

Evaluation of Davenport's Automated Traffic Enforcement Report - Primary Highway System

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 four 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.

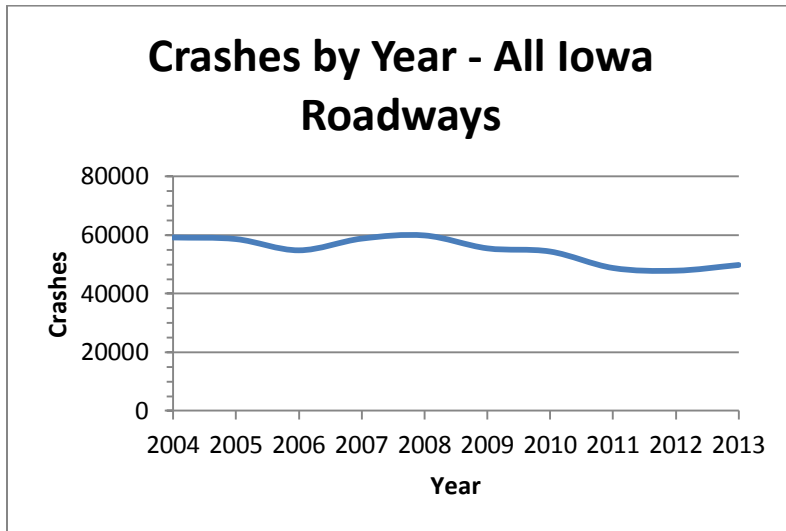
In 2012 Iowa State University developed a report titled, "Toolbox of Countermeasures to Reduce Red Light Running". The report documented that at signalized intersections, red-light running crashes make up 24.5% of all crashes and account for 31.7% of all fatal and major injury crashes. This toolbox is 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.

On a statewide basis, crashes in Iowa have been decreasing. Specifically, over a 10 year period, crashes have decreased 15.6% from 59,192 in 2004 to 49,968 in 2013. Below is a chart showing the total number of crashes in Iowa.



Review of Davenport's Annual Report:

We have completed our review of your 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 30, 2014;
- "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;
- October 8, 2014 e-mail from Gary Statz to Steve Gent;

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.
- Crash data: Broadside crashes only -- 9 in 2001, 3 in 2002, 4 in 2003, 0 in 2011, 1 in 2012, 1 in 2013 – from city provided crash data.
- Crash data:
 - 11 in 2004 – red light camera activated
 - 11 in 2005
 - 8 in 2006
 - 16 in 2007 – speed camera activated
 - 16 in 2008
 - 9 in 2009
 - 10 in 2010
 - 8 in 2011
 - 6 in 2012
 - 9 in 2013
 - o From DOT crash records, all crashes within 150 feet from middle of intersection.
- 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.
- The number of speed citations at this location is extremely high: 7,633 in 2011, 3,040 in 2012 and 4,977 in 2013.

Resulting Action:

- Continue operation of speed and red-light cameras at this location.
- The city shall install additional signage and/or more visible signage for the southbound approaching vehicles to assist motorists in driving an appropriate speed. Changes to be approved by DOT prior to installation.

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: Broadside crashes only -- 3 in 2001, 4 in 2002, 3 in 2003, 1 in 2011, 1 in 2012, 1 in 2013 – from city provided crash data.

- Crash data: 19 in 2004 – red light camera activated
19 in 2005
22 in 2006
27 in 2007 – speed camera activated
17 in 2008
17 in 2009
18 in 2010
16 in 2011
25 in 2012
17 in 2013
 - o From DOT crash records, all crashes within 150 feet from middle of intersection.
- 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 Elmore Ave

Findings:

- Red light cameras activated in 2004, Speed cameras activated in 2007.
- Eastbound and westbound approaches are subject to traffic camera enforcement.
- Crash data: Broadside crashes only -- 5 in 2001, 7 in 2002, 11 in 2003, 1 in 2011, 1 in 2012, 1 in 2013 – from city provided crash data.
- Crash data: 16 in 2004 – red light camera activated
20 in 2005
18 in 2006
15 in 2007 – speed camera activated
11 in 2008
20 in 2009
14 in 2010
11 in 2011
12 in 2012
23 in 2013
 - o From DOT crash records, all crashes within 150 feet from middle of intersection.
- Total intersection crash data: 10.32 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:

- Permanently remove the cameras at this intersection
 - o ISU study showed crash increase and DOT crash data continues to reflect that trend

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: Broadsides crashes only -- 6 in 2001, 10 in 2002, 3 in 2003, 3 in 2011, 2 in 2012, 3 in 2013 – from city provided crash data.
- Crash data:
 - 22 in 2004 – red light camera activated
 - 23 in 2005
 - 11 in 2006
 - 15 in 2007 – speed camera activated
 - 19 in 2008
 - 20 in 2009
 - 20 in 2010
 - 14 in 2011
 - 19 in 2012
 - 21 in 2013
 - o From DOT crash records, all crashes within 150 feet from middle of intersection.
- 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 and 7,117 in 2013.
- Crash data: The city did not provide any crash data for years prior to camera activation. For after camera activation, they provided: 1 crash in 2011, 0 crashes in 2012, and 0 crashes in 2013.
- Crash data:
 - 15 in 2004
 - 7 in 2005
 - 9 in 2006
 - 2 in 2007 – speed camera activated

5 in 2008
1 in 2009
4 in 2010
3 in 2011
3 in 2012
3 in 2013

- From DOT crash records -- all crashes on Brady between and including intersections with East Columbia Avenue, and north to East 29th Street.

Resulting Action:

- Continue operation of this speed camera at this location.
- The city shall install additional signage and/or more visible signage for approaching vehicles to assist motorists in driving an appropriate speed. Changes to be approved by DOT prior to installation.

1200 Block of East River Drive

Findings:

- Cameras activated in 2007.
- Westbound traffic subject to automated enforcement.
- Crash data: The city did not provide any crash data for years prior to camera activation. For after camera activation, they provided: 6 crashes in 2011, 4 crashes in 2012, and 1 crash in 2013.
- Crash data:
 - 18 in 2004
 - 16 in 2005
 - 13 in 2006
 - 9 in 2007 – speed camera activated
 - 13 in 2008
 - 10 in 2009
 - 12 in 2010
 - 6 in 2011
 - 8 in 2012
 - 4 in 2013
- From DOT crash records -- all crashes on East River Drive between and including intersections with College Avenue east to Oneida Avenue.

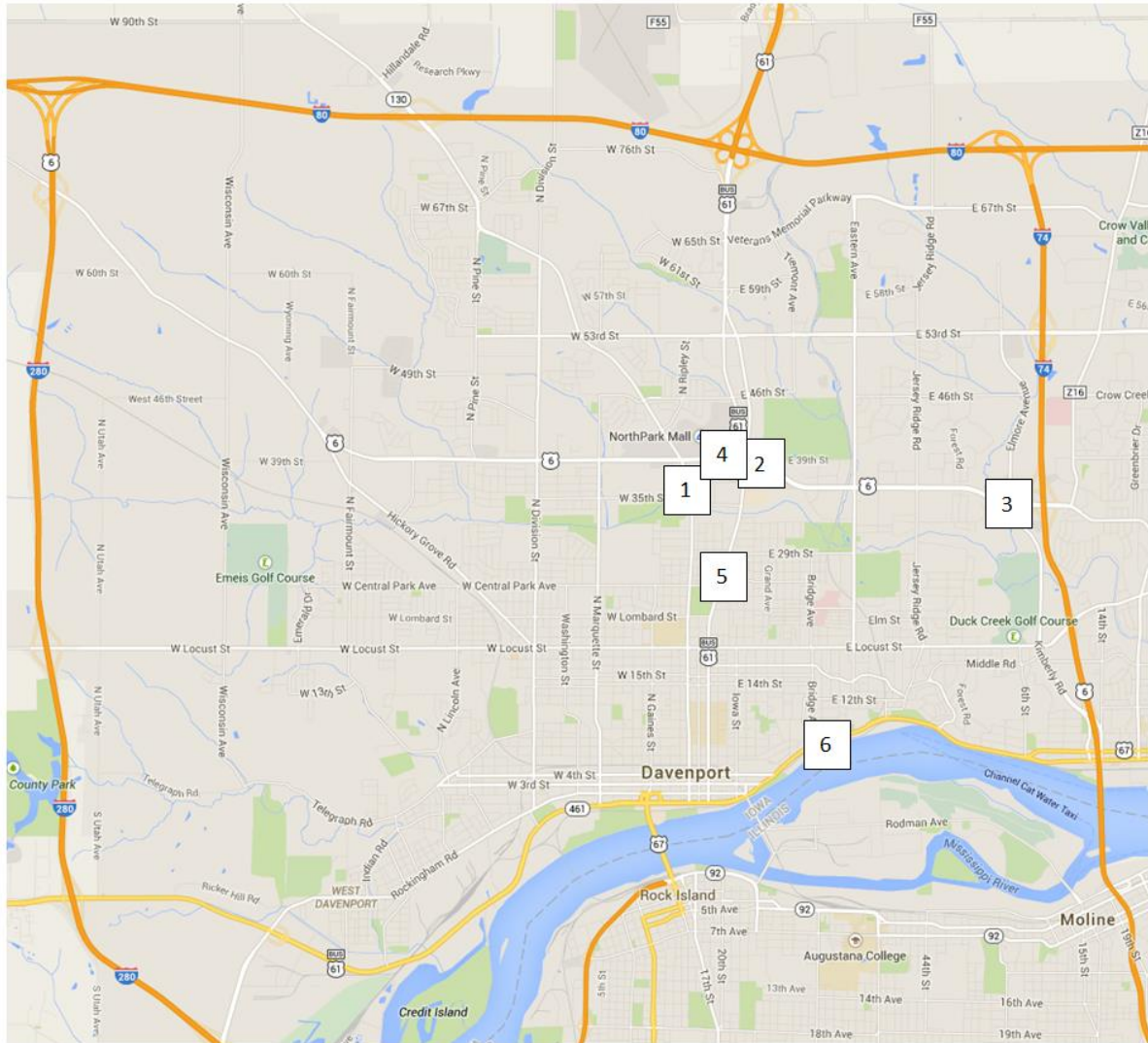
Resulting Action:

- Continue operation of this speed camera at this location.

Timeframe:

The city shall implement the resulting actions by April 17, 2015. The city may appeal this decision pursuant to Iowa Administrative Code 761—144.9(307). Such an appeal should be submitted to the Iowa Department of Transportation Director within 30 days of the date of this decision.

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 Elmore Ave
4. Kimberly Road and Welcome Way
5. 2600 block of Brady St
6. 1200 block of East River Drive