

## Evaluation of Muscatine'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 Muscatine uses ATE systems to enforce red-light running and speed violations at four signalized intersections on the primary highway system.

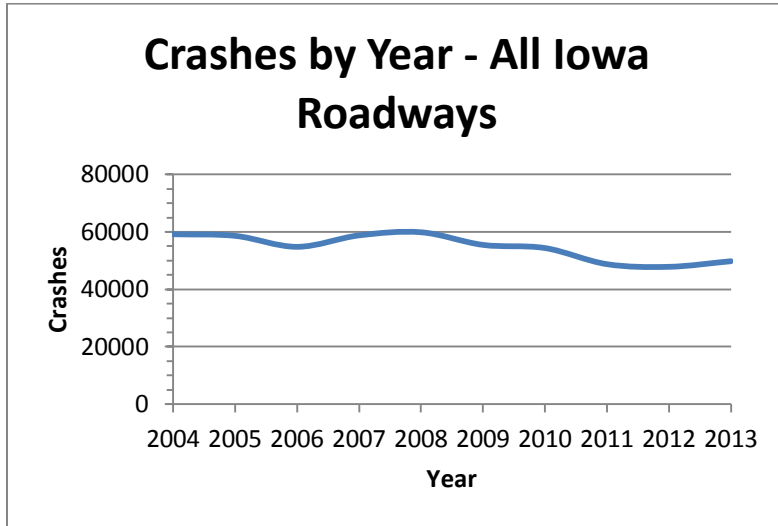
In 2012 Iowa State University developed a report titled, "Toolbox of Countermeasures to Reduce Red Light Running". The report documented that at signalized intersections, red-light running crashes make up 24.5% of all crashes and account for 31.7% of all fatal and major injury crashes. This toolbox is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

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

- “City of Muscatine Automated Traffic Enforcement Report” covering calendar year 2013
- September 10, 2014 email and attached information from Phil Sargent 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.

### University Dr. at US 61

#### Findings:

- Camera activated 3/18/2011.
- Westbound approach subject to traffic camera enforcement.
- Crash data: 10 before activation (total for 2009 and 2010); 11 after activation (total for 2012 and 2013) – from city provided crash data.
- The westbound camera on US 61 is located approximately 830 feet after a lower speed limit sign (55 mph to 45 mph).
  - o Iowa Administrative Code 761-144.6(1)(b)(10) provides that automated enforcement should not be placed within the first 1,000 feet of a lower speed limit.
- The number of speed citations at this location is high: 8,992 in 2012 and 7,262 in 2013.
- The DOT is interested in working with the city to review the concept of adding advance signal warning flashers (Be Prepared to Stop When Flashing) similar to some other signalized intersections on the US 61 Muscatine bypass.

#### Resulting Action:

- Permanently remove the westbound camera at University Drive and US 61
  - o Crashes have increased since the camera was installed
  - o High number of speed violations
  - o Camera is within 1,000 feet of a lower speed limit

### Mulberry Ave at US 61

#### Findings:

- Camera activated 3/18/11.
- Westbound approach subject to traffic camera enforcement.
- Crash data: 15 before activation (total for 2009 and 2010 ); 12 after activation (total for 2012 and 2013) – from city provided crash data

#### Resulting Action:

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

### Cleveland and Park Ave (Business US 61)

#### Findings:

- Cameras activated 3/18/2011.
- Northbound and southbound approaches are subject to traffic camera enforcement.
- Crash data: 13 before activation (total for 2009 and 2010); 9 after activation (total for 2012 and 2013) – from city provided data.

#### Resulting Action:

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

Washington and Park Ave (Business US 61)

Findings:

- Cameras activated 5/21/11.
- Northbound and southbound approaches are subject to traffic camera enforcement.
- Crash data: 15 before activation (total for 2009 and 2010); 7 after activation (total for 2012 and 2013) – from city provided crash data.

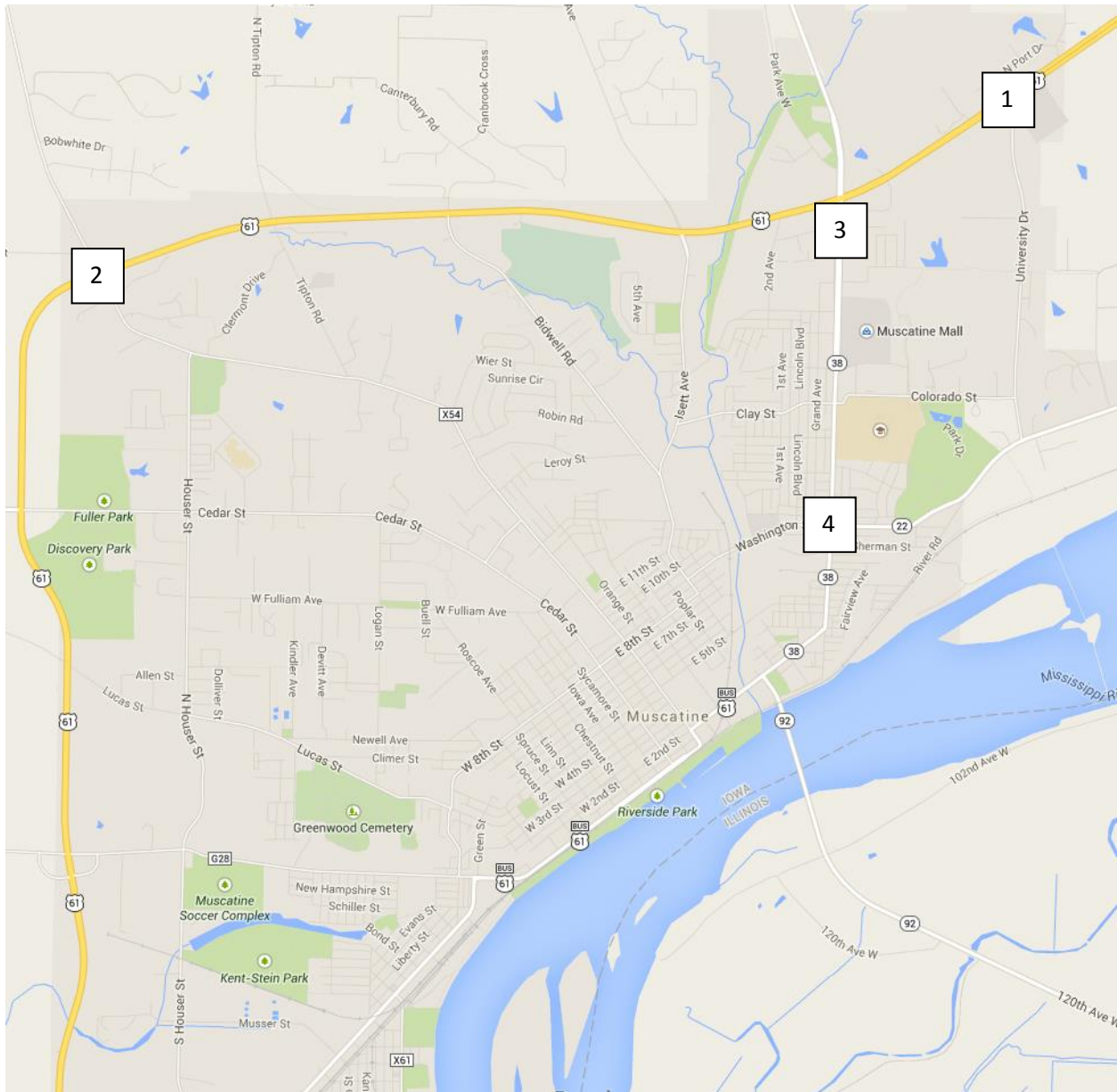
Resulting Action:

- Continue operation of speed and red-light cameras 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 Muscatine's ATE systems on the primary highway system:**



1. University Drive and US 61
2. Mulberry Ave. at US 61
3. Cleveland and Park Ave (Business US 61)
4. Washington and Park Ave (Business US 61)