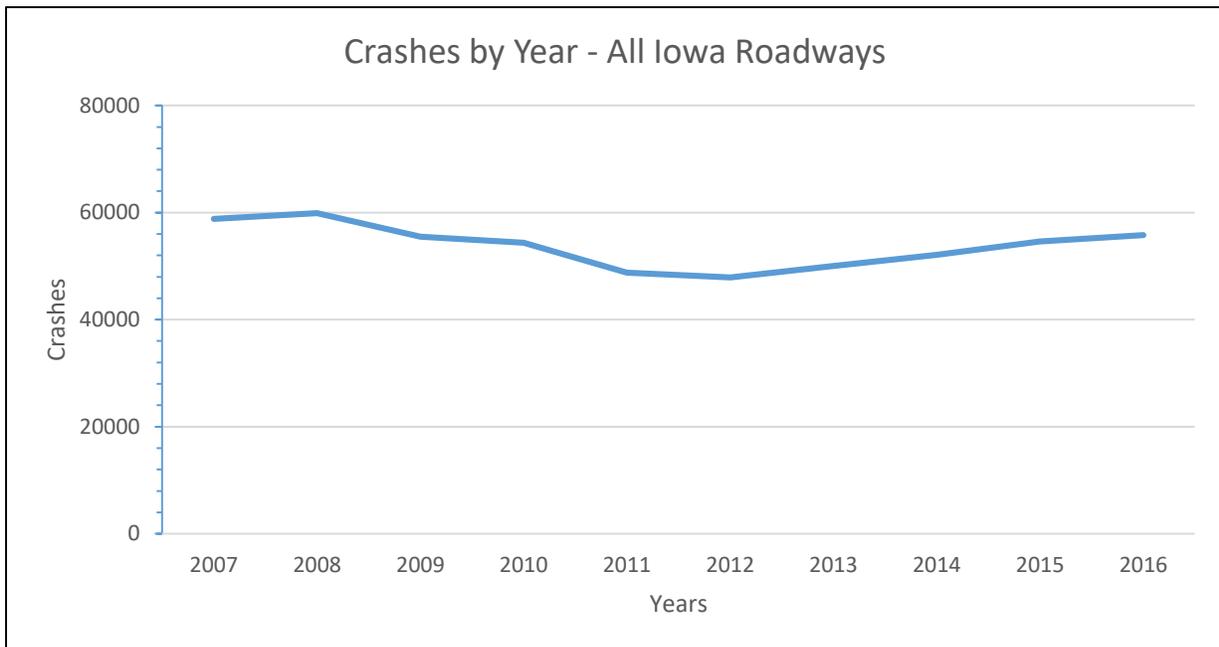
In 2012 Iowa State University developed a report titled, "Toolbox of Countermeasures to Reduce Red Light Running". The report documented that at signalized intersections, red-light running crashes make up 24.5% of all crashes and account for 31.7% of all fatal and major injury crashes. This toolbox is to aid practitioners in ways to identify and address red-light crashes at signalized intersections. The report focuses primarily on engineering and enforcement solutions. The report has two main parts; 1.) Guidelines to identify problem intersections and the causes of red-light running, and 2.) Roadway-based and enforcement countermeasures. This second part details 20 potential safety countermeasures that can be used at signalized intersections to address these types of crashes. Automated enforcement is one of those potential countermeasures.

The National Highway Traffic Safety Administration (NHTSA) conducted one of the most comprehensive reports to date on the causation of crashes in the United States. This report titled, "National Motor Vehicle Crash Causation Survey – Report to Congress" was published in 2008 and documents the investigation of 6,950 crashes nationwide. This study involved researchers being at the crash scene to assess relatively undisturbed information pertaining to the events and factors that led up to the crash and the opportunity to discuss the circumstances of the case with drivers, passengers, and witnesses while it was still fresh in their minds. The researchers on the scene were in an ideal position to gather first-hand information related to the vehicle, the roadway, the environmental conditions, and the human behavior factors. Some of the critical findings include:

- 95% of all crashes were caused by the drivers, 2.5% were caused by the vehicles, and 2.5% were caused by roadway/weather
- Of the 95% that were attributed to drivers:
 - o 40.6% was driver recognition error (inadequate surveillance, internal/external distraction, inattention, etc.)
 - o 34.1% was driver decision error (too fast for conditions, too fast for curve, false assumptions, illegal maneuver, misjudgment, etc.)
 - o 10.3% was driver performance error (overcompensation, poor control, etc.)
 - o 7.1% was driver non-performance error (sleep, heart attack/other physical impairment, etc.)
 - o 7.9% was other/unknown driver error

This report helps us better understand the primary causation of crashes. The speed at which a driver chose to drive was a primary cause in some of the crashes. Specifically, 8.4% were driving too fast for conditions and 4.9% were driving too fast for a curve. However, speed was not the primary causation in 86.7% of crashes caused by the driver, nor the crashes caused by vehicles or roadway/weather.

The chart below shows the gradual changes in total crashes for the entire state of Iowa over the past 10 years.



Review of Davenport’s Annual Report:

We have completed our review of your 2016 automated traffic enforcement (ATE) report as required in Iowa Administrative Code 761--144. The following documents were considered by the DOT in connection with this review:

- “Automated Traffic Enforcement Evaluation Report” City of Davenport, to Tim Crouch, April 21, 2017;
- “The Effectiveness of Iowa’s Automated Red Light Running Enforcement Programs, Final Report, 2007” by Center for Transportation Research and Education (CTRE) at Iowa State University;
- Crash data obtained by the Iowa DOT using the Iowa crash database (includes all statewide reported crash reports)

Intersection speed and red light cameras:

The city has speed and red-light violation cameras at four intersections on the primary highway system. DOT's findings and resulting action for these locations are set forth below.

35th Street and Harrison Street

Findings:

- Red light camera activated in 2004, Speed camera activated in 2007.
- Southbound approach subject to traffic camera enforcement.
- The number of speed citations at this location is very high:

7,633 in 2011

3,040 in 2012

4,977 in 2013

7,518 in 2014

9,570 in 2015

10,808 in 2016

- Crash data (city provided):

Year	Broadside crashes only	Total Crashes
2001	9	unavailable
2002	3	unavailable
2003	4	10
...
2011	0	10
2012	1	9
2013	1	11
2014	2	9
2015	2	9
2016	2	5

- Crash data (DOT provided – includes all crashes using 75 feet radius):

10 in 2004 – red light camera activated

8 in 2005

6 in 2006

9 in 2007 – speed camera activated

13 in 2008

5 in 2009

7 in 2010

6 in 2011

5 in 2012

9 in 2013

5 in 2014

3 in 2015

5 in 2016

- Total intersection crash data: 11.68 average crashes per year before activation (3 years of data); 7 average crashes per year after activation (2 years of data) – from CTRE/ISU study.

Resulting Actions:

- Continue operation of speed and red-light cameras at this location.
- In 2015, additional and more visible signage was installed for southbound approaching vehicles to assist motorists in driving an appropriate speed. However, seeing that the number of speed violations continues to increase, the Iowa DOT will conduct a speed study in this area to ensure posted speed limits are appropriate.

Kimberly Road and Brady Street

Findings:

- Red light cameras activated in 2004, Speed cameras activated in 2007.
- Northbound, eastbound and westbound approaches are subject to traffic camera enforcement.
- Crash data (city provided):

Year	Broadside crashes only	Total Crashes
2001	3	unavailable
2002	4	unavailable
2003	3	11
...
2011	1	11
2012	1	17
2013	1	9
2014	2	11
2015	2	16
2016	2	12
- Crash data (DOT provided – includes all crashes using 75 feet radius):
 - 14 in 2004 – red light cameras activated
 - 17 in 2005
 - 12 in 2006
 - 20 in 2007 – speed cameras activated
 - 15 in 2008
 - 13 in 2009
 - 15 in 2010
 - 12 in 2011
 - 20 in 2012
 - 15 in 2013
 - 15 in 2014
 - 15 in 2015
 - 11 in 2016
- Total intersection crash data: 18.32 average crashes per year before activation (3 years of data); 16 average crashes per year after activation (2 years of data) – from CTRE/ISU study.

Resulting Action:

- Continue operation of speed and red-light cameras at this location.

Kimberly Road and Welcome Way

Findings:

- Red light camera activated in 2004, Speed camera activated in 2007.
- Southbound approach subject to traffic camera enforcement.
- Crash data (city provided):

Year	Broadside crashes only	Total Crashes
2001	6	unavailable
2002	10	unavailable
2003	9	17
...
2011	3	14
2012	2	19
2013	3	21
2014	4	18
2015	5	19
2016	5	21

- Crash data (DOT provided – includes all crashes using 75 feet radius):

21 in 2004 – red light cameras activated
17 in 2005
10 in 2006
12 in 2007 – speed cameras activated
17 in 2008
16 in 2009
17 in 2010
13 in 2011
16 in 2012
20 in 2013
18 in 2014
19 in 2015
23 in 2016

- Total intersection crash data: 21.68 average crashes per year before activation (3 years of data); 15.52 average crashes per year after activation (2 years of data) – from CTRE/ISU study.

Resulting Action:

- Continue operation of this speed and red-light cameras at this location.

Fixed Speed Cameras on Urban Arterials:

Fixed speed cameras: The city has two fixed speed cameras, one located in the 2600 block of Brady Street and one in the 1200 block of East River Drive. DOT's findings and resulting action as to each location are set forth below.

2600 Block of Brady Street

Findings:

- Cameras activated in 2007.
- Northbound traffic subject to automated enforcement.
- The number of speed citations at this location is very high:
 - 8,274 in 2011
 - 6,351 in 2012
 - 7,117 in 2013
 - 6,977 in 2014
 - 7,104 in 2015
 - 5,670 in 2016
- Crash data (city provided mainline crashes only located between Columbia Ave and E. 29th St. – city did not provide crash data for years prior to camera activation):
 - 3 in 2011
 - 3 in 2012
 - 3 in 2013
 - 5 in 2014
 - 1 in 2015
 - 5 in 2016
- Crash data (DOT provided all crashes on Brady between and including intersections with East Columbia Ave, and north to East 29th Street):
 - 15 in 2004
 - 7 in 2005
 - 9 in 2006
 - 2 in 2007 – speed camera activated
 - 6 in 2008
 - 1 in 2009
 - 4 in 2010
 - 3 in 2011
 - 3 in 2012
 - 3 in 2013
 - 7 in 2014
 - 1 in 2015
 - 4 in 2016

Resulting Actions:

- Continue operation of this speed camera at this location.
- The review from 2014 resulted in the installation of additional signage and/or more visible signage for approaching vehicles to assist motorists in driving an appropriate speed. The number of violations is still high at this location.

1200 Block of East River Drive

Findings:

- Cameras activated in 2007.
- Westbound traffic subject to automated enforcement.
- The number of speed citations at this location shows a steady increase:
 - 1,673 in 2011
 - 711 in 2012 Construction project led to less traffic
 - 1,604 in 2013
 - 2,311 in 2014
 - 3,260 in 2015
 - 3,849 in 2016
- Crash data (city provided mainline crashes only located between College Ave and Oneida Ave – city did not provide crash data for years prior to camera activation):
 - 6 in 2011
 - 8 in 2012
 - 4 in 2013
 - 4 in 2014
 - 9 in 2015
 - 4 in 2016
- Crash data (DOT provided all crashes on East River Drive between and including intersections with College Ave east to Oneida Ave):
 - 18 in 2004
 - 16 in 2005
 - 13 in 2006
 - 9 in 2007 – speed camera activated
 - 12 in 2008
 - 8 in 2009
 - 10 in 2010
 - 5 in 2011
 - 8 in 2012
 - 4 in 2013
 - 5 in 2014
 - 7 in 2015
 - 3 in 2016

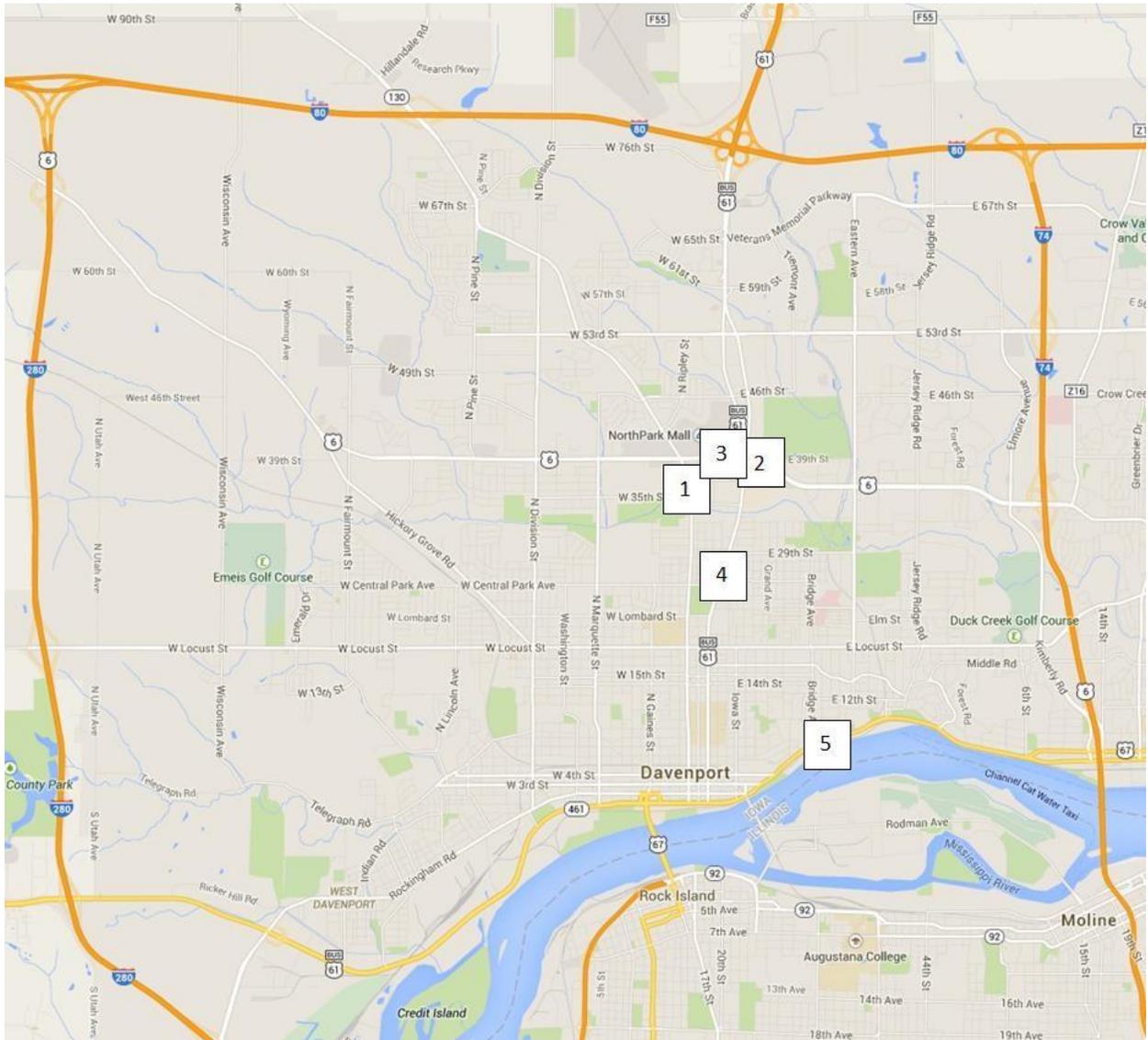
Resulting Action:

- Continue operation of this speed camera at this location.

Summary:

Based on the results of this review, all of the automated traffic enforcement cameras may continue to be operated in accordance with Iowa Administrative Code 761—144. Iowa DOT will conduct a speed study on Harrison Street just north of 35th Street to ensure the speed limit is set appropriately.

Map of Davenport's ATE systems on the primary highway system:



1. 35th St and Harrison St
2. Kimberly Road and Brady St
3. Kimberly Road and Welcome Way
4. 2600 block of Brady St
5. 1200 block of East River Drive