UNIVERSITY OF TENNESSEE

Electronic Traffic Citations

Considerations When Acquiring Electronic Citation Systems and the Tennessee E-Citation Fee Statute

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by

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Objectives of This Paper

From officers, court clerks and judges to purchasing officers, information technology specialists and other public servants, this guide is meant to inform potential users and buyers of electronic ticketing systems before they purchase electronic citation technology. By encouraging well-informed staff members to consider the benefits and limitations of these systems before integrating them into their own, this paper will introduce basic to complex concepts involved. The paper will include information about how to purchase these systems and will answer common questions raised by recent legislation.

Potential buyers will learn what an electronic citation system is, how it works, and potential benefits and limitations of e-citation technology. It will also provide examples of questions worth asking e-citation vendors before purchasing their product. Most importantly, this guide will give its readers an idea of careful considerations that should be made before purchasing e-ticketing technology. The authors of the guide were informed by research on e-citations, examination of state law, discussions with cities that have purchased e-citation technology, and vendor-provided information. Our ultimate goal is to educate potential buyers before they spend significant time and money implementing this technology. As a result, buyers can make an informed decision that will most effectively serve their jurisdiction.

Tennessee Law on e-Citations

Under Tennessee law, it is legal to issue traffic citations electronically. Public Chapter 2350 amended T.C.A. § 55-10-207 to acknowledge that law enforcement officers can use electronic devices to submit traffic violations. The law puts authority into the hands of the local legislative bodies of counties and municipalities to decide whether or not to use electronic citation technology. Furthermore, local governments can decide to pass an ordinance (samples

available on MTAS MORe website and in Appendix) that imposes an additional electronic citation fine for traffic violators under T.C.A. § 55-10-207. The law says that,

> "The local legislative body of **any county or municipality** may, by majority vote, adopt a resolution or ordinance to authorize a county or municipal court clerk to charge and collect electronic traffic citation fees pursuant to this subsection."

However, the state government has the power to set the rules which cities must follow if they choose to use electronic citation technology and impose the fine. According to the law, cities and counties can collect a fee of exactly $5. The state also places restrictions on how the money is allocated and the ways that it can be spent. The law specifies that the court clerk retains $1 of the fee and the law enforcement agency is given $4. The clerk's portion can be earmarked only for computer hardware purchases and replacements. The law enforcement portion, however, can be spent more freely on electronic citation system and program expenditures, technology, equipment, repairs, replacement, and training. The fee has a 5-year sunset clause, meaning that once and ordinance is enacted, the authority to collect the fee ceases 5 years from that date.[i]

The decision to implement an e-citation fee is significant because the fee, if implemented, may generate money for the upkeep, replacement, and general maintenance of e-citation technology. However, with the sunset provision, it is unclear at present whether the fees will generate enough to cover costs. Because of the complex nature of the system, a holistic approach should be taken by a team of all those departments who will or may be affected.

Who Should Consider the Technology?

Generally, the decision to purchase e-citation technology is one suggested by law enforcement departments and court clerks to their councils or commissions. However, questions have been raised about what authority they have in the decision to select a particular e-citation system. After all, the law that allows the $5 e-citation fine states that "the local legislative body

of any county or municipality may…adopt a resolution to authorize…electronic traffic citation fees."[ii] Therefore, local governments have some degree of authority when it comes to the selection of e-citation systems.

It is strongly recommended that the purchase comply with the local and state's 1983 Municipal Purchasing Act, as may be required, and that a request for proposals issue. In order to keenly assess what is essential in the Request for Proposals (RFP) process, a local government has to understand not only its needs, but also whether the systems can or cannot meet those needs, such as data interfacing and communication within the local government, and, perhaps, to state agencies. For example, it is critically important when electronically submitting court action reports that the systems interface correctly.

Background on Electronic Citations

As police and government work has become increasingly digitized, many police departments and courts have turned to paperless systems of issuing and processing traffic citations.

No e-citation system is exactly the same as any other; however, all electronic citation systems require software. Police officers use the software when issuing citations from either handheld or stationary devices. That data is then sent, sometimes electronically, but more often by physical download, to the police department and to court databases.[iii] Court clerks use the software to record, schedule, and add court proceedings to the database.

An electronic citation system requires both hardware and software. Vendors offer several different hardware options. Cities can purchase handheld devices that officers take straight to the driver receiving the citation. The officer uses this device to scan the driver's license and generate the citations. Some e-citation hardware and most tablets provide the opportunity to optically scan

the Vehicle Identification Number (VIN) barcode to populate all the vehicle information into the system with no manual data entry, saving even more time and further reducing the opportunity for operator error (much the same as some smart phone apps allow a user to scan bar codes in grocery stores). Some systems use a stylus to sign the screen.[iv] Then, the officer prints the citation on a portable printer. (See example citations in Appendix.)

The officer collects the driver's license and returns to the patrol car to pull up the driver's information, to generate the citation, and to print the citation on a small printer. The driver signs a screen or the paper copy after it is printed and keeps a second copy of the citation.[v] Buyers have the option of a citation system running on a small computer that stays in the squad car. However, existing laptops or tablets in cars *may* be suitable for e-citation processes. For agencies that do not currently have in-car computing capabilities, the e-citation fee *may* provide funding to pay all or part of the purchase price of tablets or laptops that can used for e-citations and other law enforcement purposes.

Many vendors sell e-citation software, with each vendor offering a slightly different software package. Therefore, buyers have many options for e-citation software systems. To ensure that the process is controlled and authenticated, these systems tend to use unique identifiers not only for the issuing officers, but also for the judges who electronically sign the ticket.

Benefits of Electronic Citations

E-citation technology is undoubtedly less time-consuming than its paper-based counterpart. First and foremost, it saves time on data entry. In a paper-based system, court personnel have to re-key information from a paper citation into local, state, and court database systems. The electronic system sends the digital citation directly to the court's database, eliminating the need

to key in the data multiple times, saving a lot of time.[vi] Moreover, some police departments have seen a drop in the time it takes to issue a ticket. According to Police One magazine, it takes most patrol officers between 10 and 15 minutes to issue a standard citation; with an electronic ticketing system, officers are able to issue the ticket in two to three minutes.[vii] The move from a paper to digital citation system saves a lot of time for both police departments and court personnel.

Perhaps the biggest benefit of e-citation technology is the potential to save money. In an electronic system, personnel costs are reduced by not having to enter (or in some cases, re-enter) traffic citation information into the system. This may save a lot of money and reduce personnel shortages that many cities face. Moreover, the electronic system increases the accuracy of the system. In a paper system, court personnel often receive tickets that are illegible or have misprinted information. In a national study on traffic citation accuracy, approximately 10 to 20% of citations were found to contain errors, with some regions experiencing error rates as high as 35%.[viii] Tickets with errors are often unusable and simply voided, but still must be kept and stored. However, the electronic citation system requires just the click of a button, making errors much less likely. Tickets are issued more quickly and accurately in an electronic system. Correctly issued tickets decrease the likelihood that a citation will be dismissed.

Electronically-based citation systems also potentially make traffic stops safer for patrol officers. Roadside traffic stops are the second most deadly incidents encountered by law enforcement officers.[ix] One of the major contributors to the high death rate for traffic stops is the prolonged period of time officers are on the side of the road. The longer a traffic stop lasts, the higher the likelihood an officer may be injured by a passing motorist or violator who becomes agitated due to the long delay. An electronic citation system allows officers to make stops up to five times faster, significantly increasing officer safety. One system reported that information

from a stop was gathered in one minute, 27 seconds. Sending the information via Bluetooth to the printer ensures that the ticket is ready to tear off by the time the officer gets back to vehicle.[x]

Limitations of Electronic Citations

One of the most significant obstacles to implementing an e-citation system seemingly contradicts one of the system's biggest benefits. The electronic citation system saves time and money in the long run. However, to get the system off the ground takes a substantial investment, both in time and money. First, the local government must buy equipment (or use existing compatible equipment) needed to run an e-ticketing system. At the very least, law enforcement agencies will need to purchase software, handheld devices or computers to generate citations, printers, paper, and ink. Costs need to be covered for training staff to use the new technology, making repairs on existing equipment, and replacing equipment when it breaks or runs out, depending on contract terms. Furthermore, replacing an old and familiar system with a new and unknown one takes significant time and energy. Both law enforcement officers and court clerks will need to be trained on how to use the new system. If anything goes wrong in the early phases of the new system, corrections will take time and patience; thus it is prudent to operate dual systems for a short time when implementing a new system.

Sometimes, pilot projects using a dozen units for a few weeks will be sufficient to determine accuracy. In other cases, smaller systems may not require as much time, depending on the individual needs of each jurisdiction. That is why it is difficult to establish an average purchase price for one of these systems.

Everyone affected by the new system is going to have to spend time adjusting to changes; it is therefore very important to discuss the decision with everyone expected to use or deal with the system before purchasing e-citation technology.[xi]

Before purchasing software, a buyer should learn exactly what the technology can and cannot do. Every software program has certain limitations that could hinder officers and court personnel from using the system effectively. Officials from one city with e-citation technology mentioned the software's limitations in a discussion about e-citation systems. They revealed that their officers still issue paper citations in certain circumstances because the software cannot run two programs at a time. Therefore, if a law enforcement officer needs to report an accident and issue a citation, he or she must fill out one report, log out of one program, log into another program, then fill out the other report. As a result, many officers are filling out one report on paper and another report electronically.[xii] The system is designed to speed up the ticket-writing process; delays like this undermine that goal.

The same city also observed that their e-citation system did not interact well with the state system. The state appears to be lagging behind the cities technologically; it is still running bulk data processing on a main frame. Cities with e-citation systems send citations to the state electronically, and they arrive almost immediately. However, there is a significant delay on the state's end; court personnel report that it may take up to 7-10 days for citation data to appear in the state system. The city that we interviewed cited lack of coordination between the city and state systems as a factor that reduces e-citation systems' efficiency. They also suggested creating a central hub for major vendors of e-citation system to consult with state IT personnel so that the state can better understand and interact with cities that have e-citation technology.[xiii] At this time, however, no central hub appears to exist and effective computer communication between the local agency and state still presents a challenge, though as of this writing, the state has made strides to address its IT issues.

Additional Troubleshooting Considerations and Helpful Suggestions

As may have been previously stated, Tennessee licenses may contain information on a previous vehicle; therefore, officers should take care when swiping a license that the vehicle description matches the vehicle. Some judges have dismissed incorrect citations.

Some ticket units have stand-alone software and need charged batteries. When returning to the station, the information is docked into a docking unit and uploaded into the court's system. At least one city has reported that some information may be lost if the battery runs out mid-shift. Purchasing additional batteries or ensuring that the units are charged between shifts may address this issue. Alternatively, systems that use wi-fi can upload the information remotely on the road. These considerations may be important when crafting the RFP.

Consider ticket sleeves or pre-printed envelopes that will assist the court in processing the ticket faster and will give information to those who choose to attend court. Remember, all documents in the process should contain an A.D.A. notice and an e-citation is no exception.

View Toward the Future: Standards

These e-citation systems work on different platforms to share information (e.g., GJXDM). The question is what type of platform will be able to integrate with multiple courts using different systems so that writing an e-citation can be transmitted directly to the court with proper jurisdiction. Your IT professionals may be able to assist to try to predict what will work well not only now, but also in the future.

How to Purchase

Each jurisdiction must check its own purchasing guidelines to see if an RFP (Request for Proposals) is required, but most likely the price tag will require one. We would

recommend against splitting the purchase for handhelds and printers apart to avoid the bidding requirement.

See the Appendix for sample RFPs and related information.

How to Afford the System

The new e-citation statute was designed to contribute to the costs of purchasing and operating an e-citation system; however, it is not clear if the local government will be able to recover all costs associated with the system, given the legislation's sunset clause. One could argue that a court with a larger volume of citations would be able to recover more, and therefore more units, but it may be incorrect to presume a proportional recovery based on annual tickets alone. However, using trends, cities should be able to calculate potential recovery of costs to assist in whether the purchase is viable. Other factors should also be considered, though, such as cost savings in personnel data-entry time, etc. When making the decision to convert to e-citations, use time saved by officers, accuracy, faster audits, etc. as why you choose to convert, because at present, the fees that are allowed to be collected for five years may only offset the cost of the system and may not fully cover the costs.

Because clerks' training is *not* included with their $1 allocation of the $5 e-citation fee, exploring bundling of training with your vendor may make that training free or less expensive.

Another potential statutory source of revenue to cover these costs may be the standard computer fee statute. When a city council sets its court costs, they must reasonably approximate the actual costs to process the citation. For counties, and cities who have adopted the General Sessions statute on court costs as their own, T.C.A. § 8-21-401 (j) allows funds earmarked funds for computerization and states,

> "Out of all the general filing fees charged by court clerks, two dollars ($2.00) of the amount collected shall be earmarked for computer hardware purchases or replacement, but may be used for other usual and necessary computer related expenses at the discretion of the clerk. Such amount shall be preserved for these purposes and shall not revert to the general fund at the end of a budget year if unexpended."

A third option is to explore the potential for a lease-purchase agreement with your vendor but discuss this option with your city attorney and finance official.

To date, no grants have been identified for this particular type of hardware or software. It may be worthwhile to keep apprised of future grant offerings.

Special Financing

While the e-citation fee legislation provides cities with a way to cover costs over the course of five years, many cities choose to purchase these systems sooner. One way to accomplish that is through an interfund transfer or a direct purchase from the general fund using tax dollars. Another similar method uses a Capital Outlay Note where funds are borrowed, then paid back from the General Fund. Then, the fees in the Special Revenue Fund can be used to pay back the General Fund expenditure. See your MTAS Financial Consultant for more information before considering these more complex transactions.

Accounting Considerations

The e-citation fee statute sets forth a division of the $5 fee very clearly: $4 goes to the originating local enforcement that wrote the citation and $1 goes to the court clerk. The funds that are transmitted to the police agency MUST go into a special revenue fund, much like the Drug Fund. The funds set aside for Court Clerks can go into a Restricted Fund Balance checking account and anything not used at the end of a budget year shall *not* go back into the General Fund if unexpended.

Clerks should be aware that the Internal Control Policies established by the Tennessee Comptroller of the Treasury (See http://www.comptroller.tn.gov/la/citymanual.asp) will also apply to any e-citation system. The clerk must ensure that all tickets issued are accounted for in the system. Many systems issue consecutive numbered citations, but each ticket must contain information that identifies the issuing officer. At this point, this technology has advanced beyond the considerations raised by the internal control procedures. Care should be taken to identify *at the RFP stage* any information that must be accounted for by those state regulations and inserted into contract requirements. Additionally, any agreement regarding maintenance in the contract should contemplate including updates resulting from any changes in law.

E-citation Issued in One Jurisdiction; Heard in Another

A question has been posed as to what would happen to the $5 e-citation fee if a traffic citation were written in a city that adopted the fee, but had to be filed in the county's General Sessions court because the city's municipal court did not have jurisdiction over the offense. While the statute clearly gives $4 of the $5 to the originating law enforcement entity (that passed the fee and issued the citation), it appears the General Sessions Clerk has the authority to keep the clerk's $1 portion without the county's having passed a similar measure to adopt the $5 fee. The County Clerk should remit the $4 back to the city that issued the citation.

Start Up and Training Issues

When working with a vendor, a buyer usually want to be assured the system works before it goes live, so it will run "parallel systems," or paper citations plus a pilot program on the electronic devices. That means some officers will be both writing tickets and inputting them into the devices. Some vendors have reported only a 2 week program using a dozen officers, others

go longer to satisfy their customers. It depends on the size of the agency, the training needed, and the ability of departments to phase in the technology.

Other Frequently Asked Questions

Please see the Appendix for Frequently Asked Questions. This list will be updated frequently on the MTAS Courts webpage as questions arise.

Conclusion

Both risks and rewards are involved in purchasing electronic citation technology. According to vendors and many customers, e-citations save time, money, and energy. However, going digital is expensive and risky; if something goes wrong, you could potentially lose important data. Whether or not you decide to buy e-citation technology, it is critical that buyers are well-informed and know exactly what they are purchasing. That involves doing extensive research, asking questions, and sitting down and having a discussion with every staff member who will be affected by the decision. It is our hope that this guide and the following appendices make your purchasing teams more informed to make the best decision that suits their needs.

APPENDIX A

Sample Ordinance for Adding E-Citation Court Cost

Reference Number: MTAS-1977
Tennessee Code Annotated
Reviewed Date: June 20, 2014

Reference Number: MTAS-1977

***(FOR USE BY CITIES THAT HAVE THE STANDARD MTAS MUNICPAL CODE TITLE 3, CHAPTER 2 COURT ADMINISTRATION)*ORDINANCE NO._____**

AN ORDINANCE TO AMEND TITLE 3 OF THE MUNICIPAL CODE OF THE CITY/TOWN OF _____ TO ADOPT ELECTRONIC CITATION REGULATIONS AND FEES.

WHEREAS, Tennessee Code Annotated, Section 55-10-207 was amended by Public Chapter 750, authorizing electronic citations to be filed in court, along with a fee to recover costs associated with both written and electronic citations;

NOW, THEREFORE, BE IT ORDAINED BY THE BOARD OF MAYOR AND ALDERMEN OF THE CITY OF _____, TENNESSEE, THAT

******Section 1. The Municipal Code of the City/Town of _____ be amended by adding this new subsection to 3-20__ as follows:

3-20__ . Imposition of fines, penalties, and costs. ( ) Electronic citation regulations and fees.

As used in this section, "electronic citation" means a written citation or an electronic citation prepared by a law enforcement officer on paper or on an electronic data device with the intent the citation shall be filed, electronically or otherwise, with a court having jurisdiction over the alleged offense.
(b) Pursuant to and in accordance with state statutory requirements found in Tennessee Code Section 55-10-207(e), each court clerk shall charge and collect an electronic citation fee of five dollars ($5.00) for each citation which results in a conviction.

[** For cities with no court costs section in title 3, replace Section 1 with the following language:]

Section 1. The Municipal Code of the City/Town of _____ be amended by adding this new section to title 3, chapter __:

3-20___. Electronic citation regulations and fees.

Section 2. Date of effect. This ordinance shall take effect from and after its final passage, the public welfare requiring it.

Section 3. Sunset provision. This Ordinance and its fee requirement shall terminate five (5) years from the date of adoption of this Ordinance and the city's Code shall be so annotated.

Passed 1st reading, _____, 20___.

Passed 2nd reading,_____, 20___.

_____

Mayor

APPENDIX B

Frequently Asked Questions

(Updates can be found on the MTAS Courts Page)

For your ease of reference, here's the Public Chapter:
http://state.tn.us/sos/acts/108/pub/pc0750.pdf

1. **The legislation seems to allow us to charge the $5 for *written* tickets, too. Is that right?**
   Yes, you can charge the fee for *both written and electronic citations* if you have an ordinance from your city council that authorizes the charge. The intent of the legislation is to allow cities to recover costs of establishing an electronic system.

2. **An Officer writes citation with 3 charges on it. We can only charge 1 court cost so does this mean we charge 1 $5.00 e-fee or an e-fee per charge?** Although it is not 100% clear, a consistent application of court costs as outlined in an Attorney General's opinion (relating to litigation tax at Tenn. Op. Atty. Gen. No. 99-056) would support one fee per citation, not per charge on the citation. The pertinent section of the new law states,

> (e)(1) Each court clerk shall charge and collect an electronic traffic citation fee of five
>
> dollars ($5.00) **for each traffic citation** resulting in a conviction. Such fee shall be
>
> **assessable as court costs** and paid by the defendant **for any offense cited** in a traffic
>
> citation delivered that results in a plea of guilty or nolo contendere, or a judgment of
>
> guilty. This **fee** shall be in addition to all other fees, taxes and charges.

Further, see the bolded type. It talks about each citation resulting in a conviction. But it talks about a single fee for any offense cited. Notice it doesn't say "for EACH offense" and it doesn't say "THESE fees." Therefore, the statutory language combined with the AG's opinion that court costs are charged per case, you should not charge more than one $5 fee per citation. Remember, there's been one stop. Court costs are designed to recover actual costs to implement court procedures.

3. **Do we charge an electronic fee on seatbelt and child restraint charges? What about on other charges like equipment or registration violations or does it have to be a moving violation?**
   See the chart at http://www.mtas.tennessee.edu/web2012.nsf/CityAdminWeb/0CA2F0528D75F67785257AD3004D56EF/$FILE/child_restraint.pdf.

   Only the first type of charge, where a child is required to be in a child restraint seat or booster and a judge views prior payment as a cash bond would such a fee be chargeable as court costs. Remember, the statute sees it as a court cost. So whenever court costs are not normally charged, the fee should also not be charged *as a court cost.*

   But, another way to look at it is whether it is a "traffic citation" which is the only type of citation to which a fee can apply. The definition in the e-citation statute makes the types of violations appear to be not just limited to moving violations. Sections (a) and (b), when read together, seem to make the fee apply to all citations for which your city court has jurisdiction and not when the person is arrested (except for failure to sign the citation.).

   > **§ 55-10-207. Citations**
   >
   > (a) As used in this section, "traffic citation" means a written citation or an electronic citation prepared by a law enforcement officer on paper or on an electronic data device with the intent the citation shall be filed, electronically or otherwise, with a court having jurisdiction over the alleged offense.
   >
   > (b)(1) Whenever a person is arrested for a violation of any provision of chapter 8, 9, 10 or 50 of this title or § 55-12-139, or chapter 52, part 2 of this title, punishable as a misdemeanor, and the person is not required to be taken before a magistrate or judge as provided in § 55-10-203, the arresting officer shall issue a traffic citation to the person in lieu of arrest, continued custody and the taking of the arrested person before a magistrate, except as provided in subsection (h).

   Therefore, one could conclude that child restraint violations fall under T.C.A. §55-9-602 and -603 seem to indicate it is a "traffic citation"

   For your reference:

   > Chapter 8=Rules of the Road (some are not Class C's…be careful)
   >
   > Chapter 9= Equipment violations
   >
   > Chapter 10 =Crimes, Penalties (some are Class C's like Open Container, but not many)

Chapter 50= Uniform Classified and Commercial Driver License Act

§ 55-12-139 = Registration

Chapter 52, part 2=Off-Highway Motor Vehicle/Child Safety

4. **And we do not charge the e-fee if the charge is dismissed?**
Correct. If the charge is dismissed and no court costs are assessed, then, of course, no. But, with some traffic citations when a judge sends a defendant to traffic school and then dismissed upon payment of court costs, then still you don't collect the fee. Although it is a court cost, it gets treated similarly to litigation taxes. If a charge is dismissed, it's dismissed. See the part of the statute that says,

> Each court clerk shall charge and collect an electronic traffic citation fee of five dollars ($5.00) for each traffic citation **resulting in a conviction**. Such fee shall be assessable as court costs and paid by the defendant for any offense cited in a traffic citation delivered that results in a plea of **guilty or nolo contendere, or a judgment of guilty.**

Some cities, however, accept no contest pleas, in which case their citation could be seen as a conviction for the purposes of this statute's application only. Litigation taxes are be treated differently (dismissed cases do not incur litigation taxes).

5. **Will the fee apply to old tickets?**
Old tickets have effectively been "ruled on" once the "gavel came down." It is a judgment in the docket book for a particular amount. So the amount that was in effect at the time is the amount that should be collected (without the new fee). The new fee should be collected only going forward on new citations.

6. **Where should the funds from the $5 be placed?**

Technically, the funds should be transmitted to two places. The statute divides the $5 fee: $4 for the police and $1 for the clerk.

1) The funds that are transmitted to the police agency MUST go into a special revenue fund, much like the Drug Fund.
2) The funds set aside for Court Clerks can go into a Restricted Fund Balance checking account and anything not used at the end of a budget year goes back into the General Fund.

APPENDIX C

Questions for Vendors

Before you purchase hardware or software from a vendor, you should know exactly what you're getting. To get that information, you will probably have to ask the potential vendor questions about their product. Below is a list of example questions for buyers to ask e-citation vendors.[xiv]

The Basics:

1. What makes the electronic citation system better than the traditional paper system?
2. What makes your product better than other e-citation options?
3. To what degree can I expect to save time and money with your product?
    a. Do you have any statistics or reports to support that?
4. How much will this cost upfront for all required components?
    a. Do you have a range of products at different price points?
5. Would I be among the first in my state to buy this type of technology?
    a. If not, what other city has purchased?
    b. If so, could I face any issues as the beta tester for my state?
6. A lot of companies boast that their product increase officer safety; does yours?
    a. If so, how does your product increase officer safety?
7. How much does your company charge for each interface to build/stand up?

Hardware:

1. What hardware platforms can your software function on (handhelds, tablets, laptops)?
2. What's the battery life on your product?
    a. What happens if the battery fails; will all data be lost? Do citations upload to database constantly or at the end of the day?
    b. Can officers remove the batteries?
    c. If so, does this removal delete the citation they were issuing?

Software:

1. Can I do more than just citations with your product (accident reporting, parking citations, codes violations, session court summons, building inspections, local ordinance violations)?
    a. If so, can I run more than one program at once?
2. Does your software have a Reporting Tool built in?
    a. If so, do you build the reports or do you require the department to build its own?
3. What operating system platforms can your software function on (iOS, Windows, Android)?
4. Would your product be integrated with existing court case management software?
    a. If so, how many interfaces to different Record Management/Court Software systems does your company currently have in service?
5. Is there a way to enter the diver's signature onto the digital citation using your technology?
6. In what format are records of citations saved?

7. Is there a way to integrate this new, digital data with the old paper system?
8. Once an officer starts writing a citation, is there any way to void that citation?
    a. If so, does it leave any kind of record that a citation was deleted?

Maintenance and Support Services:

1. What kind of technological, organizational, or legal problems have other people faced implementing your product?
    a. Can you refer me to 3 of your other customers so I can talk to them about their experiences?
2. Would I have to train my staff on how to use your product?
    a. If so, would you train the trainer or otherwise assist me in the training process?
3. What is your product's expected lifespan?
    a. How soon should I expect to have to make updates and/or replacements?
4. If something goes wrong, is there a separate maintenance agent that can help?
    a. What are maintenance costs like?
5. If my officers call in to your support staff at 3 am, who will they be speaking to and can they fix basic problems at that time?
    a. Can you refer me to other customers so I can talk to them about their experiences with support service?

APPENDIX D

EXAMPLE RFP SPECIFICATIONS

Knoxville Police Department
E Citation System
RFP Specifications

- Proposed e citation systems must consist of proven technology that will satisfy the present needs and future growth of the Knoxville Police Department.
- Proposals must address the requirements for the day to day operation, as well as the ongoing administration and maintenance needs of the e citation system.
- E citation systems should be fully implemented, including end user and system administrator training, within 120 days following awarded contract, and vendor proposals must describe how this implementation will be accomplished.
- Vendors must provide 24 hour maintenance support service.

- Proposed e citation system must
  - Generate a hard copy citation (summons) via mobile printer using Bluetooth connectivity between tablet and printer.
  - Provide pre-defined lists of city code violations and state laws, which will automatically populate the associated code number into the proper locations on summons form.
  - Provide the ability to add multiple violations to one summons.
  - Proposed system must operate on a windows based platform, preferably a Panasonic GZ1 tablet.
  - Proposed system must operate with or without internet connectivity.
  - Provide court date management.
  - E citation system must interface and operate with existing Police Department software, to include Watson, Vision RMS, Intergraph MPS, JIMS, and other systems as specified by the Police Department and City of Knoxville Information Systems.
  - E citation system must interface with existing City of Knoxville Municipal Court and Knox County Court software for the purpose of case management.

- Provide the ability to auto-populate violator information on e citation by scanning driver's license or entering violators driver's license number into system.
- Provide easy to use statistical reports, and the ability of administrative user to create custom reports as needed.
- E citation system should perform automatic records queries as violators information is entered into system.
- E citation system should provide administrative users ability to add, delete, or edit city ordinances and state laws pre-loaded in system.
- E citation system should provide administrative user the ability to add future forms (tow-ins, confiscations).
- E citation system must provide a validation method to insure citation is complete prior to issuance of summons to violator.
- E citation system must provide a method of capturing signature of violator via tablet, and reproducing signature on printed copy of summons and on all electronic record of citation.

APPENDIX E

Example Printed Citations

PARKING

CITY OF Greenbill
Greenbill Parking Authority
Town Hall, 200 N. Account Street
Greenbill, Tennessee 37745

Ticket # P108958

ON 08/06/2014 AT 03:14 PM

LIC. TAG # GAC450 STATE: TN YEAR: 2006

Year	Make	Model	Type	Style	Color
1998	Honda	Accord	Car	4dr	WHI

Location:
Near: Main St & Front St

Was in violation of sections(s):

Qty	Violation Code/Description		Fine
1	21- 179	Overtime parking	$21.00
1	Costs	Court Costs	$10.00
		Total:	$31.00

Officer	Officer ID	Car #
Richard Marks	11	54

TO THE OWNER OF THE DESCRIBED VEHICLE

SUMMONS:

You are hereby notified to appear in city court at the Boardroom of Greenbill LGW, 100 N. Account St., Greenbill, TN.

Traffic Court
201 Poplar Ave
901-555-1212

Court Appearance/Bond Due Date:
09/26/2014 09:00 AM

FOR YOUR INFORMATION:

If you wish not to appear in court you may pay the amount indicated at the Police Dept in Town Hall, 200 N. Account St Greenbill, Tennessee or pay by mail by sending it to the 'Greenbill Parking Authority', Town Hall, 200 N. Account St. Greenbill, Tennessee 37745. Amount must be paid by Court date or a late fee of $10.00 will be assessed. Any and all fees, fines and costs will be the responsibility of the violator. For further information call City Court Clerk @ 481- 600- 7123.

For persons with a disability, please contact the Court Clerk prior to the court date to arrange special accommodation and accessible facilities.

SPEEDING

State of Tennessee
Green County
City of Greenbill

Ticket # S111180

In the city court of Greenbill, Tennesee the listed officer(s) certifies to have just and reasonable grounds to believe, and does believe that:

On: 08/06/14 at 5:45PM
Name: Linda K Eddins
61438 Chattering Ln
Memphis, TN 38127-0000
Drivers Lic. # [redacted] State: TN
DOB: 09/06/96 Race: W Sex: F
Lic. Tag # PLL630 State: TN Year: 2005

Year	Make	Model	Type	Style	Color
1992	Toyota	Tercel	Car	2dr	RED

Upon a public street or highway, or other location namely:
Near: Park & Mendenhall

Was in violation of sections(s):

Qty	Violation Code/Description	
1	Speeding - 57 in a 35 MPH zone 21- 106	$50.00
1	State & Court Fee 16- 18- 304	$4.00
1	State Litigation Tax 38- 6- 103(d)(1)	$13.00
1	State Fee 38- 6- 103(d)(1)	$13.75
1	Court Costs Costs	$52.00
5	Total:	$$132.7

☐ Accident ☒ Laser

Officer	Officer ID	Car #
Stan Harding	625	452

NOTICE: FAILURE TO APPEAR IN COURT OR SUBMIT FINE BY THE DATE ASSIGNED BY THIS CITATION WILL RESULT IN YOUR ARREST FOR A SEPARATE CRIMINAL OFFENSE WHICH IS PUNISHABLE BY A JAIL SENTENCE OF ELEVEN (11) MONTHS AND TWENTY- NINE (29) DAYS AND/OR A FINE OF UP TO TWO THOUSAND FIVE HUNDRED DOLLARS ($2,500).

Memphis Municipal Court
201 Poplar Ave.

COURT APPEARANCE/FINE DUE DATE:
09/19/14 9:00AM

Pay adult tickets online at:
www.paymyfine.com

APPENDIX F: Example Requests for Information

A Request for Information was sent to the E-Citation Coalition to research information about e-citation system providers. Those who responded have their information listed below, in no particular order. The University of Tennessee makes no representations about and does not endorse any particular vendor or their products/services.

digiTICKET® electronic ticketing solution

SALTUS TECHNOLOGIES

September 25, 2014

Karen Blake
Municipal Court Specialist
University of Tennessee
Institute for Public Service
226 Capital Blvd. Ste. 606
Nashville, TN 37219

Re: SALTUS Pricing Programs for the State of Tennessee

Karen,

It was a pleasure to visit with you during the TACP Conference in Chattanooga. This letter is to provide a brief description of our Monthly Subscription program as well as our other pricing models.

digiTICKET Acquisition Options:

1. **digiTICKET as a Service** – with this option, there is zero up front cost and the Police Department simply pays a monthly usage fee. All digiTICKET costs are included in the monthly fee – hardware, software, implementation services, maintenance and support, paper, hosting, even new hardware. If additional units are needed over time the monthly fee can simply be adjusted as necessary based on quantity (tiered pricing applies). With this option, Saltus owns the hardware and is responsible for managing warranties, etc. *The Service option has no contract term. There are no limits to the number of users or tickets written. The entire solution can be returned to Saltus without penalty with a 60 day written notice.* Please note that our SaaS program offers a strong solution for the following:

    1) Agencies that would like to move forward with a fully configured system but lack the upfront funding.
    2) Agencies who would like to trial a fully configured system without committing to an entire package of purchase and license fees.
    3) Agencies who want to trial a system and have option to purchase it later (with a portion of the funds being applied to the purchase).

    Saltus' Service Pricing Option is not a lease, but a "pay for use" model. It offers the following benefits:

    - Zero up front cost for hardware, software and standard implementation and training services – after training and deployment Saltus will invoice after deployment
    - City pays a per-unit, per-month fee
    - Saltus owns the hardware – the Police Department does not have to manage devices, warranties or ongoing variable costs.
        - Saltus will replace defective equipment at no additional cost.
        - Saltus will refresh old equipment as its useful life ends – as jointly agreed upon by Saltus and the customer.

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digiTICKET® electronic ticketing solution

SALTUS TECHNOLOGIES

- The customer is responsible for lost, damaged or stolen equipment. In the event of a loss, Saltus will provide the customer with new equipment and invoice the customer for the depreciated value of the hardware based on an estimated useful life of 48 months.

- No contract term obligation – if the customer is dissatisfied at any point with Saltus or digiTICKET you can provide a 60 day written notice and return all hardware with no penalty.

2. **Standard Purchase** – the Police Department can purchase the hardware and implementation services and license the digiTICKET software from Saltus. This option requires ongoing costs associated with software maintenance and support, new hardware when needed, hosting and paper costs. Saltus provides a money back guarantee on purchases. If within the first 12 months, the Police Department is not satisfied, all digiTICKET hardware can be returned for a full refund.

3. **Monthly Lease** – the Police Department can lease the hardware and implementation services and license the digiTICKET software from Saltus over a 3 or 4 year period. This option requires ongoing costs associated with software maintenance and support, new hardware when needed, hosting and paper costs. These fees are rolled into the monthly lease cost.

Please let me know if you have any other questions or if you need further information.

Thanks,

Shawn B. Sicking

Shawn

Shawn Sicking
918.392.3904 office
918.691.8066 mobile

Saltus Technologies
907 South Detroit, Suite 820
Tulsa, OK 74120

Brazos Technology – e-Citations

Brazos' e-Citations Features:

- Reduces time spent on traffic stops
- Increases officer safety during a traffic stop
- Record audio and take photo of the driver during traffic stop to include with citation in Court software
- Integrates to Court and Records Management software to eliminate manual entry of tickets and data entry errors
- Automatically scan driver's license, registration and VIN information without having to hand write and manually enter data.

Statistics:

With Brazos' e-Citations software, Police Departments and Courts will realize significant savings including:

- Traffic stops are reduced from an average of 8 minutes to potentially under 2 minutes; this allows the officer to gather information on potential criminal activity
- Average traffic enforcement increases with e-Citations by an average of 25% per officer
- Data entry errors are nearly eliminated with e-Citations; a clerk does not have to try to decipher an officer's hand written citation
- With preloaded streets and cross streets into the software, an officer spends less time and reduces errors when selecting the location of the traffic stop
- Reduce the cost of issuing citations – on average, a department spends up to $1.00 per citation for paper copies, with e-Citations, the cost is reduced to approximately $.05 per citation
- Audio provided on the hand held units protects the officer from any false accusations from a potentially angry citizen receiving a ticket
- Integration to an existing Records Management or Court software system saves tremendous time on the clerk's part to hand enter the citation.

Pricing

Brazos offers two solutions for e-Citations:

- Laptop Version – officers are able to use their existing laptops/MDTs in the vehicle for electronically issuing traffic citations
- Hand Held Units – officers use a hand held hardware solution that allows the officer to perform nearly all the functions related to issuing a citation while standing next to the vehicle during the traffic stop – scan driver's license, scan registration and VIN, take a picture of the violator to

- include with the citation or record audio if needed; obtain electronic signature from violator without the violator ever having to leave the car.

Pricing for both options is dependent on the number of users for the Department. With the laptop e-Citations, the software will be loaded on each laptop that is in the field. For hand held e-Citations systems, it is not necessary to outfit every officer with a hand held unit. A Department can purchase enough hand held units to cover one shift, and additional batteries to replace when one shift returns to the Department. The next shift can then replace the battery and head out on their shifts.

Tyler Technologies - Court & Records Management Software

Tyler's Municipal Court Software Features

- Update and change court dates, create reset letters and change case statuses for multiple cases—all at once, from one screen
- Create warrants by groups for nonappearances or past due payments
- Track court orders for classes and dispose of cases automatically
- Create customized docket views and distributions
- Live docket for instant case updates in the courtroom
- Online payments by citizens post immediately to records
- Automate after-court processing and reporting
- Ease the repetitive workload in high volume courtrooms

Tyler's Records Management System Features

- Use Master Name files to create and maintain detailed, critical information on dangerous suspects
- Track, document and store case information via one central repository
- Create a visual property and evidence room with bar code tracking
- Document and track agency personnel, including evaluations, training, certification and property assigned to officers
- Access detailed crime statistics that allow agencies to allocate resources to problem areas
- Integrated Computer Aided Dispatch and Records Management system for up to date information on calls for service.

Statistics:

With Tyler's Municipal Court software, Courts will see significant advantages including:

- In Arlington, TX, transaction times have decreased 83% by using our Court Case Management module
- Reduction in Time for Duplicate Entry of Citations – with integration between e-Citations software and Tyler's RMS and Court, citations will only be entered one time, therefore significantly reducing the workload of clerks in the Department
- Reduction in Data Entry Errors – with e-Citations importing into Court or Records Management Software, data error entries are significantly reduced by scanning the driver's license; deciphering writing on a hand written ticket is eliminated
- Reduction in Foot Traffic in Courtroom – with online payments through Tyler's Municipal Court software, Belton MO Municipal Court saw a decrease of 23% in foot traffic; Courts will realize a significant reduction in citizens coming into the pay tickets; a citizen can go online – even scanning the QR code on the ticket – and pay the ticket rather than taking time off to go to the courthouse

Tyler's Records Management System offers the following advantages to reduce costs and efforts in a Police Department:

- Reports Workflow Feature – rather than print hard copies of reports for approval by superiors, the Workflow feature allows reports to be submitted electronically to supervisors, eliminating the time and costs of printing; in Brentwood, TN, the Records Clerk spends 4 hours every day printing multiple copies of reports for distribution; this function will be completely eliminated with the workflow feature and save 4 hours of work per day.
- Creating DA Packets – in our Case Management system, detectives are able to create an electronic file of all reports, documentation and evidence pictures related to a case and submit electronically to the DA's Office; in Cumming, GA, this feature has saved the detectives an estimated 8 hours per case to print and organize all documentation related to a case.
- Integration Between Police and Court – cities that have different providers between their Court and Police software must manually enter twice tickets and provide reports for dispositions of cases; with integrated software, information is readily available to both departments with data entered only once into the software.
- Warrants and Alerts – with a shared Court and Records Management Software system, a warrant is only entered once and available for both the Court and Police Department; this is especially crucial to the safety of officers on the road – to have up to date information on warrants at the time of the traffic stop in addition to any pertinent alerts on that suspect allows an officer to be fully prepared before anything happens.

Pricing

Pricing for both the Municipal Court Software and Records Management Software varies based on the size of the City, number of Officers, and the features desired by the City. An agency with 5 officers will use mostly incident reporting, accident reporting, and evidence tracking, while an agency with 500 officers will utilize many more features – such as Case Management for Detectives, Crime Analysis and more. Municipal Court software also has many additional features that small cities may not need, such as online payments, call notification and more.

Tyler offers several options for cities including lease options and a per citation fee to offset costs of implanting a new software program.

ELECTRONIC CITATION SYSTEMS:

Improving Officer Safety, Saving Time and Improving Accuracy[2]

A Zebra Technologies White Paper

INTRODUCTION

Electronic citation systems enable law enforcement agencies to meet ever-growing data collection and reporting requirements without compromising officer safety or effectiveness. Public safety officers can use handheld devices, mobile computers and printers to complete traffic stops faster and more safely and efficiently while focusing more of their attention on the offender. Computer-assisted operations, such as e-ticketing with handheld devices, also provide more accurate information than manual methods— producing complete, enforceable citations that improve conviction rates, reduce court administration time and increase collections.

The safety and efficiency improvements that electronic citation systems provide are not cost-prohibitive. Automated systems provide a solid and measurable financial payback by removing clerical data entry requirements, improving officer efficiency and safety, and increasing revenue by producing more accurate, enforceable citations. Information collected electronically requires no manual data entry at headquarters, and can be easily integrated into legacy computer systems for access and sharing without delay. The systems also facilitate convenient compliance with the recent Justice Department Consent Decree on traffic stop data collection, and automatically provide documentation of procedure compliance.

The benefits of electronic citation systems are well-documented. Various studies of electronic citation and processing systems have found the following:

- Electronic systems can transfer records to courts within seconds of the citation being issued. In contrast, the average time to transfer paper-based citation records is 12 days according to the University of Pittsburgh School of Law.
- Mobile computing and automated data collection systems enable crash reports to be completed with 750 fewer keystrokes, and eliminate 200 keystrokes from traffic citations according to the U.S. Department of Transportation (DOT).
- The Los Angeles Police Department estimates it can record all data required for compliance with the Department of Justice Consent Decree within 30 seconds by using handheld computers.
- The DOT found accident reports can be completed, reviewed and circulated to all interested agencies within 18 hours by using a multi-state software system.
- Approximately 10 percent of all citations received by courts contain at least one error, according to a University of Pittsburgh School of Law study that concluded “Electronic ticketing has the ability to eliminate most, if not all, of these types of errors…”

This white paper will explain how electronic citation systems work, describe the required mobile computing and printing technology, and provide examples of how electronic citations save money while improving officer safety and accuracy.

HOW ELECTRONIC CITATION SYSTEMS WORK

Electronic citation systems replace conventional citation pads with mobile printers and mobile computers or handheld e-ticketing devices. The physical citations are produced on a mobile printer that can be carried by hand, worn on a belt or shoulder strap, or mounted in a police vehicle. Personal digital assistant (PDA)-style handheld computers are the most common computer option, but laptop and tablet computers may also be used.

Software running on the mobile computer manages the citation issuance process. Aside from the input device, the ticketing procedure can be virtually the same as with paper citations. Software that makes it intuitive to collect

information and that maintains some consistency with paper-based procedures makes it extremely easy for users to adopt the new system.

The citation software also can simplify data entry and help prevent errors. The software may be a simple forms-based application that mimics the paper citation, which requires minimal training to use. Software may make data entry easier with multiple-choice radio buttons, pull-down menus and other response prompters. Menus, check-boxes and other limited-response mechanisms help ensure that only correct information is recorded and that violation codes are consistent with other information associated with the citation. Because approximately 10 percent of citations contain errors, according to the University of Pittsburgh study, software that provides error proofing and other quality checks can significantly improve citation accuracy, streamline processing operations, and discourage challenges. Notations, sketches and even voice recordings can be added for future use during court proceedings.

Once all of the offender data is collected and entered in the computer or handheld e-ticketing device, the officer saves it to the computer's memory or uploads it to a remote host computer using "real-time" wireless communication, and a citation is automatically printed. The resulting citation is neat, accurate and completely legible. Multiple instances of the same citation can be printed, and multiple infractions can often be combined onto a single citation. Improved legibility eliminates much of the confusion and discrepancies that can lead to contested citations being waived or overturned.

ADVANCED FEATURES

Beyond these basic features, citation applications can take advantage of additional mobile technology, such as automated card reading, imaging and payment processing, to provide greater functionality leading to improved efficiency.

States whose driver's licenses include a magnetic stripe or barcode can take advantage of readers built into the handheld device, mobile computer or printer to automatically populate relevant driver identification information required to complete the citation. No manual data entry is required, so there is no chance for human error. Scanning or swiping the license takes only a second and enables the officer to keep his or her eyes on the offender, not on a notepad.

Mobile computers and handheld devices also are available with integrated imagers that could be used to take a digital picture to document the infraction and permanently attach it to the citation record. The imager could be used to record accident damage, read barcodes on driver's licenses, and to document vehicle locations for accident reporting or provide visual proof that a vehicle was parked illegally.
Additionally, handheld e-ticketing devices and mobile computers are capable of supporting wireless wide-area data communications for real-time data access and exchange. Data traffic can be carried over a dedicated public safety network or through cellular services offered by commercial carriers like AT&T Wireless, Cingular, Nextel, Sprint, and Verizon.

Wide-area communications give officers in the field anytime, anywhere access to information in host computer systems. Wireless data networks can be used to check host databases for repeat offenders, outstanding warrants and other information in real time, instead of requiring that the officer download the latest data at the start of a shift. Other uses include license checks, two-way messaging and dispatch.
The city of Vancouver, Canada, increased its collections from repeat offenders by $300,000 the first year it began checking ticketed vehicles against its repeat offender database over a wireless network. Vancouver also ticketed and towed significantly more vehicles for parking permit abuse by using database access to verify that handicapped parking and other special privilege passes were used in the vehicles for which they were issued.

Additional memory could be used to load an updated scofflaw database into the mobile computer or handheld device before every shift. When issuers enter the vehicle license number while preparing the citation, software checks the database to determine whether the vehicle is registered to a repeat offender with an excessive amount of outstanding citations. If so, a request for towing is made in addition to the issuance of the citation.

Some handheld devices, mobile printers and computers have integrated card readers that can be used with payment processing software to collect credit or debit card payment from offenders when parking tickets are issued. Transactions may be verified immediately over a wireless connection or processed in batch mode when the computer is docked in its cradle at the end of the shift.

Printing Considerations

The mobile printer provides the bridge between the paper citation issued to the offender and the electronic issuance and processing systems. The printer must produce legible, durable, high-quality citations or else the accuracy benefits of electronic issuance will be lost. Printers must also work quickly and reliably to improve officer efficiency and prevent wait time. Reliability, convenience and print quality are the most important characteristics for a mobile printer. Choosing the right printer requires a basic understanding of the features and factors that affect these performance criteria.

Reliability is imperative because citation operations stop if the equipment doesn't work. The leading factors that affect reliability are the printer's design and construction, battery life, media and method of connection to the handheld device or mobile computer. Printers should be tested to verify that they can perform in all weather and working conditions and will continue to work, even after being dropped.

Battery Performance

Battery life varies widely based on print volume, citation size, media and the amount of wireless communication between the printer and the mobile computer or handheld device. Additionally, power management is important to overall battery life and application effectiveness.

It is critically important in citation applications to have enough battery life to power computers and printers for the entire shift or else workers may not be able to complete their daily jobs. The lowest-cost batteries are often not the most inexpensive option because they may require more frequent replacement, driving up the total cost of ownership. For example, lithium-ion cells offer the highest power-to-volume and power-to-weight ratio of any battery technology used in mobile printers, but their initial purchase cost is higher than the more common nickel cadmium or nickel metal-hydride cells.

Media

Matching the media stock with the printer is extremely important for citation legibility and durability, and significantly impacts battery performance and the printer lifespan.

Selection of appropriate media requires consideration of the application requirements, including weather conditions the citation will be exposed to, durability requirements, plus any state or local regulations about acceptable sizes and materials.Choosing the wrong media can result in poor print quality and cause the printhead to work extra hard to produce text, which drains battery charge and leads to premature printhead failure. The electronic citation solutions provider or printer manufacturer can analyze operational requirements and recommend suitable media options. Optimizing the media and the printer for the application—even if other supplies are initially less expensive—saves money in the long run. Using quality citation material and quality printers projects professionalism and ensures readability that facilitates efficient citation payment and processing.

Communications

There are several methods to communicate data from the handheld device or mobile computer to the printer. These methods are classified into three groups: cable, infrared (IrDA) and radio frequency.
Cables are the oldest method of communication. They are relatively inexpensive, and coiled cables provide adequate trade-off between cable length and ease of use. Over time, cables fail for a variety of reasons, including abuse, fatigue and age. Additionally, there are costs associated with preventive maintenance and periodic inspection to ensure reliable communication. Cable care is especially important in citation applications because the user is often miles away from headquarters and does not have immediate access to replacement parts.

Infrared communications use infrared (IR) light to eliminate the need for cables and operate on a principle similar to that of TV remote controls. Nearly every IR device conforms to the IrDA standard for infrared communication, which provides interoperability among equipment from different manufacturers. Infrared data transmission, like remote controls, requires direct line of site between the devices to complete the communication. Obstructions will interrupt the communication between the two devices. It may take several tries to transmit data at night because it can be difficult to line up the infrared signal in the dark. IrDA is also highly susceptible to ambient light that can overpower infrared signal. This is a major limitation to citation operations because the sun is a very powerful source of infrared light that can easily wipe out communications on a bright day.

Bluetooth® technology is emerging as the leading wireless technology to replace cables between handheld devices or mobile computers and printers. Bluetooth is a standardized, short-range wireless technology that enables up to eight computers, printers, and other devices to interface with each other from up to 30 feet (9 m) away in peer-to-peer networks, without going through a centralized hub or server. Bluetooth provides extremely fast and reliable printing. Because Bluetooth operates with radio frequencies, it isn't affected by light, does not require line of sight, and is immune to physical sources of interference.

Handheld devices and mobile printers also can connect directly to wireless local area networks (WLANs). There is limited opportunity to use wireless LAN connectivity in law enforcement operations, but the emergence of wireless "hot spots" for public Internet access within campuses, entertainment districts, restaurants and shops may create opportunities to support operations with network access. These hot spots use 802.11b-standard wireless LAN technology, which offers greater security and higher speeds than other forms of wireless connectivity.

Convenience

Because handheld e-ticketing devices and mobile printers are lightweight and battery operated, police officers on foot, bicycles or even horseback can easily transport them. Wireless communication also improves user convenience because there are no cables to tangle and impair the user. Other factors that contribute to user convenience include printer speed, weight, balance and the position of controls. The printer should be able to generate citations quickly so that the issuer doesn't waste time waiting for output. Ergonomic factors like weight and balance are most important if the printer will be carried and worn all day. The position and feel of controls and the ease of media loading also impact convenience and productivity.

IMPROVED PROCESSING PROCEDURES

Aside from helping officers pay more attention to offenders and complete citations faster, electronic issuance systems do not significantly change procedures in the field. However, the computer-assisted data collection builds a foundation of accurate information that streamlines processing requirements; eliminates redundant data entry and the need for clerical support; facilitates rapid, easy information sharing; and results in citations that discourage challenges and hold up in court.

A fully integrated electronic citation system synchronizes the data captured by the handheld device or mobile computer with host computers and databases, to electronically transfer data for citation processing. There are added costs both in integration and hardware requirements for a fully integrated system, but the benefits of eliminating data reentry and ensuring immediate data access can have profound financial benefits.

Data can be integrated in real time or in a batch mode. In batch mode operations, officers typically place their computers into docking cradles to upload the complete activity record for the day. Instantly, all the citation information is transferred to the computerized record systems and is available for access by multiple agencies. Databases in the handheld device or mobile computer can be updated with new information at the same time.

There is no need for clerks or officers to transcribe and type records into the system, which provides a tremendous time and labor savings and provides no new chance of errors to enter the record. With electronic citation systems, information is recorded once, in the field; never requires additional manual processing; and is quickly available to everyone with access to the records system. For example, a DOT analysis of the multi-state TraCS (Traffic and Criminal Software System) found that accident reports could be communicated to all interested parties within 18

hours of the information being entered. For comparison, the DOT cited one state that relies on manual report preparation and exchange takes up to 18 months to gather and circulate the same information. The TraCS system, currently used by 16 states, also reduced commercial vehicle inspection reporting time from 100 days to 14.

Similarly, IT service provider REJIS helped automate citations in the greater St. Louis region. Officers use a mobile device to verify the driver's license, view the driver's photo, obtain vehicle registration, and inquire to determine if the vehicle is stolen or the individual is wanted or considered dangerous. The application captures data to populate the ticket form. An in-car printer produces a copy of the ticket for the violator. REJIS analyzed several printers prior to selecting the Zebra® RW 420™ printer based on several factors, including portability of size and weight (6.3" x 6.9" x 3.0" and 2.0 lbs); wireless capability option; print flexibility and ease of use; durability to meet dust and water resistance ratings; ribbonless direct thermal printing; and speed of printing. The project improved all aspects of the ticket-writing process, resulting in improved accuracy, less time needed to process tickets and minimal additional costs to the municipality.

IMPROVED DATA ACCURACY AND OFFICER SAFETY

The Zebra RW 420 mobile printers are also a key component of an electronic citation solution recently purchased and implemented by the Oregon Department of Transportation's Governor's Office of Highway Safety for its public safety agencies responsible for enforcing traffic regulations. The solution deployed is APS PocketCitation™ software, an innovative electronic citation system from Advanced Public Safety (APS), designed to automate and streamline the process of issuing traffic tickets.

According to Jeffrey D. Rubenstein, founder and CEO of APS, approximately 20 to 30 percent of all handwritten traffic citations are dismissed because of incorrect statute numbers, illegible handwriting and other administrative data errors. PocketCitation's on-board intelligence solves these problems by ensuring that the citation information entered is correct and that the citation itself is printed in clear, legible type. Using Zebra's high-performance mobile printers, law enforcement officers can issue a traffic citation in less than 60 seconds, dramatically minimizing risk to officers, who spend less time on the side of the road and in contact with traffic offenders.

The full mobile suite aids officers in automating their jobs, offering a faster ability to print summonses and track tickets and citations, while dramatically improving officer safety; 70 percent of officer fatalities happen when officers are outside of the car. The e-citation solution gets them back in the car faster and gets them on the move.

FASTER PROCESSING, MORE ACCESSIBLE DATA

Automated data entry and sharing also benefits court processing. Many citation software packages use common or standardized data formats that make it relatively simple to share data with multiple databases and other software applications. As a result, multiple departments, agencies and organizations can access the data and integrate it into their own computer systems. It takes an average of 12 days to process a paper citation and send it to court, according to a University of Pittsburgh School of Law study. Software-based systems can conduct the data processing and communications in seconds, helping to ease administrative backlog at both law enforcement agencies and the courts.

One-time data entry greatly reduces the need for administrative support, which improves departmental efficiency and provides significant cost savings. The city of Fall River, Mass., is saving more than $100,000 annually in processing costs for parking tickets since implementing an electronic ticketing system. The city previously outsourced all its ticket processing to a third party, which cost about $5.50 per ticket plus added time to the processing and collection cycle. The system provided a fast payback because of the elimination of processing fees and increased revenues resulting from fewer unenforceable tickets.

Fully integrated systems with real-time wireless communications eliminate the manual docking process by having an "always on" connection between the mobile computer or handheld device and the back-end processing system. Offender data and citation data are passed back and forth in real time. Citation processing can occur minutes after the citation is written. The benefits of this approach are numerous and need to be balanced against the implementation costs. Vancouver city officials calculated the city would receive an annual benefit of $235,000

during its wireless ticketing system's first six years of operation and $393,000 annually thereafter, with many of the benefits deriving from real-time communication and information exchange.

MEASURING THE BENEFITS

Electronic citation systems produce a strong return on investment because they improve multiple areas of operations, without imposing new burdens on others. For example, e-citations can be processed faster and with significantly less clerical labor, but not at the expense of requiring officers to gather and process more information in the field. Improved convenience enables officers to issue more citations, but because software handles processing, costs do not rise along with volume. And, multiple departments and agencies can access information from databases, without relying on the issuing agency to perform manual data entry or generate custom reports.
Moreover, officer safety is greatly increased because public safety officers no longer need to spend as much time outside of the car, where the majority of fatalities happen. Allowing officers to process and print tickets and citations much more quickly, e-citation systems get them off the road, back into their cars and on the road.

The time savings and improved accuracy that electronic citation systems provide create real financial benefits for the department, municipality, county and state. In an integrated system, where citation records are downloaded from the handheld device or mobile computer to the host computer and processed with system software, there is no need to manually enter data into the host computer system. By eliminating manual data entry, electronic citation systems save money on every citation issued. The total value of the savings depends on the issuance volume, the time required to input and process each citation, and wages and benefits paid to administrative or clerical workers who perform data entry and processing.

Automated data entry also improves accuracy by eliminating a potential source of errors to enter the record. Experienced typists make one error approximately every 300 keystrokes according to widely respected studies on data entry accuracy conducted by the barcode industry. Improving citation accuracy is a sure-fire way to improve enforcement and collection. Recall the University of Pittsburgh study that found errors in approximately 10 percent of citations in the court system. Other studies have found error rates ranging from 5 to 20 percent. These prevailing error rates encourage offenders to contest citations, which puts a burden on police and courts that could be prevented through improved accuracy. Legible, accurate citations can provide a deterrent to challenges and enhance the department's reputation for professionalism.

Because of results like these, electronic citation systems often pay for themselves fairly quickly and continue to provide significant financial benefits long after the system is paid for. The City of Vancouver, whose system is more expensive than most because of the number of officers who were equipped (100) and the wide-area wireless data communication feature, calculated it would receive an annual benefit of $235,000 during the system's first six years of operation and $393,000 annually thereafter. The Fall River tax department decided to purchase the electronic citation system for the police department after analyzing the revenue and administrative benefits it would provide the city.

To get an idea of the potential financial impact of an electronic citation system on your operations, consider the following questions:

- What is the cost of citation processing? Automated procedures can eliminate most of the clerical activity associated with processing.
- How much time is clerical staff spending processing each citation and entering data into multiple databases?
- How much time do court and administrative personnel spend handling contested citations resulting from inaccurate or incomplete citation issuance?
    - What percentage of your citations is unenforceable due to illegible or inaccurate data?
    - What is the average revenue collected per citation?
    - How many more enforceable citations would be created annually if issuance procedures were improved by just one percent? Five percent? Ten percent?

• If officers could issue citations more quickly and conveniently, would they write more citations?

CONCLUSION

Procedural and reporting requirements are growing for law enforcement agencies, even if budgets aren't. Electronic citation systems are the safe choice for efficiently meeting new administrative requirements while improving safety and accuracy in the field. Agencies of all sizes, from the Fall River, Mass., parking control department to the Los Angeles Police Department, are proving that automated systems can meet many types of enforcement, officer safety and reporting challenges. The improved safety, information accuracy and availability, and administrative savings these systems provide ensure even more agencies will adopt them in the future.

Zebra Technologies offers the widest range of mobile printers in the industry, supports all the leading communications options, and has partners and integrators who specialize in citation, ticketing and law enforcement applications. Contact Zebra today to learn more about how our products and expertise can help improve your citation operations.

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ENDNOTES

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