

# CITY COUNCIL COMMUNICATION



**MEETING DATE:** January 19, 2010      **ITEM NUMBER:** 5  
**TYPE OF ITEM:** Study Session  
**PRESENTED BY:** Mike Butler, Public Safety Chief (x8532)  
Michael Bell, Traffic Sergeant (x8871)  
Michael Stogsdill, Master Police Officer (x3355)

**SUBJECT/AGENDA TITLE:** Automated red light and speed enforcement systems.

**EXECUTIVE SUMMARY:** In an effort to further protect and save the lives of our citizens, the Longmont Police Department is recommending the implementation of automated red light cameras at intersections and automated speed enforcement systems.

**COUNCIL OPTIONS:** Approve for further analysis or Not approve for further analysis

**RECOMMENDED OPTIONS:** Approve for further analysis

**FISCAL IMPACT & FUND SOURCE FOR RECOMMENDED ACTION:** At minimum, revenue neutral, but the actual revenue received will depend on the factors discussed below.

## **BACKGROUND AND ISSUE ANALYSIS:**

The volume of traffic operating within the city limits of Longmont has increased substantially, particularly within the past 3 years. The increase in traffic can be attributed to many factors such as increased population, increased worker transient traffic, through traffic going to other locations within the state, and increased tourist traffic. While traffic enforcement has always been a paramount function of the Longmont Police Department to increase the safety of our streets; technological advances have provided tools available to achieve more efficient traffic enforcement objectives. Automated enforcement equipment such as, fixed red light cameras and mobile speed vehicles, are modern tools that assist the police department in enforcing our existing traffic laws. These types of systems according to the National Highway Traffic Safety Administration have been found to reduce broadside collisions by greater than 40% and reduce speeds in a city by about 10% thereby reducing the number and severity of injury crashes making the streets safer by effectively altering driver behavior. For example, the city of Fort Collins has experienced a 62% decrease in broadside crashes since the implementation of red light cameras.



Our city is continuing to experience an increase in the overall amount of traffic flow throughout the community while continuing to have the police resources stretched. During the 2008 City of Longmont Customer Satisfaction Survey, 28% of the citizens reported “Traffic” to be one of the three biggest problems Longmont will have to face in the next 5 years. This followed “Growth and overpopulation”, “Economy, jobs and cost of living”, and “General crime (vandalism, drugs, violence)”. The police department has a direct impact on “General crime (vandalism, drugs, violence)” and “Traffic”. With the implementation of photo radar and red light cameras, the city can augment the police department’s efforts in traffic safety, while allowing resources to be redirected towards the general crime concerns from the Longmont citizens.

The 2008 City of Longmont Customer Satisfaction Survey showed “Enforcing traffic laws” to be below both the national benchmark comparison and the Front Range benchmark comparison. Only 57% of the respondents in the survey felt “enforcing traffic laws” was “good” or “excellent”. The respondents to the survey felt “Emergency police services”, “Crime prevention”, and “Enforcing traffic laws” to be important city services. Respectively, 97% of the respondents felt “Emergency police services” was very important or important, 96% felt “Crime prevention” was very important or important, and 82% felt “Enforcing traffic laws” was very important or important when talking about ranking the services provided by the City of Longmont. Generally speaking, the citizens of Longmont, through this survey, have conveyed that “Enforcing traffic laws” has a high priority, and currently a lower quality of service.

In 2009, the Longmont Police Department completed a Community Survey as they have done every two years since 1999. In the survey, residents were asked to identify what they believed to be an issue that is a “Moderate or Major Problem”. The issue that was at the top of the list from 1999-2009 was “Speeding cars”. The same survey showed, of thirteen potential crime events that could happen to themselves or a family member, being “Injured by careless driver” was the most concerning event followed by being injured by a drunk driver.

In the 2009 survey, residents were asked to rate the Longmont Police Department various areas of police services. One of the areas was “Traffic Enforcement”. The residents rated the police department as a 69 on a scale of 0-100, with 100 being equal to very good and 0 equal to very bad. In the survey, Longmont residents rated the importance of police services to be 70 on a scale of 0-100, when 0 is equal to not important and 100 is equal to essential. Residents were

asked to rank the services they considered most personally beneficial. The residents advised the following six in order: Gang control, crime prevention, drug enforcement, arresting criminals, visible patrol & demeanor, and traffic enforcement & other. Seventy-five percent of the residents believe that “Speed & Traffic Violations” are either “entirely responsible or very responsible” in solving Longmont’s community problems.

The Longmont Police Department currently has 138 commissioned officers. There are 6 commissioned officers assigned to the Traffic unit, five officers and one Sergeant, plus three Community Service Officers. Community Service Officers are non-commissioned employees who complete accident investigations, but they can not proactively enforce traffic laws. There are eighty commissioned officers who work in the Patrol Division and seven commissioned officers in the Gang and Crime Suppression Unit. The remaining commissioned officers work in the Detective Division or in Administration and their primary duties are not working in uniform patrolling the streets of Longmont.

During 2009, there were a total of 4,003 speeding tickets issued by all commissioned officers in the Longmont Police Department. This was an increase from 2,482 tickets issued in 2008. Of the 4,003 speeding tickets issued in 2009, the traffic unit issued 1,915 speeding tickets or forty-seven percent of all of the speeding tickets issued. The number of accidents decreased from 2008 by eleven percent. However, the number of injury accidents increased by twenty-six percent and the number of fatal accidents increased by seven hundred percent.

Looking at the 2009 community survey, it is clear the citizens believe traffic enforcement is the responsibility of the police department. They believe “Speeding cars” to be “Moderate or Major Problem.” The police department does not have a dedicated traffic enforcement unit, where the officers’ only job responsibility is the proactive enforcement of traffic laws. The five commissioned Traffic Officers and three Community Service Officers, for the past three years, have investigated sixty-one percent of all traffic crashes and also issued forty-seven percent of all speeding tickets. Even with the increased number of traffic citations issued, citizens still feel there is a speeding problem and current staffing resources are taxed. In today’s environment, additional staffing may not be possible. We believe automated traffic enforcement, at no cost to the city, may be the viable alternative to additional police staffing.

Using the most recent accident data available for the City of Longmont, from 2006-2008, 18.5% of all accidents were classified as a broadside collision and 7.7 % were classified as an approach turn collision. The definition of a broadside collision is when two cars, traveling perpendicular to each other, collide. In order for the collision to occur, one car must fail to yield the right of way or disregard a traffic control device. The definition of an approach turn collision is when one of two vehicles, traveling in opposite directions, turns left in front of the other vehicle which is approaching. This type of collision usually occurs at an intersection or driveway access. The recent accident data shows that 23.03% of all broadside collisions and 14.3% of all approach turn collisions result in an injury.

The table below shows the number of accidents that occurred in the City of Longmont. The statistics are provided by the Traffic Unit Sergeant.

**LONGMONT TRAFFIC CRASH STATISTICS**

2007 Crash Statistics ----- Jan. 2007 to Dec. 2007

Hit and Run Crashes	435
Injury Crashes	372
Non-Injury Crashes	2041
Private Property	600
Fatality	7

2008 Crash Statistics ----- Jan. 2008 to Dec. 2008

Hit and Run Crashes	469
Injury Crashes	347
Non-Injury Crashes	1909
Private Property	468
Fatality	1

2009 Crash Statistics ----- Jan. 2009 to December 31, 2009

Hit and Run Crashes	373
Injury Crashes	436
Non-Injury Crashes	1709
Private Property	305
Fatality	8

During 2007-2009, there were five fatalities resulting from either a broadside collision or approach turn collision. Both of these collisions typically occur at intersections and involve one vehicle failing to yield the right of way. The broadside collisions occur either when a driver fails to stop as required by a traffic control device (i.e. signal light, or stop sign), or when a driver

stops, but fails to yield the right of way to the other vehicle traveling on a perpendicular roadway.

When looking at the broadside collision, 20.8% of the broadside collisions occurred because a vehicle failed to stop, or disregarded, a *red signal light* at an intersection. Of the accidents which resulted in severe injury or a fatality resulting from a broadside collision, 30.5% were caused by a driver *failing to stop at a red signal light*.

According to the City of Longmont Public Street Traffic Accident Report from November 2007, there are two main causes of approach turn collisions. The first is when a driver does not estimate the distance or speed of the approaching traffic. The second is when a driver gives an inappropriate response to a yellow or a red signal display at a signalized intersection where permissive left turns are allowed. The data shows that 72.3% of all severe injury and fatal approach turn collisions occurred at a signalized intersection.

The injury severity suffered by a passenger or driver of a motor vehicle involved in an accident can be attributed to the type of accident. Cars are designed to protect the occupants of the vehicle; however the car does have vulnerable points. The front of the vehicle has been designed to absorb most of the energy from a collision, thus reducing the injury and fatalities to the occupants of the vehicle. The distance from the outside to the passenger compartment is greater at the rear of the vehicle as there is typically a trunk or cargo area that can absorb the impact from a collision and reduce the likelihood of injuries to the occupants in the vehicle. The seat back and headrest (if properly adjusted) can also absorb much of the energy from the crash during a rear end collision which reduces the likelihood of injuries. The sides and roof of the vehicle are also designed to absorb energy, however, there is less distance between the passenger and the outside in these locations so the passenger is closer to the collision. This results in a higher likelihood of injury to the occupants of the vehicle during a side impact collision, or roll over crash.

These facts are shown statistically here in the City of Longmont based on the most recent published data from the City of Longmont Public Street Traffic Accident Report. Between the years of 2002-2006, the two types of accidents where the highest number of incapacitating injuries or fatalities resulted were: 1) Right Angle (Broadside) collisions and 2) Approach Turn

collisions. Broadside collisions made up 25.5% of the incapacitating injury or fatal accidents while approach turn collisions made up 22.3%. The third type of collision where occupants received an incapacitating injury or fatality was rear end collisions. Rear end collisions made up 13.1% of the incapacitating injury or fatal accidents while head on collisions made up only 1.6%. Below is a table of the types of accidents and the number of accidents that occurred in the City of Longmont. Even though rear end collisions were the most common type of accident, more people were injured in broadside or approach turn collisions than in rear end collisions.

**City of Longmont Accidents by Type 2002-2006**

Accident Type	Number of Accidents	% of Accidents
Rear End	3467	34.3
Broadside	2002	19.8
Parking Related	1351	13.4
Fixed Object	1011	10.0
Approach Turn	950	9.4
Sideswipe-Same Direction	486	4.8
Bicycle	208	2.1
Overtaking Turn	182	1.8
Pedestrian	116	1.2
Sideswipe-Opposite Direction	120	1.2
Head On	50	0.5
Overturning	48	0.5
Other Non-Collision	54	0.5
Other	50	0.5
<b>Total Accidents</b>	10,095	100%

The Four Highest Traffic Crash Rate Intersections Based on 2006-2008 data as provided by  
City of Longmont Traffic Engineers

Rank	Location	# of Accidents
1.	Ken Pratt Blvd/Main Street	174
2.	Hover Road/Ken Pratt Blvd	136
3.	Hover Street/Nelson Rd	102
4.	17 <sup>th</sup> Avenue/Main Street	98

Since broadside and approach turn collisions happen at intersections and many are caused by running red signal lights, the implementation of a red light camera program would reduce the number of broadside, approach turn crashes, and the number of injuries sustained during these

types of crashes. This is based on historical data from neighboring communities, specifically the City of Boulder, and the City of Fort Collins.

### **CURRENT COSTS TO THE CITY**

Whenever an accident occurs on a public roadway, a police officer or community service officer responds to investigate the accident. It takes approximately one staff hour to investigate a basic property damage accident. It takes approximately two staff hours to investigate an injury accident. It takes approximately 100 staff hours to investigate a fatal accident.

Examining the accidents which occurred during 2007-2009, approximately 5,659 staff hours were spent investigating property damage accidents. Approximately 2,310 staff hours were spent investigating injury accidents. Approximately 1,600 staff hours were spent investigating fatal accidents. These staff hour totals do not include court time and traffic enforcement, only on accident scene investigations. The six commissioned officers assigned to the Traffic Unit are responsible for all fatal accident investigations.

### **RECOMMENDATION FOR CORRECTIVE STEPS**

After careful study, it is recommended that the City of Longmont move forward with adopting a red light and speed camera enforcement program and to begin contract negotiations with Redflex Traffic Systems. The ultimate goal of this program is to reduce the number of red light and speed violations in the city and to improve the quality of life of our citizens by improving traffic safety in our community.

Red light cameras started out as a railroad crossing program. They have operated in Europe and Asia for decades. The first program in the United States began almost 20 years ago by the City of Paradise Valley, AZ to help augment their police force and to manage the rapid growth in their community.

Currently in the U.S., these types of programs are active in 21 states and over 400 cities, several of which are in Colorado and include the City of Boulder and the City of Fort Collins. In fact, the technology is not only backed by the National Highway Traffic Safety Administration, it is also backed by The Insurance Institute for Highway Safety and The National Stop Red Light Running Coalition. Many of the programs have been certified by the International Association

of Chiefs of Police as being one the most effective tools for traffic calming and driver behavior modification. For example, the City of Fort Collins has seen a speed compliance increase since the implementation of the automated speed enforcement system. When the program was implemented, the city had an approximate speed compliance rate of 18%. In 2009, the city saw a speed compliance rate of approximately 53%.

While the Longmont Police Department diligently endeavors to make the streets safe, a red light and speed camera program would provide 24-hour, 7-days-a-week enforcement at intersections and other problematic locations where violations and crashes occur most frequently. Collisions involving red light running are most likely to result in injuries and significant property damage. When there is no collision involved, it is often more dangerous for police officers to apprehend and cite a red light runner because the officer must often also run the red light to stop the violator. Often times, the act of pursuing the red light violator is too dangerous, and therefore the officer does not pursue the violator to issue a summons. Furthermore, the use of the automated enforcement technology would act as a “force multiplier” allowing the Longmont Police Department to focus on the more egregious needs of the city and to target other vehicle stops for offenses such as DUI, careless, and reckless driving behaviors.

Moreover, there are studies such as one conducted by the Insurance Institute of Highway Safety, (IIHS) that indicate that implementation of red light camera systems has a secondary effect of reducing all types of collisions in areas where they are installed. In cities where they are installed, police departments have witnessed not only reductions in crashes at the intersections but throughout their entire community. This is believed to be from the fact that red light cameras are “Visible Enforcement” and can make drivers more aware and attentive to their driving habits and less distracted. Red light and speeding violations directly affect the quality of life in our community and create a serious danger to the motoring public and law enforcement officers. In the city of Boulder, there has been a 65% reduction in red light violations at intersections where red light cameras have been installed. There has been a reduction of 57% of accidents caused by red-light running at the intersections where red light cameras are installed.

### **AUTOMATED RED LIGHT AND SPEED PROGRAMS IN NEIGHBORING CITIES**

The Longmont Police Department has researched automated red light cameras and speed enforcement in cities near Longmont as well as other cities with similar populations. The City of

Boulder currently has eight red light cameras and two speed enforcement vans. The City of Boulder deploys the two speed vans approximately 160 man hours a week. During the months of January through November 2009, there were 18,731 red light violations recorded. Of the recorded violations, sixty-two percent of the violations had summonses sent. The other thirty-eight percent were not served for various reasons, one of which was the inability to identify the violator. During the same time, there were 25,554 speed violations recorded. Of the speed violations, approximately eighty-two percent had summonses sent to the violators. The other eighteen percent were not sent due to the inability to identify the driver's of the vehicles due to various reasons.

The City of Boulder currently receives payments from approximately eighty percent of the summonses sent for red light violations and eighty-eight percent of the speeding violations. Approximately ten percent don't respond and have to be personally served. The remainder of those who don't pay will provide proof the person summonsed was not the driver and will not nominate the name of the violator. On average, only one to two cases go to court for a hearing or trial each month for all violations. If a violator is recorded speeding in excess of 20 mph above the posted speed limit, the driver is personally served with a summons and a mandatory court appearance.

The City of Fort Collins currently has four red light cameras at two intersections in the city. Prior to March 2009, the city was operating with four cameras; however, the city was only monitoring violations that went straight through the red light. The cameras were not watching the traffic making right or left turns. In March 2009, additional cameras were installed to monitor the turn violations. Fort Collins is also operating two speed vans that are being utilized 100 man hours a week.

During the year of 2009 in the City of Fort Collins, there were 14,970 red light violations recorded. Of the recorded violations, the City of Fort Collins sent 10,295 summonses. There were 4,675 summonses not served for various reasons, one of which was the inability to identify the violator. During the same year, there were 15,196 speed violations recorded. The City of Fort Collins sent 12,949 summonses to the violators. There were 2,247 summonses not sent due to the inability to identify the driver's of the vehicle due to various reasons.

Currently, Fort Collins sees an approximate payment rate of seventy-five to eighty percent . The city currently averages approximately 50 violations a month that need to be personally served. Of those personally served, approximately eighty percent pay the fine. The remainder are either sent to collections, or they are dismissed when the driver is not identified. Approximately one to two citations a month are taken to trial.

### **PRELIMINARY DATA**

On July 22nd and 23<sup>rd</sup>, 2008 a preliminary survey was done for the Longmont Police at the six highest incident related intersections. Redflex` physically videotaped the traffic at these intersections for eight hours. Redflex then took the videotapes and reviewed them, counting red light violations which were videotaped. Engineers at Texas A&M University reviewed the number of red light violations, along with the physical geometry of the intersection, and calculated the number of potential straight through red light violations which would occur in one year. The calculated number of potential straight through violations was done using a Video Intersection Calculator or VIC. The VIC has been shown to be approximately 80% to 85% reliable. The VIC is more reliable than the video survey alone, which is only approximately 20% accurate. As referenced on the following chart, anything with a VIC of 350 or greater is considered to be a high incident location. Please note that these studies were conducted during the summer months, when traffic involving schools was not present. Traffic counts are much less when school is not in session (see table on next page).

**Longmont, CO Video Survey (VS) results with Video Intersection Calculator (VIC) 9-8-08**

**8 hour survey**

Date	Cross Street	Approach	L.Turn	Through	R.Turn	VIC
7/22/2008	Hover St N/S & Ken Pratt Blvd. E/W	NB	0	0	0	297
		SB	0	2	0	427
	Hover St N/S & Nelson Rd. E/W	EB	18	1	1	398
		WB	1	0	5	335
	Main St N/S & Ken Pratt Blvd.	EB	1	9	0	787
		NB	0	0	0	432
		SB	0	0	0	432
		WB	6	11	0	859
7/23/2008	Main St N/S & 17th Ave E/W	NB	1	9	2	917
		SB	1	13	0	1667
	Main St N/S & 3rd Ave. E/W	EB	0	0	0	240
		NB	0	12	22	795
		SB	0	1	4	390
		WB	0	0	0	240
	Main St N/S & 5th Ave. E/W	NB	0	10	2	523
		SB	0	9	4	656

**Sales Note: Survey data does not indicate the constructability of a potential approach. Engineer Review is required prior to the approach viability is being given to the city.**

Furthermore, on July 28<sup>th</sup> 2008 the Longmont Police Department requested that a speed survey be conducted at specific locations around the city. The following are the results of that speed survey:

<b>Longmont, CO Speed Survey results 7/28/08</b>							
<b>City, State</b>	<b>Posted Speed</b>	<b>Study Threshold Speed</b>	<b>Location</b>	<b>Approach</b>	<b>Date</b>	<b>Survey Time</b>	<b>Total Offenses</b>
Longmont,	25	35	3rd Ave (Sunset St. to Hover St.)	WB	7/24/08	12 hours	400
Longmont,	25	35	3rd Ave (Sunset St. to Hover St.)	EB	7/24/08	12 hours	230
Longmont,	30	40	Clover Basin Dr (Umbria Lane to Grandview Meadows Dr)	EB	7/23/08	12 hours	82
Longmont,	30	40	Clover Basin Dr (Umbria Lane to Grandview Meadows Dr)	WB	7/23/08	12 hours	65
Longmont,	25	35	Main St (5 <sup>th</sup> Avenue to Longs Peak Avenue)	NB	7/24/08	12 hours	121
Longmont,	25	35	Main St (5 <sup>th</sup> Avenue to Longs Peak Avenue)	SB	7/24/08	12 hours	115
Longmont,	30	40	Mountain View (Vivian Street to Francis Street)	EB	7/24/08	12 hours	81
Longmont,	30	40	Mountain View (Judson Street to Francis Street)	WB	7/24/08	12 hours	96

### **ESTIMATED BENEFITS**

After the implementation and running of the automated red light camera and speed enforcement program, the city can expect (based on data from existing programs) an approximate 25% - 30 % reduction in angle and broadside crashes, a reduction in injury and fatal accidents at signaled intersections and a higher speed limit compliance in residential, school, and low speed zones.

These benefits would likely be consistent with what the City of Boulder and the City of Fort Collins has seen since the implementation of their automated camera and speed enforcement programs.

### **COLORADO'S STATE REQUIREMENTS**

Colorado Statute (CRS 42-4-110.5) and its subsections authorize automated red light and speed enforcement under the following conditions:

The City of Longmont:

- Adopts an ordinance authorizing the use of the technology,
- Identifies the use of the technology by signs,
- Conducts speed enforcement in low speed school and residential zones,
- Sets the speed fine at \$40
- Sets the red light fine at \$75

### **Technology and Vendors**

Sergeant Michael Bell and Master Police Officer Michael Stogsdill have evaluated information from several vendors who provide red light camera programs. During this evaluation, they have reviewed various technologies available for photo enforcement programs and met with personnel from local municipalities and law enforcement agencies that operate such programs.

The research showed these programs can be offered to the City of Longmont from Redflex Traffic Systems on a monthly lease basis with **NO UP FRONT capital investment** and with contractual guarantees that the program will be “**Cost Neutral**” to the city for the life of the contract. Simply put; all equipment, software, installation, maintenance, training, collections, etc can be provided by the vendor who will guarantee in the contract that the program will be violator funded for the life of the contract. **Example, if \$0.00 is collected than \$0.00 is owed to the vendor.**

The table shows the fiscal impacts to the city if the program is implemented.

**Fiscal Impacts**

<b>Expenditure 2010-2011</b>		<b>Expenditure 2011-2012</b>	
Capital Outlay	All installation and maintenance to be paid by vendor	Capital Outlay	All installation and maintenance to be paid by vendor
Professional Services	All back office services to be paid buy vendor along with correspondence costs.	Professional Services	All back office services to be paid buy vendor along with correspondence costs.
Court costs	To be determined.	Court costs	To be determined.

**CONCLUSION**

The implementation of red light and speed camera programs would allow the Longmont Police Department to augment our current traffic forces and has been proven to decrease the number of speed and red light infractions in the jurisdictions where they have been put into operation. The red light program also reduces the number of broadside and approach turn collisions, which are two types of accidents where the vehicle occupants are most likely to receive injuries. The implementation of the red light and speed camera program makes for less stressed police resources and more attentive and patient drivers, which will ultimately make our streets safer while improving the quality of life of our citizens.

Therefore, we are asking for City Council to approve our request to start contract negotiations with Redflex Traffic Systems and the implementation of an automated red light camera and speed enforcement program.

**ATTACHMENTS:**

Program Executive Summary from Redflex Traffic Systems

Photo Enforcement Myth Busters and FAQs

Longmont Speed and Red Light Study PowerPoint

Red light violation DVD