

## Evaluation of Des Moines 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 Des Moines uses ATE systems to enforce red-light running violations at two signalized intersections on the primary highway system. In addition, they use an ATE system to enforce speed violations at one location along I-235.

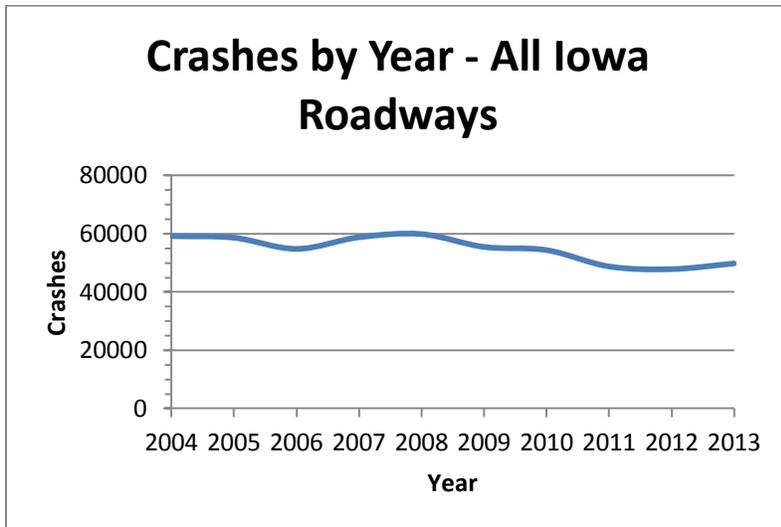
In 2012 Iowa State University developed a report titled, "Toolbox of Countermeasures to Reduce Red Light Running". The report documented that at signalized intersections, red-light running crashes make up 24.5% of all crashes and account for 31.7% of all fatal and major injury crashes. This toolbox is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

- "2013 Annual Report, Automated Traffic Enforcement on Primary Highways in Des Moines", April 2014;
- August 26, 2014 email from David Seybert to Steve Gent;
- I-235 Safety Audit, conducted November 24, 2014.

#### **Intersection speed and red light cameras:**

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

### East 15<sup>th</sup> Street and Maple Street

#### Findings:

- Camera activated 7/2011.
- Northbound approach subject to traffic camera enforcement.
- Crash data: 26 before activation (total for 2009 and 2010); 11 after activation (total for 2012 and 2013) – from city provided crash data.

#### Resulting Action:

- Continue operation of red-light camera at this location.

### Martin Luther King and School Street

#### Findings:

- Camera activated 7/2011.
- Eastbound approach subject to traffic camera enforcement.
- Crash data: 28 before activation (total for 2009 and 2010 ); 16 after activation (total for 2012 and 2013).
- This is an intersection of two, one-way streets. Traffic enters from the west and the north only.
  - o Approximately 90% of all crashes are a right-angle crash involving an eastbound and southbound vehicle
- The number of red-light citations at this location is extremely high: 5,040 in 2012 and 6,146 in 2013.
  - o A majority of the citations are from the far right lane involving drivers turning right on red, over 5,000 of 6,146 citations in 2013.
- The “photo enforced” sign is 650+ feet from the intersection
- The DOT wants to work with the city to conduct an operational analysis of the intersection to determine if prohibiting all right-turn-on-red movements, for eastbound School Street to southbound MLK Blvd, would improve the overall safety of this area.

#### Resulting Action:

- Continue operation of red-light camera at this location.
- Place an additional “photo enforced” sign on School Street/exit ramp closer to MLK Blvd.

### **Fixed Speed Cameras on I-235:**

Fixed speed cameras: The city has one set of fixed speed cameras located on I-235 near Waveland Golf Course. DOT's findings and resulting action as to each location are set forth below.

#### I-235 Eastbound near Mile Marker 4.9:

- Cameras activated 10/2011.
- Crash data: 14 before activation (total for 2009 and 2010); 9 after activation (total for 2012 and 2013).
  - o Crash data for 0.7 miles (mile marker 4.8 – 5.5) – city provided data
  - o This location experiences a low crash rate -- as per I-235 Safety Audit.
- The number of speed citations at this location is extremely high: 36,202 in 2012 and 42,156 in 2013.
- Iowa Administrative Code 761-144.4(1)(c) provides that automated enforcement should only be considered in extremely limited situations on interstate roads because they are the safest class of any roadway in the state and they typically carry a significant amount of non-familiar motorists.
  - o Local drivers are typically aware of speed cameras and therefore monitor their speed accordingly. Non-familiar drivers often do not see/read the photo enforced signs and therefore may not monitor their speed accordingly.

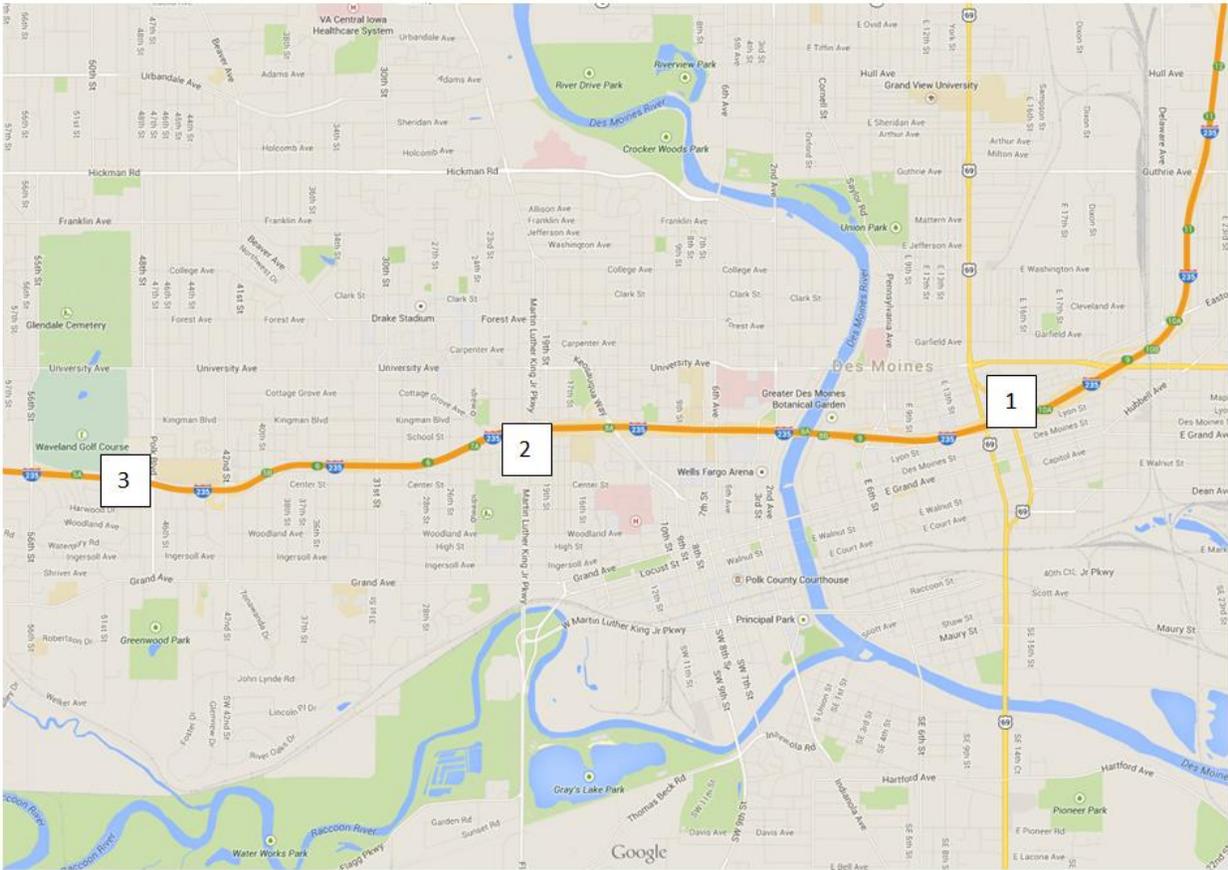
#### Resulting Action:

- Remove the eastbound I-235 cameras near Mile Marker 4.9.
  - o Crash rate was low before the cameras were installed
  - o Iowa Administrative Code 761-144.4(1)(c). Limited use on interstate roadways.

### **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 Des Moines ATE systems on the primary highway system:**



- 1. East 15<sup>th</sup> St and Maple St
- 2. MLK and School St
- 3. I-235 EB near Waveland Golf Course