MEMORANDUM

DATE: November 7, 2006

TO: Council Member Jose Ibarra
Ward 1

FROM: Assistant Chief Sharon Allen
Police Department
Operations Bureau 2

SUBJECT: ***Photo Enforcement Update***

This memorandum is intended to provide information for consideration of a program to implement a photo enforcement program in the City of Tucson. The concept of photo enforcement has been embraced by law enforcement agencies throughout the country. Several agencies in the Phoenix area utilize photo speed and red light enforcement as part of their traffic safety plans.

Overview of Photo Enforcement

Photo enforcement has been successfully utilized for several years in Arizona. Most agencies deploy a mixture of photo red light locations at intersections with high crash rates and speed enforcement using either fixed speed monitoring or mobile photo radar vans. Some agencies combine "speed on green" enforcement with red light enforcement at intersections.

The concept of photo enforcement involves the placing of cameras at set locations to capture an image of the driver of a vehicle and the license plate of the vehicle as the violation is committed. Digital photography is utilized in the newer systems (replacing the so-called "wet film" systems – thus eliminating the developing and processing time) and produces enough clarity to positively identify both offenders and vehicles. (In response to numerous complaints across the nation most systems now only photograph the driver and omit the passenger.) Many companies now offer enhanced digital capabilities that allows a violator to observe their violation via the internet. After the violation is captured, the vendor will perform an initial check of the violation to ensure the photos are legible, the vehicle matches the registration plus any other checks, such as gender matching of the driver and registered owner that are requested by the agency. Violations that pass this inspection are electronically sent to the police agency where, under Arizona law, an officer must review and authorize each notice of violation[1]. The violation records are then returned to the vendor for mailing.

Notices of violations are then mailed to the registered owners of the vehicle in question. If the registered owner was not the driver, they are asked to provide a copy of their drivers' license for comparison. They are also asked to provide information and a copy of the drivers'

[1] It should be noted that these are *not* traffic citations, as Arizona law does not allow for mail service. As such they are not enforceable and do not result in any sanction if ignored. The notices are worded in such a way as to seek compliance. Additional steps are required if the jurisdiction wishes to issue an actual citation.

license of the operator that committed the violation. If the owner shows they were not the driver and no additional information is provided on the operator of the vehicle, the action is dismissed. In the event there is no response from the owner, a process server attempts to serve the vehicle owner with a citation (summons). If no service is made in 120 days, the citation is dismissed as the time limit for civil violations has lapsed. Those who qualify may also take a traffic safety class and have the citation dismissed.

Evidence of Effectiveness

Both photo radar and photo red light enforcement programs have proven to reduce crashes in Arizona as well as other parts of the country. The City of Chandler reduced dangerous side impact crashes at photo red light controlled intersections by 42%. Mesa reports a 15% reduction in injury crashes at intersections equipped with red light cameras. Phoenix has realized an approximate 25% reduction in fatal crashes at intersections with red light cameras. The City of Scottsdale recently installed photo radar on the 101 loop and initial information suggests a dramatic reduction in speeding in this area and an approximate 10% reduction in crashes. In Washington DC, an aggressive fixed photo radar program reduced aggressive speeders from 30.9% of total vehicles in July 2001 to just 4% in October 2004. The National Highway Traffic Safety Administration (NHTSA) also recommends the use of photo radar and photo red light enforcement as part of an overall traffic safety plan and has produced manuals outlining best practices for these types of programs.

Photo Radar Vans

Photo radar vans differ from other photo enforcement in that they are mobile and can be deployed in problem areas at a moment's notice. An operator must staff the vans during the times they are deployed. Many Phoenix area agencies deploy vans in and around school zones during school times and then in identified problem areas such as construction zones in the evening and on weekends. Vans are usually deployed 16-20 hours per day. These radar vans can vary in appearance and type (min-van, standard van, SUV). The vans may be marked with city insignia or bear markings of the police department. Under one of several photo enforcement laws enacted by the Legislature this year, these vans must now bear a sign indicating that it is a photo radar vehicle and whether or not the system is in operation.

The only exterior equipment on the vans is two spotlight size strobes on the roof of the vehicle and the radar emitters on the size of the van. The emitters are low profile, and mounted on the side of the van. Some areas use totally unmarked vans for their enforcement. The cameras, radar and computer equipment necessary to synchronize the systems is contained inside the van. The set up and operation of the van is simple and does not necessarily have to be done by a police officer, though we may want to consider this from a policy standpoint. The van technician is not the person who testifies in court, but rather ensures the van is appropriately deployed to collect the evidence.

One limiting factor on the deployment of the vans is the need for a safe area from which to operate. Not all locations will offer this – the van cannot be parked illegally, particularly if not marked, cannot park on a sidewalk, nor on private property without consent. Finally, there is no dual use capability for these vans – the on-board systems are designed solely for speed

measurement and are not capable of doing red light enforcement (a more complex task that is better handled by hard mounted overhead systems.).

If a van is deployed in an area where the speed limit is 45 mph or above, portable signs indicating that vehicles are approaching a photo enforcement zone are required to be posted about 100 yards from the van, another law passed this session. According to the vendor, a photo radar van deployed two shifts per day would yield approximately 100 potential citations each day.

Stationary Radar

The City of Scottsdale has recently completed a stationary photo radar test on the Loop 101[2]. Although the final analysis has not yet been completed, the initial indications are that these cameras did reduce average speeds and decreased crashes by approximately 10%. Stationary radar cameras are mounted in fixed locations with known speeding problems. They do not require staffing at the site and the information is automatically downloaded to the vendor. Warning signs are required to be posted if the speed limit is 45mph or above. Several areas have successfully utilized stationary radar to slow traffic entering into high crash areas or longer stretches of roadways.

Photo Red Light Enforcement

The technology involved in photo red light enforcement has improved dramatically over the past several years. Digital technology allows for red light camera systems to be designed to detect vehicles passing straight through an intersection, those running the left turn arrow and those failing to stop before making a right hand turn. Agencies typically have these cameras installed at their high collision intersections and every agency contacted reported a noticeable reduction in crashes caused by red light running. Chandler did notice an increase in rear end collisions at some intersections, but these were less severe than the side impact crashes that were reduced at the same locations.

Unlike the vans, the permanently mounted red light cameras are fully automated and do not require the presence of a technician or operator. Agencies typically leave the photo radar at intersections for several years (they are hardwired and powered at the intersections and thus cannot be readily shifted to another location) and the cameras continue to generate violations and reduce the level of crashes throughout the time they are deployed. An example of this is in Chandler where they have had cameras at the same eight intersections since 2001 and still generate 800 citations a month while crashes have remained below similar intersections without the cameras. Phoenix however, reported that at some intersections where drivers were well aware of the presence of the cameras, the number of citations declined somewhat over time.

[2] This test concluded in late September. Controversy arose due to the fact that the enforcement action was occurring on a state highway rather than city streets. The operation was given a temporary allowance by the Arizona Department of Transportation, which has authority over the Loop 101. As of this writing, it has not been established whether or not ADOT would allow further enforcement by a municipality, nor whether the City of Scottsdale Council will seek to extend the program.

An enhanced feature that is available at most intersections is the "speed on green" capability. This technology utilizes the sensors that are installed for the red light cameras to measure speeds. This allows the camera to capture those speeding through the intersection on a green light as well as providing the speed at which vehicles run the red light. Controlling speed in an intersection can greatly reduce both the number and severity of crashes at the location. When combined with the red light running cameras, this feature provides a wide range of coverage for dangerous violations occurring in the target intersection.

Again, as with the rules discussed for the vans, the Legislature has mandated signage on the approach to any photo enforcement zone, including a specific notice as to whether or not the system is in operation at any given time.

Personnel Required

The most expensive portion of initiating a photo enforcement system will be staffing. The precise amount of staffing will ultimately be dependent upon the number and types of programs initiated. The two most critical areas for staffing will be Police and Courts. The Police Department will be tasked with reviewing and approving citations, amending citations, dismissing citations when appropriate and providing court testimony for contested violations.

Court administration will require additional clerical staff to handle the large numbers of citations the program would be expected to generate. Depending on the scope of the program, additional judicial staff could also be necessary.

Personnel must be in place before the first photo citation is issued. Overtime funding would only provide a short-term solution, and existing resources will be quickly overwhelmed if overtime shifts went unfilled. Dedicated staffing will be necessary and must be considered as part of the overall start up for the program.

If mobile photo radar is considered, then additional staffing of two positions per van will be needed to deploy the van. Some jurisdictions staff their vans with officers, but this is not required as officers review the evidence before authorizing the citation. Many agencies use civilian personnel or subcontract the staffing through the vendor. Having observed a van enforcing photo radar, it was noted there is little for the operator to do once the system is set up. The computer handles the actual operation of the system and the person in the van does not have the capability to edit the images. The advantage of using an officer is their ability to respond to on site situations (such as accidents) that may be observed.

As a guideline for the actual staffing needed, it is helpful to look at what some other jurisdictions do. The Phoenix program employs two radar vans that are staffed by the vendor and twelve red light cameras yielding about 3,500 to 4,000 citations per month. The courts have three clerical positions and a portion of a judge dedicated to the program. In the Police Department, there are two officers, a secretary and part of a supervisor tasked with the program. Chandler maintains eight photo red light intersections issuing 800 to 1,000 citations a month with one officer and one clerical person at the courts. It is therefore difficult at this point to establish a valid number we would need except to say that it will involve several sworn and non-sworn positions.

Equipment Costs

The industry has virtually eliminated the start up costs for equipment. In the case of radar vans, the customer can elect to provide the van and the vendor will provide and install the equipment, or the vendor will provide a fully equipped van for lease. Personnel to staff the van can also be provided by the vendor.

In the case of fixed options such as red light cameras or fixed photo radar, the initial equipment costs have also been defrayed. Many vendors will conduct a feasibility study at the locations chosen by the customer. Based on the activity of the location, the vendor will install all of the equipment at no charge with the citation processing agreement. The result is a turnkey operation with no initial outlay by the city.

Operating Costs

Most jurisdictions report that their photo enforcement operates at a deficit, and the evidence suggests that we should not expect the program to completely self-fund. Even though the systems generate relatively large numbers of citations, an analysis of what occurs with the citations reveals that only a small portion of fines are available to fund the program. Because of the rules regarding identification in Arizona, it is estimated that around 40% of the violations are actually cited. Of those cited, some drivers elect to take a traffic class, which dismisses the citation, and others simply default or cannot be served. When a fine is paid, only about 20% of the fine collected stays with the city with the rest going to the state as required. Most cities also will not pay for process service outside of their county.

A completely equipped photo radar van will lease for approximately $8,000.00 each month. This covers the van, equipment and processing of up to 800 citations. A processing fee of $3.50 per citation is assessed after 800 citations. This cost does not include using the vendor to staff and deploy the van, nor does it include fuel and maintenance.

Red light systems are billed according to the number of approaches that are monitored. A two-lane approach is billed at approximately $5,000 per month and a three-lane approach is $5,400 per month. This fee includes the processing of up to 600 violations per approach. A processing fee of $3.50 for each citation over 600 is charged.

The other billing option is a per citation charge. This method has been utilized by some agencies in the Phoenix area, however almost all of them have opted for the flat fee arrangement in their new contracts. This has not been so much of a financial decision as one driven by the perception of citations being issued as a revenue source. This method employs a sliding scale that decreases as more citations are processed.

In the past some cities were pressured to add speed enforcement simply because of the cost factors, as in some jurisdictions the red light camera systems would not offer sufficient revenue to the vendors. It is not known if this is still the case.

Court Issues

The laws regarding photo enforcement are still evolving in Arizona. Recently, the Maricopa Superior Courts ruled in multiple cases that a comparison between the drivers license photo of the owner and the driver of the vehicle must be done before the citation is sent out. Some agencies currently gender match the photo to the registered owner while others send out the citation without any comparison as along as the photo is legible. If the Phoenix ruling is upheld, the comparison requirement will drastically reduce the number of citations while increasing the staffing necessary to process a citation.

Some have proposed a strict liability standard that would simply allow the owner of the vehicle to be liable whether or not they were driving the vehicle. This certainly makes enforcement easier, but makes it difficult to argue from a safety standpoint – the aim is to get revenue (a fine) from someone, regardless of who is the bad driver. This is not currently the law in Arizona and efforts to push for it in the Legislature have failed thus far.

It is fair to say that the Legislature has been hostile to photo enforcement, offering a number of bills at each session to eliminate or limit it. Recently, the Legislature enacted laws that require signs to be posted at photo red light equipped intersections and in areas with speed limits 45mph or above if photo speed enforcement is present to warn drivers. Efforts that failed last year (but will likely be reintroduced this year) seek an outright ban (this has become law in at least two states - West Virginia and Ohio), seizing of all fines and revenues generated by a municipality for a state fund, and eliminating the license points for a violation (this is now the case in Washington state). The hostility toward these systems by a number of legislators is not expected to abate in the coming years.

Public Opinion Observations

Public opinion has been mixed on photo enforcement. Many surveys do show public support (most having been done in the Valley cities with the systems), although some of the survey instruments have been less than neutral. So long as the public feels the system is operated "fairly" support may generally be expected. This erodes quickly, however, if the system appears to be geared solely for revenue generation (speeds too low, no placement based on accident or safety data, "speed trap" sites, etc.) rather than truly intended to enhance traffic safety. There is also concern expressed by some on the propriety of a private entity making a profit from a law enforcement function.

Summary

There is clear and convincing evidence that photo enforcement systems are effective in reducing both the number and severity of crashes in intersections, and reduce speeding and crashes in speed prone areas. The technology is able to consistently and reliably capture violations with enough credibility to sustain convictions in court.

The evidence is equally compelling that photo enforcement is not a revenue generating program for the city. Traffic safety programs require funding. Whether the program is a technology enhancement, or placing additional enforcement officers in the field, there will always be a cost.

When balancing all of the costs associated with placing fully equipped and trained officers at intersections or along roadways to pursue violators and issue citations against the costs and issues associated with photo enforcement, the deficit created by a photo enforcement program is not unreasonable. These systems increase the safety in the community through safer roadways and police officers who must pursue violators to make stops in conditions that are sometimes congested or dangerous. Photo enforcement is consistent and reliable. The added benefit from these cameras is that they can provide evidence of other crimes as many suspects have been photographed in the area of their crimes. The downside of electronic systems, of course, is the loss of visible police enforcement in an area; the actual impact of this, however, is difficult to measure. Finally, the weighing of public sentiment for or against these systems is a decision that will need to be addressed by the Mayor and Council.

After reviewing the current systems that could be adopted, we make the following recommendations and observations for your consideration.

- The Police Department recommends that, subject to Mayor and Council approval, the City enter into an agreement with a to be identified vendor for one photo radar van. It is unlikely that any vendor will be willing to offer us a system for less than a one year contract, so we recommend that that be the initial period with direction to staff to complete an analysis at the conclusion of that period regarding the effectiveness and retention desirability of this system. The contract with the chosen vendor should be crafted in such a way as to allow the City to renew the agreement for a specified period of several more years without having to rebid it.

- The Police Department will pay for this operation, including staffing, from funds accumulated by the mandatory vehicle impound funds.

- Based on the experience of other jurisdictions, it is believed that use of photo enforcement systems would reduce collisions in Tucson, thus improving public safety.

- The amount of staffing, as well as an acceptable ongoing budget for the program, will need to be determined. This will not be fully determined until the direction is set on the type and number of systems desired. At a minimum, however, sworn and non-sworn personnel would be required to be on board before any system could be deployed. Existing personnel could not cover this operation without reducing somewhere else in our agency. Finally, based on the on-going experience of other jurisdictions, the City should expect any photo enforcement system to operate at a deficit.

- If the go ahead was received from Mayor and Council, and a funding source identified, an RFP process would be needed. In order to carefully craft the contract (and to avoid some of the pitfalls encountered over the years else where) and have adequate vendors from which to choose, one must realistically expect a period of several months lead time before a selection could be made.

- If the direction is to proceed with the acquisition of a photo enforcement strategy, we recommend that a joint committee with Police, Traffic Engineering and the Courts be

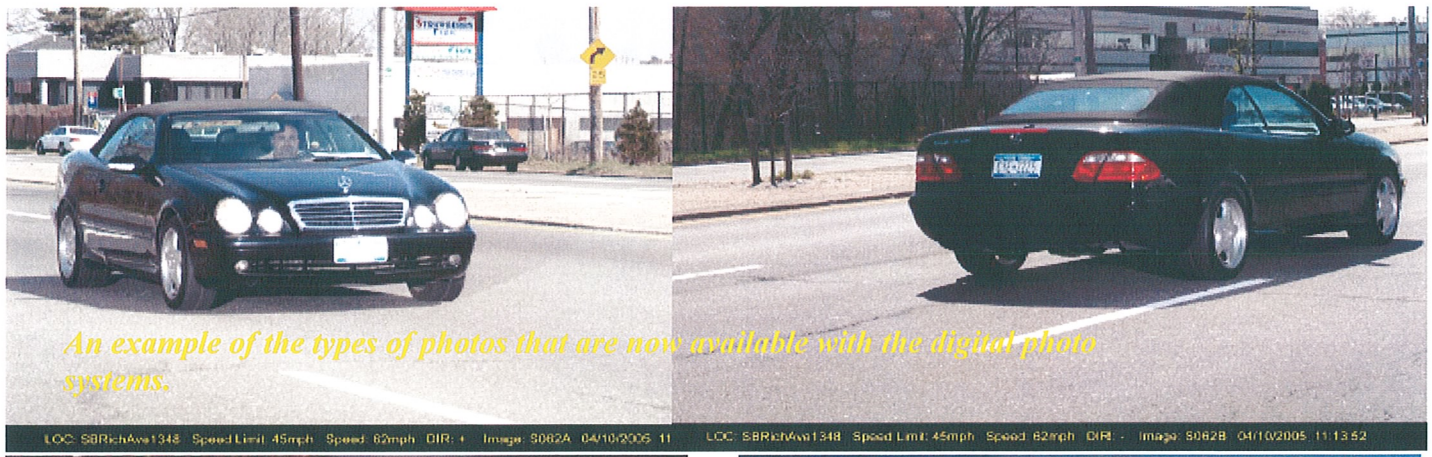
directed to determine the operational processes and staffing that will need to be in place prior to start up of the program. Additionally, this matter is sent to the Mayor and Council's Public Safety Sub-Committee for review.

A regularly available van, such as a mini-van, or an SUV, are needed to contain and operate the system. Both types of vehicles offer the needed interior room and visibility needed for the equipment.

A typical vehicle mounted radar system. The device on the left is the external radar emitter.

Example of the interior radar equipment in an enforcement van.

A typical fixed red light camera and its mountings. This varies somewhat by manufacturer.



An example of the types of photos that are now available with the digital photo systems.