



e-Crash System

Cost-Analysis
January 2012



2012 County Board of Commissioners

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I. INTRODUCTION

In September, 2011, the Ottawa County Sheriff's Office received a \$174,316 grant from the Michigan Office of Highway Safety Planning (OHSP) to install an advanced technology system that would allow Road Patrol Officers to prepare electronic traffic crash reports (i.e. e-Crash reports)¹. An e-Crash reporting system is designed to lower operating cost (labor and materials), improve officer safety, and provide better customer service.

An e-Crash System is designed to reduce operating expenses, improve officer safety, and provide better customer service

This report provides the results of a Cost-Analysis of the e-Crash technology that was completed by the Planning and Performance Improvement Department (PPID). The Analysis was conducted to determine whether the benefits of the e-Crash system justify the County's cost to install and maintain the electronic system.

II. OVERVIEW OF e-CRASH TECHNOLOGY

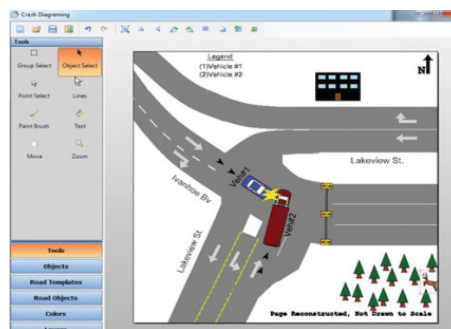
An overview of the use and functionality of the e-Crash technology is as follows:

e-Crash Technology

In the event of a traffic crash, Road Patrol Officers fill-out a standardized UD-10 traffic crash reporting form. The UD-10 captures pertinent information about a crash including, but not limited to: the person(s) involved, location of the crash, type of vehicle(s) involved, and the circumstances surrounding the crash (e.g. speed, weather, road conditions). The UD-10 also includes an area for the Officer to prepare a sketch of the crash scene.

An e-Crash system replaces paper-based traffic crash reports. Using the technology, an Officer can swipe the drivers' licenses of the involved parties to automatically populate several fields on an electronic UD-10 form which is stored on a laptop in the police cruiser. The automatic population of these data helps to save time and minimizes

human error. The e-Crash software also provides a drawing tool (sample picture provided below) with several drag-and-drop features that makes it quicker and easier for Officer's to sketch the crash scene. The completed electronic UD-10's can then be transmitted wirelessly for approval by the Officer's supervisor, forwarded electronically to the Michigan State Police (MSP), and made readily available to the public via the Internet (i.e. County and State websites).



1. The grant is for the Ottawa County Sheriff's Office, as well as six local law enforcement agencies that would also be implementing an e-Crash system. The other agencies include the Holland Police Department, Zeeland Police Department, Spring Lake-Ferrysburg Police Department, Grand Haven Police Department, Grand Valley State University Police Department, and Ottawa County Central Dispatch.

III. EVALUATION PROCESS

The PPID developed and utilized a three-step analysis process to verify whether the e-Crash system will provide a positive Return-on-Investment (ROI). These steps are: 1) Calculate System Cost; 2) Calculate System Benefits; and 3) Conduct Cost-Benefit Analysis.

An overview of each step is as follows:

Step 1) Calculate System Cost

The Sheriff's Office worked with iyeTek, LLC, a Kalamazoo-based technology company, to determine the implementation cost and annual recurring cost of an e-Crash system in Ottawa County. iyeTek is one of the State's leading certified law enforcement technology companies with more than seven hundred city, county, regional and state agencies using their electronic crash reporting and ticketing software systems.

iyeTek provided the PPID and Sheriff's Office with system quotes which included initial investment, installation, and on-going maintenance.

Step 2) Calculate System Benefits

The PPID collected a variety of baseline data (e.g. labor and materials) to calculate the system benefits. These data were collected through a statewide survey of Sheriff's Offices, as well as statistics provided by the Ottawa County Sheriff.

a. Survey

The PPID developed a survey as part of the Evaluation that was distributed to 82 Sheriff's Offices in Michigan. The survey results¹ provided a variety of information from communities that included, but was not limited to, the system vendor, how long the system has been in use, the type and extent of benefits (e.g. labor and materials savings) achieved as a result of implementing the system, and any other benefits or drawbacks experienced from using the system. Complete responses to the Sheriff's Office survey are provided in **Attachment A**.

b. Sheriff's Office Statistics

The Ottawa County Sheriff's Office provided a variety of data that included, but was not limited to, the following: the amount of staff time spent to manually prepare and/or process hard-copy crash reports, and the amount of materials (e.g. paper, copy machine toner, file folder labels, postage, envelopes) used annually to prepare, process, and distribute hard-copy crash reports.

The Sheriff's Office statistics were then used in conjunction with survey feedback that was received

from other Michigan Sheriff's Offices that have implemented e-Crash systems in order to project the benefits that could be achieved in Ottawa County. The analysis assumed, based on input from the County Sheriff's Office and iyeTek, that Ottawa County would achieve the same benefits from an e-Crash system as reported by survey respondents.

Step 3) Conduct Cost-Benefit Analysis

A *Cost-Benefit Analysis* was conducted to determine whether the System Benefits outweigh the System Cost. Since the system has a 25-year anticipated lifespan, the Cost-Benefit Analysis was accomplished by dividing the System's projected 25-year benefits by its total cost (installation and maintenance). If the benefit/cost ratio is one (1) or greater, the project yields a positive ROI.

1. The Sheriff's Office Survey had a 36.6% response rate (30 surveys completed).

IV. EVALUATION

This section of the report identifies the system cost, as well as the potential benefits that can be achieved from using an e-Crash system. The results of the Cost-Benefit Analysis are also included in this section.

1) System Cost

The system cost consists of implementation and annual recurring cost.

A. Implementation Cost

The total e-Crash system implementation cost in the Sheriff's Office is \$103,855 (**Table 1**). Of this cost, \$99,605 (95.9%) is covered through the grant from the Michigan OHSP's Electronic Crash Capture & Submission (ECCS) project. Thus, the County's portion of the implementation cost is \$4,250 (4.1%).

The cost includes the e-Crash software, software licenses on each police cruiser laptop, user training (to be conducted by iyeTek), system installation, and software interfaces (which are needed to import the electronic data into the County's LEIN database and AS400/OnBase criminal justice database).

The implementation cost that is the responsibility of the other local law enforcement agencies that are part of this project is provided in **Attachment B**.

Table 1

Initial Investment Cost – Ottawa County Sheriff's Office (e-Crash System)			
	Total System Cost	Grant Funding	Total Cost to County
e-Crash System			
Licenses	\$77,350.00	\$77,350.00	\$0.00
System Software	\$3,532.61	\$3,532.61	\$0.00
Training	\$4,945.65	\$4,945.65	\$0.00
System Installation	\$10,597.83	\$10,597.83	\$0.00
Software Interface (LEIN)	\$3,179.35	\$3,179.35	\$0.00
Software Interface (AS400/OnBase)	\$4,250.00	\$0.00	\$4,250.00
Initial Investment Cost	\$103,855.44	\$99,605.44	\$4,250.00

Source: iyeTek; Ottawa County Sheriff's Office; Ottawa County Central Dispatch Authority

B. Recurring Cost

The annual maintenance cost to the Sheriff's Office for the e-Crash system is \$20,899. This cost includes software system upgrades, repairs, and technical support. There is also an annual cost of system

maintenance that is the responsibility of the other six local law enforcement agencies (**Attachment C**).

As a means to secure a contract with the County, iyeTek is proposing to cover the County's \$20,899 annual maintenance cost if the County accepts an e-Commerce Agreement. An e-Commerce Agreement would allow iyeTek to sell Ottawa County crash reports to the public through its website; and, the revenue that iyeTek generates from the sales would be used to pay the County's \$20,899 annual maintenance cost.

The duration of the proposed e-Commerce Agreement is 12 months with an automatic annual renewal unless otherwise terminated. The County has the ability to terminate the Agreement without cause at any time (with 60 days advanced written notice).

The caveat with the Agreement is that the County would be unable to sell traffic crash reports to the public from its website. At present, the County generates approximately \$10,464 in revenue annually from the sale of traffic crash reports. It also receives \$2,973 in revenue annually from the State as a result of traffic crash reports which the State sells to the public from its website. This equates to \$13,437 annually – which is insufficient to cover the annual maintenance cost proposed by iyeTek (**Attachment D**).

In order to determine whether the e-Commerce Agreement is cost-effective for the County, an analysis of three maintenance payment options was conducted. These options are:

- **Option 1: Accept e-Commerce Agreement with iyeTek**
This option involves iyeTek paying the County's annual maintenance cost by using fees generated from the sale of crash reports purchased from their website.
- **Option 2: Use current revenue generated from the sale of crash reports from the County's website**
This option involves paying the County's annual maintenance cost using fees generated from the sale of crash reports purchased from the County website and any necessary contributions from the County General Fund.
- **Option 3: Increase the cost to purchase a crash report from the County website**
This option involves increasing the cost to purchase a crash report from the County website to \$9.00 per report to cover the County's annual maintenance cost.

Option 1 will cover the County's \$20,899 annual maintenance cost for e-Crash and provide approximately \$14,171 in revenue to the County per year (**Table 2**). The additional revenue is the direct result of the State

increasing the amount of revenue that it returns to the County for each crash report sold on the State website if the County installs an e-Crash system.

With Option 2, the County would put all of the revenue that it currently generates from on-line crash report sales toward the annual maintenance cost and still need to contribute \$4,984 from the County General Fund to cover the entire maintenance cost.

With Option 3, the County would increase the cost to purchase a crash report on-line to \$9 per report. This would cover the annual maintenance cost.

The most cost-effective maintenance payment option for the County is to accept the e-Commerce Agreement with iyeTek (Option 1).

Detailed computations for each maintenance payment option are included in the Appendix (**Attachment E**).

Table 2

**E-Commerce Options
(e-Crash System)**

	Current Situation (No e-Crash System)	Option 1: Accept e-Commerce Agreement with iyeTek	Option 2: Use current revenue generated from the sale of crash reports from the County's website	Option 3: Increase the cost to purchase a crash report from the County website
County Revenue from Crash Reports Sold on State Website	\$2,973	\$5,451 ¹	\$5,451 ¹	\$5,451 ¹
County Revenue from Crash Reports Sold on iyeTek Website	\$0	\$8,720 ²	\$0	\$0
County Revenue from Crash Reports Sold on County Website	\$10,464	\$0	\$10,464	\$15,696
Cost to County for e-Crash Maintenance	n/a	\$0	\$20,899	\$20,899
Net Annual Revenue to County (less maintenance of e-Crash)	\$13,437	\$14,171	(\$4,984)	\$248

Source: Ottawa County Sheriff's Office; IT Department; iyeTek

1. If the County installs e-Crash, the State will increase the revenue it provides the County from online crash report sales by \$2.50 per report. The State currently provides the County \$3.00 in revenue for every report sold on the State website. This would increase to \$5.50 with e-Crash technology.
2. iyeTek agrees to provide the County \$5.00 in revenue for every traffic crash report it sells from its website if the County accepts the e-Commerce Agreement. iyeTek will charge the public \$12 per report, of which the County would receive \$5.00 and iyeTek would retain the remaining \$7.00 to cover the County's annual maintenance cost of the system.

C. Total System Cost

The total cost to the County for e-Crash over twenty-five years is \$4,250 (Table 3). This is due in large part to

grant funding and the e-Commerce Agreement with iyeTek. Detailed computations are included in Attachment F.

Table 3

Project Cost (25 Years) (e-Crash System with e-Commerce Agreement through iyeTek)						
	Years 1-5 (FY 12-16)	Years 6-10 (FY 17-21)	Years 11-15 (FY 22-26)	Years 16-20 (FY 27-31)	Years 21-25 (FY 32-36)	Total (25 Years)
Initial Investment Cost						
e-Crash System	\$103,855	\$0	\$0	\$0	\$0	\$103,855
Annual Recurring Cost						
Maintenance						
iyeTek e-Crash System	\$104,495 ¹	\$104,495	\$104,495	\$104,495	\$104,495	\$522,475
Total Project Cost	\$208,350	\$104,495	\$104,495	\$104,495	\$104,495	\$626,330
Project Cost (Grants)	\$120,504	\$0	\$0	\$0	\$0	\$120,504
Project Cost (iyeTek e-Commerce Agreement)	\$83,596 ¹	\$104,495	\$104,495	\$104,495	\$104,495	\$501,576
Project Cost (County)	\$4,250	\$0	\$0	\$0	\$0	\$4,250

Source: iyeTek and Ottawa County Sheriff's Office

1. Maintenance for the e-Crash System is covered by grant funding during Year 1

2) System Benefits

The potential system benefits that are assessed include labor hours saved (and cost-savings), reduction in material usage (and cost-savings), and increased revenue stemming from the on-line sale of e-Crash reports.

A. Labor

1. Labor Hours Saved

An e-Crash system is designed to provide labor savings for Road Patrol Officers, Traffic Sergeants, and Sheriff's Office Clerks. The savings are primarily from the reduction in time necessary to prepare, review, and process traffic crash reports.

Road Patrol Officers

It currently takes 22.5 minutes for an Ottawa County Road Patrol Officer to prepare a hard-copy crash report. If the Officers are able to achieve efficiencies through an e-Crash system that are similar to the efficiencies realized in other Michigan Sheriff's Offices that have implemented e-Crash systems, the time to prepare a crash report could be reduced to 12.6 minutes. This reflects a savings of 9.9 minutes per crash (44% reduction in time) or a total annual savings of 895 hours for all Road Patrol Officers (**Table 4**).

Table 4

Number of Road Patrol Officer Hours Saved	
	Projected Annual Staff Hours Saved as a Result of e-Crash System
Total Average Time to Prepare Crash Reports	895

Source: Ottawa County Sheriff's Office; e-Crash Survey

Traffic Sergeants

It is also projected that the on-duty Traffic Sergeant, who is responsible for reviewing and approving the crash reports on a daily basis, would experience a time savings as a result of e-Crash. This savings is likely since the e-Crash reports should contain fewer errors, be more complete, and be more legible. The Traffic Sergeant currently spends 1.5 hours per day reviewing hard-copy crash reports. This review time could be reduced to 0.9 hours (i.e. 54 minutes) per day. This reflects a savings of 0.6 hours (36 minutes) per day (40% reduction in time) or 151 hours annually (**Table 5**).

Table 5

Number of Traffic Sergeant Hours Saved	
	Projected Annual Staff Hours Saved as a Result of e-Crash System
Total Average Time to Review Crash Reports	151

Source: Ottawa County Sheriff's Office; e-Crash Survey

Sheriff's Office Clerks

There is also a projected time savings for the Sheriff's Office clerks who process traffic crash reports on a daily basis. Processing a crash report includes entering data into a computer program, imaging and indexing the report into the County's Electronic Content Management (ECM) system, copying and filing the hard-copy crash report, and mailing the original report to the State.

It currently takes at least 1 minute and 40 seconds for a clerk to process a crash report. This equates to approximately 152 total hours annually to process all crash reports. With an e-Crash system, this entire process would be automated (**Table 6**).

Detailed calculations of the labor savings for Road Patrol Officers, Traffic Sergeants, and Sheriff's Office clerks are included in **Attachment G**.

Table 6

Number of Sheriff's Office Clerk Hours Saved	
	Projected Annual Staff Hours Saved as a Result of e-Crash System
Total Average Time to Process Crash Reports	152

Source: Ottawa County Sheriff's Office; e-Crash Survey

State Reporting

In addition to the labor savings, an e-Crash system may also provide a quicker turnaround time between the completion of traffic crash reports and the submission of the reports to the State. It will also potentially decrease the number of crash reports that are submitted to the State with errors and reduce the number of reports pending review by the Traffic Sergeant (i.e. daily backlog). Detailed calculations for these additional benefits are included in **Attachment H**.

2. Cost-Savings from Labor Hours Saved

The projected number of labor hours saved are converted into fulltime equivalent (FTE) staff positions in order to determine the number of staff reductions that could occur. The calculation divides the projected staff hours saved annually by the average number of annual work hours per FTE (2,080). If the projected time savings is at least 1,040 hours annually (0.5 FTE), there is an opportunity to reduce staff. Any reductions in staff would be through attrition (e.g. retirement, resignations).

Because no single position in the Sheriff's Office is projected to achieve at least 1,040 hours of time savings annually because of e-Crash, there are no anticipated staff reductions.

It is worth noting that a cost-savings may be realized through a reduction in overtime hours¹ as a result of e-Crash. However, the Sheriff's Office does not track the number of overtime hours specific to preparing crash reports. As a result, a cost-savings related to potential reductions in overtime cannot be calculated at this time.

B. Materials

1. Materials Saved

With an e-Crash system, the Sheriff's Office is projected to have a reduction in material usage. These material savings would stem primarily from the elimination of hard-copy UD-10 crash report forms, as well as a reduction in copy machine paper and toner usage, file folder labels, and postage and envelopes (Table 7). Detailed calculations are included in Attachment I.

Table 7

Materials Saved

	Average Number of Materials Saved Per Year
UD-10 Crash Reports	5,449 ¹
Copy Machine Paper	5,449 ¹
File Folder Labels	365 ²
Postage and Envelopes	156 ³

Source: Ottawa County Sheriff's Office

1. This is the average number of crash reports prepared per year from 2006 through 2010
2. File folders for crash reports are re-used from one year to the next. However, new labels are purchased for each daily file folder to reflect the current year
3. UD-10 reports are mailed to the State three times per week

2. Cost-Savings from Materials Saved

The reduction in material usage in the Sheriff's Office will result in an annual cost-savings of \$1,985 (Table 8). To calculate the twenty-five year cost savings, it was assumed that the cost of materials will increase 3% annually due to inflation. The twenty-five year cost-savings equates to \$49,613. Detailed calculations are provided in Attachment J.

Table 8

Material Cost-Savings

	Annual Average Cost-Savings	Total Material Cost Savings (25 Years)
UD-10 Crash Reports	\$954	\$23,839
Copy Machine Paper (and Toner)	\$302	\$7,549
File Folder Labels	\$46	\$1,159
Postage and Envelopes	\$683	\$17,066
Total	\$1,985	\$49,613

Source: Ottawa County Sheriff's Office

C. Increased Revenue

As previously discussed, Ottawa County will receive an additional \$734 in revenue if an e-Crash system is implemented and the County accepts an e-Commerce Agreement with iyeTek (Table 9).

Table 9

Increase in County Revenue

	Annual Average Revenue	Total Increase in Revenue (25 Years)
On-Line Crash Report Sales	\$734	\$18,350
Total	\$734	\$18,350

Source: Ottawa County Sheriff's Office

D. Total System Benefits

The total system benefits to the County based on a reduction in material usage and increased revenue is \$67,963 over twenty-five years. Detailed System Benefits computations are included in Attachment K.

1. The average annual overtime expenditure for Road Patrol Officers in the Sheriff's Office in 2009 and 2010 was \$327,178.

3) Cost-Benefit Analysis

The County’s ROI for the e-Crash system was calculated using a *Cost-Benefit Analysis* model. Since the ROI is calculated over twenty-five years (which is the projected useful life of the system), the system cost and system benefits are converted into their “present value” (2012 dollars).

This results in a twenty-five year cost to the County of \$4,087 (**Table 10**). The twenty-five year system benefits are projected to be \$40,667. Thus, the net benefit to the County over twenty-five years is \$36,580, or \$1,463 per year.

The benefit/cost ratio is 9.95, meaning the e-Crash system has a positive ROI.

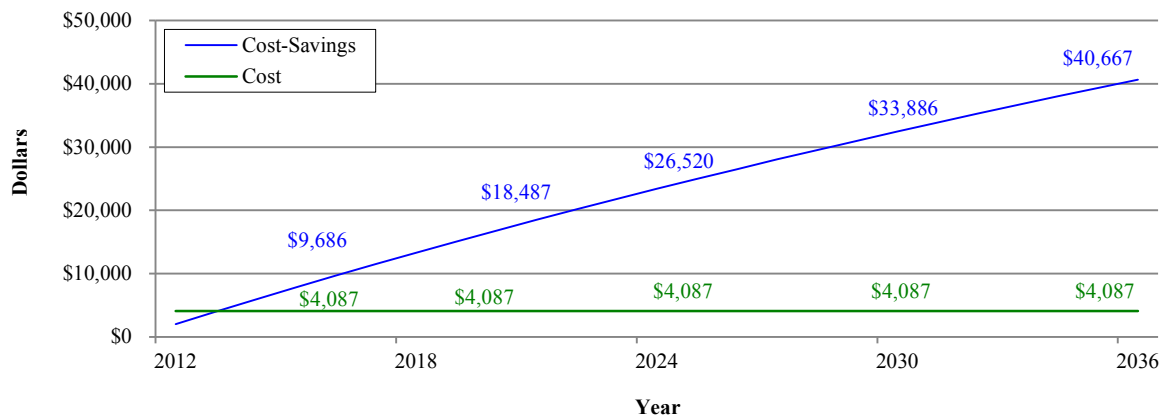
Table 10

Cost-Benefit Analysis (e-Crash System)						
	Years 1-5 (FY 12-16)	Years 6-10 (FY 17-21)	Years 11-15 (FY 22-26)	Years 16-20 (FY 27-31)	Years 21-25 (FY 32-36)	Total (25 Years)
Present Value (County)¹						
Cost (County)	\$4,087	\$0	\$0	\$0	\$0	\$4,087
Cost-Savings/Increase Revenue (County)	\$9,686	\$8,801	\$8,033	\$7,366	\$6,781	\$40,667
Net Present Value (Cost to County)	(\$5,599)	(\$8,801)	(\$8,033)	(\$7,366)	(\$6,781)	(\$36,580)
Benefit/Cost Ratio (County)						9.95

Source: iyeTek and Ottawa County Sheriff’s Office

1. Present Value is calculated using the following statistical formula: $A/(1+B)^C$ where A is the Total Project Cost or Benefits, B is the Discounted/Interest Rate (4% based on Fiscal Services historical precedent), and C is the Year

Cumulative Present Value Cost and Projected Cost-Savings to County (Twenty-Five Years)



V. CONCLUSIONS AND RECOMMENDATIONS

The utilization of an advanced technology system to process traffic crash reports in an electronic (i.e. digital) format is projected to improve efficiency and reduce cost. According to the Michigan Office of Highway Safety Planning (OHSP), nearly seventy percent of law enforcement agencies in Michigan are using an electronic traffic crash reporting system.

This report was prepared to quantify the purported benefits of the electronic system for Ottawa County, and to determine whether the benefits justify the County's cost to install and maintain the e-Crash reporting system.

As a result of a technology grant that was received from the OHSP, the total cost to Ottawa County to install and maintain an electronic traffic crash reporting system (i.e. e-Crash) would be \$4,087 (0.7% of the total cost). Based on projected reductions in material-usage that could be achieved from using an e-Crash system, and additional revenue that could be generated from the on-line sale of electronic crash reports, the total net benefit to the County is projected to be \$36,580 over twenty-five years, or \$1,463 per year.

The recommendations from this Evaluation are as follows:

Recommendation 1:

Pursue the implementation of an e-Crash system for the Sheriff's Office at a not-to-exceed installation cost to the County of \$4,250.

Recommendation 2:

Secure an e-Commerce Agreement with iyeTek to cover the annual maintenance cost (\$20,899) of the e-Crash system.

Recommendation 3:

Review the e-Commerce Agreement with iyeTek in 3 years (2015) to ensure the agreement continues to be financially sensible for the County as it pertains to covering the annual maintenance cost of the e-Crash system.

Attachments

Electronic Traffic Crash Reporting System Sheriff's Office Survey Results

30 total responses (36.6% response rate)

20 use e-Crash

2 use e-Ticket (unsure whether e-Crash is utilized)

8 do not use either system

e-Crash System

A. Year Implemented (17 respondents):

- 2005 (1 respondent)
- 2006 (1 respondent)
- 2007 (1 respondent)
- 2008 (3 respondents)
- 2009 (7 respondents)
- 2010 (4 respondents)

B. System/Software (17 respondents):

- iyeTek (8 respondents)
- Report Beam (3 respondents)
- Visionairre (1 respondent)
- New World Systems (1 respondent)
- OSSI by Sungard (3 respondents)
- Clemis (1 respondent)

C. e-Crash system was easy for employees to learn (16 respondents):

- Agree (14 respondents)
- Somewhat agree (2 respondents)

D. e-Crash system is easy for employees to use (16 respondents):

- Agree (15 respondents)
- Somewhat agree (1 respondent)

E. Employees are satisfied with how the e-Crash system operates (16 respondents):

- Agree (13 respondents)
- Somewhat agree (1 respondent)
- Disagree (2 respondents)

F. Average number of minutes to prepare a crash report per incident (14 respondents):

Increase (1 respondent):

- 5 minutes prior vs. 5-10 minutes after implementation

No Change (2 respondents):

- No change from paper submissions
- 10 minutes prior vs. 10 minutes after implementation

Attachment A

Decrease (11 respondents):

- 20 minutes prior vs. 5 minutes after implementation
- 20-30 minutes prior vs. 10-15 minutes (w/use of e-crash LEIN and Card swipe) after implementation
- 15 minutes prior vs. 10 minutes after implementation
- 15-20 minutes prior vs. 8-12 minutes after implementation
- 50 minutes prior vs. 30 minutes after implementation
- 25 minutes prior vs. 12-15 minutes after implementation
- 10-15 minutes prior vs. 7-10 minutes after implementation
- 35 minutes prior vs. 15 minutes after implementation
- 25 minutes prior vs. 5-10 minutes after implementation
- 20 minutes prior vs. 10 minutes after implementation
- 30 minutes prior vs. 8 minutes after implementation

G. Average number of supervisor hours spent reviewing crash reports per day (14 respondents):

Increase (1 respondent):

- 1 hour prior vs. 2 hours after implementation

No Change (3 respondents):

- 10 hours prior vs. 10 hours after implementation
- 2-3 hours prior vs. 2-3 hours after implementation
- 1 hour prior vs. 1 hour after implementation

Decrease (10 respondents):

- 10 minutes prior vs. 2-4 minutes after implementation
- 30-60 minutes prior vs. 15-30 minutes after implementation
- 5 hours prior vs. 2.5 hours after implementation
- 1 hour prior vs. 0.5 hours after implementation
- 2 hours prior vs. 1 hour after implementation
- 1 hour prior vs. 0.5-1 hour after implementation
- 3 hours prior vs. 1 hour after implementation
- 2 hours prior vs. 1 hour (because we can review while in patrol car) after implementation
- 10 minutes prior vs. 3 minutes after implementation
- 1 hour prior vs. 0.5-0.75 hours after implementation

H. Average number of crash reports pending supervisor review (daily backlog) (13 respondents):

No Change (7 respondents):

- 10 prior vs. 10 after implementation
- 6 prior vs. 6 after implementation
- 5 prior vs. 5 after implementation
- 5 prior vs. 5 after implementation
- 10-15 prior vs. 10-15 after implementation
- 5-15 prior vs. 5-15 after implementation
- 8 prior vs. 8 after implementation

Decrease (6 respondents):

- 5-10 prior vs. 2-3 after implementation
- 6-8 prior vs. 0-2 (online checks are fast and easy) after implementation
- 15-20 prior vs. 2-3 after implementation
- 25 prior vs. 5 after implementation
- 20 prior vs. 4 after implementation

Attachment A

- 10 prior vs. 5 after implementation
- I. Average number of crash reports submitted with errors per year (11 respondents):
- Increase (1 respondent):
- 15 prior vs. 40 after implementation
- Decrease (9 respondents):
- 10 prior vs. 2 after implementation
 - 25-30 prior vs. 0 after implementation
 - 15-20 prior vs. 0-1 after implementation
 - 50-60 prior vs. 0 after implementation
 - 300 prior vs. 10 after implementation
 - 20% prior vs. less than 5% after implementation
 - 5% prior vs. less than 0.5% after implementation
 - 50-100 prior vs. minimal after implementation
 - 25 prior vs. 1 after implementation
- Unsure (1 respondent):
- 10% prior vs. 25 after implementation
- J. Average number of hours between crash incident and report submittal to State (12 respondents):
- Decrease (12 respondents):
- Once a month prior vs. immediately after implementation
 - Once a month prior vs. 8 hours after implementation
 - Days/weeks prior vs. 12 hours after implementation
 - 72 hours prior vs. 12 hours after implementation
 - 25 hours prior vs. 0 hours after implementation
 - Once a month prior vs. 24 hours after implementation
 - 1-1.5 weeks prior vs. 2-3 days after implementation
 - 3-5 days prior vs. 24 hours after implementation
 - Once a month prior vs. 2 days after implementation
 - 30 days prior vs. daily after implementation
 - 48-72 hours prior vs. 24-48 hours after implementation
 - 1 month prior vs. 24 hours after implementation
- K. Benefits and/or efficiencies experienced as a result of e-Crash system (15 respondents):
- Saving countless hours of employee time
 - With the training on e-crash and the iyeTek software program, officers take less time to investigate crashes. The reports are complete and, with the CAD drawing program, appear more professional. The LEIN program in iyeTek and the card swipes speed up the reports and check for warrants at the same time
 - Not buying UD-10s
 - I believe the e-crash system is a great addition, but I do not recommend SunGard (OSSI). We have been working with them since January 2010 and they still don't have it working properly which caused more work for the supervisor
 - Seems like it has reduced officer time, staff review, mailing, etc.
 - Very professional, legible crash reports; streamlined review and state submission process. Report Beam provided an e-commerce website where our UD-10s were purchased, minimizing administrative time during report dissemination

Attachment A

- Clarity; much fewer errors
- The reports are much easier to complete. Information from LEIN/SOS can be populated into certain fields to save time
- Excellent program
- The crash reports are much neater and easier to read. You can run information through LEIN and drag it into the report. System has a set of checks and balances that will not allow report to be submitted for approval until all required areas are filled out. Reports are sent electronically and are no longer submitted to our records bureau to copy and mail to the state. This has saved our records bureau about 3 to 4 hours per week
- Reports are readable since they are done electronically. Reports can be reviewed by supervisor in the patrol car prior to submission. Savings in paper. Eliminated data entry of crash reports by clerical staff. Easy search capabilities. Timely submissions. Easy access by administrative staff (sheriff, undersheriff). No more searching mailboxes for lost reports. Corrected copies can be sent in easily
- I think the e-crash system was well received and we are currently working on the e-ticket program with APS, which is also with the Report Beam Company. We are the first to put both in the same program (one application to open up). The product is to arrive in October. We will be testing the e-ticket program and then migrate it directly to the courts (both JIS and JMS for the district courts)
- More patrol hours; less complaints
- Reports are always legible and more accurate
- The drop/drag of information from LEIN eliminates previous errors on VIN's and driver information. Legibility of information is obvious; diagrams are more depictive; flexibility of reporting from vehicle or office; and availability on-line for customer/insurance company saved a lot of support staff time

L. Problems with the e-Crash system hardware or software (15 respondents):

Yes (7 respondents):

- In the beginning, there were some learning problems and iyeTek made some changes to help fit the program to our Department needs, like roads, symbols and LEIN usage. After a short time it has become a tool the Officers cannot do without
- In supervisor mode can't enter supervisor name when approved. Bubbles are filled in on the printed/submitted forms that are not in the report. Distance does not allow a decimal (ex: 0.25 mi); you must convert to feet
- During the implementation of the OSSI software, some error checks and pick lists were not set up appropriately
- The system is picky in regards to crash types and information entered which was accepted via the paper reports
- There have been a couple minor glitches in the initial stages. They have been worked out and systems works well now
- At first there were some issues with table codes and in car computers. However, with a recent grant we were able to update the hardware in the patrol cars and the system seems to be running smoothly
- The geo coding was not working. Spoke with support and they fixed the problem right away. Also had some unique issues that were addressed. Happy with the support county wide

No (8 respondents)

M. Other drawbacks experienced as a result of e-Crash system (6 respondents):

- The system is only as good as your wireless connection to your units. If it is down out on the road, you have to do twice the work after the crash by entering the crash back at the office

Attachment A

- Support in fixing the problems
- Creating a diagram in the patrol unit on the MCT is time consuming and somewhat difficult until the officers are very familiar with the drawing software
- You need to buy software (visio) to draw the diagrams of the accident
- The officers seem to get frustrated when the system does not take certain information for the reports
- One possible issue is the learning curve for some deputies to learn to type on a computer. However, with the younger generation of deputies who are familiar with keyboarding, this problem should eventually be eliminated

Attachment B
Installation Cost of e-Crash System
 (iyeTek Proposal)

Total Installation Cost

	Licenses	Admin Portal Software	Training Sessions	LEIN Interface System	AS400/OnBase Interfaces ¹	Project Installation	Verizon Air Cards	Total Project Cost
Grant Award	\$92,225.00	\$5,000.00	\$7,000.00	\$4,500.00	\$0.00	\$15,000.00	\$24,000.00	\$147,725.00
Not Funded by Grant	\$17,255.00	-	-	-	\$4,250.00	-	-	\$21,505.00
Total Project Cost	\$109,480.00	\$5,000.00	\$7,000.00	\$4,500.00	\$4,250.00	\$15,000.00	\$24,000.00	\$169,230.00

¹ These items are not included in iyeTek's proposal. The additional estimated cost is to create software interfaces with the County's existing justice systems

Installation Cost Per Local Agency

	# of e-Crash MCTs and Desktop Units ²	Cost of Licenses	Cost of Software	Cost of Training	Cost of LEIN Interface	Cost of AS400/OnBase Interfaces ³	Cost of Install	Cost of Verizon Air Cards	Total Project Cost	Total Funded by Grant	Total Funded by Local Agency
Ottawa County	130	\$77,350.00	\$3,532.61	\$4,945.65	\$3,179.35	\$4,250.00	\$10,597.83	\$0.00	\$103,855.44	\$99,605.44	\$4,250.00
Grand Haven PD	0	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00
GVSU	10	\$5,950.00	\$271.74	\$380.43	\$244.57	\$0.00	\$815.22	\$0.00	\$7,661.96	\$7,661.96	\$0.00
Spring Lake/Ferrysburg	6	\$3,570.00	\$163.04	\$228.26	\$146.74	\$0.00	\$489.13	\$0.00	\$4,597.17	\$4,597.17	\$0.00
Zeeland PD	7	\$4,165.00	\$190.22	\$266.30	\$171.20	\$0.00	\$570.65	\$0.00	\$5,363.37	\$5,363.37	\$0.00
Ottawa Central Dispatch	2	\$1,190.00	\$54.35	\$76.09	\$48.91	\$0.00	\$163.04	\$24,000.00	\$25,532.39	\$25,532.39	\$0.00
Holland PD	29	\$17,255.00	\$788.04	\$1,103.26	\$709.24	\$0.00	\$2,364.13	\$0.00	\$22,219.67	\$4,964.67	\$17,255.00
Total	184	\$109,480.00	\$5,000.00	\$7,000.00	\$4,500.00	\$4,250.00	\$15,000.00	\$24,000.00	\$169,230.00	\$147,725.00	\$21,505.00

² Includes iyeTek's standard 10% increase in MCTs and desktops in order to provide spare licenses

³ The additional cost to create software interfaces to the County's existing justice systems are only applicable to Ottawa County

Attachment C
Annual Maintenance Cost of e-Crash System

e-Crash Maintenance Cost Per Local Agency (18% of total cost per agency)¹

	Year 1		Year 2	Year 3	Year 4	Year 5	Total
	Funded by Grant	Funded by Local Agency	Funded by Local Agency	Funded by Local Agency	Funded by Local Agency	Funded by Local Agency	
Ottawa County	\$20,898.98	\$0.00	\$20,898.98	\$20,898.98	\$20,898.98	\$20,898.98	\$104,494.89
Grand Haven PD	\$270.00	\$0.00	\$270.00	\$270.00	\$270.00	\$270.00	\$1,350.00
GVSU	\$1,649.15	\$0.00	\$1,649.15	\$1,649.15	\$1,649.15	\$1,649.15	\$8,245.76
Spring Lake/Ferrysburg	\$1,097.49	\$0.00	\$1,097.49	\$1,097.49	\$1,097.49	\$1,097.49	\$5,487.46
Zeeland PD	\$1,235.41	\$0.00	\$1,235.41	\$1,235.41	\$1,235.41	\$1,235.41	\$6,177.03
Ottawa Central Dispatch	\$545.83	\$0.00	\$545.83	\$545.83	\$545.83	\$545.83	\$2,729.15
Holland PD	\$893.64	\$3,375.90	\$4,269.54	\$4,269.54	\$4,269.54	\$4,269.54	\$21,347.71
Total	\$26,590.50	\$3,375.90	\$29,966.40	\$29,966.40	\$29,966.40	\$29,966.40	\$149,832.00

¹ Maintenance cost is calculated utilizing the Total Project Cost per agency less the Cost of AS400/OnBase Interfaces. If the County accepts an e-Commerce Agreement with iyeTek, there will be no recurring annual maintenance fee to the County. If the other local law enforcement agencies accept e-Commerce Agreements with iyeTek, they will also not have annual recurring maintenance fees.

Attachment D

Annual County Revenue from On-Line Crash Report Sales (Prior to e-Crash)

	Crash Reports Sold on Ottawa County Website	Crash Reports Sold on State Website	Total Crash Reports Sold On-Line
Number of Reports Sold On-Line	1,744 ¹	991 ³	2,735
Cost to Purchase an Electronic Report	\$6.00 ²	\$10.00	-
Total Revenue (Electronic Reports)	\$10,464	\$9,910	\$20,374
State Revenue	\$0	\$6,937	\$6,937
County Revenue (Electronic Reports)	\$10,464	\$2,973 ⁴	\$13,437

Source: Ottawa County Sheriff's Office; IT Department

¹ This is the number of crash reports sold on the Ottawa County website from July 2010 through June 2011

² This is the cost per crash report sold on the Ottawa County website effective July 1, 2010. The cost per report is \$6 (\$5 report fee plus \$1 convenience fee)

³ This reflects the number of Ottawa County crash reports sold on the State's website in 2010

⁴ The County receives \$3 for every Ottawa County crash report that is sold on the State's website

Attachment E

Analysis of E-Commerce Options

Annual County Revenue from On-Line Crash Report Sales (e-Crash System)

	Option 1: Use an E-Commerce Agreement with iyeTek to Pay the Annual Maintenance Cost			Option 2: Use Revenue from the Sale of Crash Reports on the County Website in order to Pay the Annual Maintenance Cost			Option 3: Increase the Cost to Purchase a Crash Report from the County Website in order to Pay the Annual Maintenance Cost		
	Crash Reports Sold on iyeTek's Website	Crash Reports Sold on State Website	Total Crash Reports Sold On-Line	Crash Reports Sold on Ottawa County Website	Crash Reports Sold on State Website	Total Crash Reports Sold On-Line	Crash Reports Sold on Ottawa County Website	Crash Reports Sold on State Website	Total Crash Reports Sold On-Line
<u>Annual Revenue (On-Line Crash Report Sales)</u>									
Number of Reports Sold On-Line	1,744 ²	991 ⁷	2,735	1,744 ²	991 ⁷	2,735	1,744 ²	991 ⁷	2,735
Cost to Purchase Report	\$12.00 ³	\$10.00	-	\$6.00 ⁹	\$10.00	-	\$9.00	\$10.00	-
Total Revenue	\$20,928	\$9,910	\$30,838	\$10,464	\$9,910	\$20,374	\$15,696	\$9,910	\$25,606
State Revenue	-	\$4,459	\$4,459	-	\$4,459	\$4,459	-	\$4,459	\$4,459
iyeTek Revenue	\$12,208 ⁴	-	\$12,208	-	-	\$0	-	-	\$0
County Revenue	\$8,720 ⁵	\$5,451 ⁸	\$14,171	\$10,464	\$5,451 ⁸	\$15,915	\$15,696	\$5,451 ⁸	\$21,147
<u>Annual Cost (e-Crash Maintenance)</u>									
Maintenance Cost to County (e-Crash System)	\$0 ⁶	-	\$0 ⁶	\$20,899	-	\$20,899	\$20,899	-	\$20,899
Net County Revenue (Electronic Reports) ¹	-	-	\$14,171	-	-	(\$4,984)	-	-	\$248

Source: Ottawa County Sheriff's Office; IT Department; iyeTek

¹ This is County Revenue minus Maintenance Cost to County (e-Crash System)

² This is the number of crash reports sold on the Ottawa County website from July 2010 through June 2011

³ The cost to purchase a crash report on iyeTek's website is \$12 (\$5 report fee plus a \$7 surcharge fee)

⁴ IyeTek will retain the revenue from the \$7 surcharge fee per Ottawa County crash report that is sold on their website

⁵ The County will receive the revenue from the \$5 report fee per Ottawa County crash report that is sold on iyeTek's website

⁶ The annual maintenance cost for the e-Crash system is \$20,899. This cost would be covered by iyeTek if the County accepts their e-commerce agreement

⁷ This reflects the number of Ottawa County crash reports sold on the State's website in 2010

⁸ Once an e-Crash system is implemented, the County will receive \$5.50 for every Ottawa County crash report that is sold on the State's website

⁹ This is the cost per crash report sold on the Ottawa County website effective July 1, 2010. The cost per report is \$6 (\$5 report fee plus a \$1 convenience fee)

Attachment F
Initial Investment and Annual Recurring Cost of e-Crash
Ottawa County Sheriff's Office

	Year 1 (FY 2012)	Year 2 (FY 2013)	Year 3 (FY 2014)	Year 4 (FY 2015)	Year 5 (FY 2016)	Total (Year 1-5)	Year 6 (FY 2017)	Year 7 (FY 2018)	Year 8 (FY 2019)	Year 9 (FY 2020)	Year 10 (FY 2021)	Total (Year 6-10)
Initial Investment Cost												
Licenses	\$77,350	\$0	\$0	\$0	\$0	\$77,350	\$0	\$0	\$0	\$0	\$0	\$0
System Software	\$3,532	\$0	\$0	\$0	\$0	\$3,532	\$0	\$0	\$0	\$0	\$0	\$0
Training	\$4,946	\$0	\$0	\$0	\$0	\$4,946	\$0	\$0	\$0	\$0	\$0	\$0
System Installation	\$10,598	\$0	\$0	\$0	\$0	\$10,598	\$0	\$0	\$0	\$0	\$0	\$0
Software Interface (LEIN)	\$3,179	\$0	\$0	\$0	\$0	\$3,179	\$0	\$0	\$0	\$0	\$0	\$0
Software Interface (AS400 and OnBase)	\$4,250	\$0	\$0	\$0	\$0	\$4,250	\$0	\$0	\$0	\$0	\$0	\$0
Annual Recurring Cost												
Maintenance												
iyeTek e-Crash System	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495
Annual Project Cost	\$124,754	\$20,899	\$20,899	\$20,899	\$20,899	\$208,350	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495
Annual Project Cost (Grants) ¹	\$120,504	\$0	\$0	\$0	\$0	\$120,504	\$0	\$0	\$0	\$0	\$0	\$0
Annual Project Cost (iyeTek E-Commerce Agreement) ²	\$0	\$20,899	\$20,899	\$20,899	\$20,899	\$83,596	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495
Annual Project Cost (County)	\$4,250	\$0	\$0	\$0	\$0	\$4,250	\$0	\$0	\$0	\$0	\$0	\$0
Present Value Cost (County)	\$4,087	\$0	\$0	\$0	\$0	\$4,087	\$0	\$0	\$0	\$0	\$0	\$0

Source: iyeTek and Ottawa County Sheriff's Office

¹ Grant funding is available to cover the initial investment cost of e-Crash as well as the first year's maintenance cost for iyeTek's e-Crash system

² The maintenance cost of the e-Crash system could be covered by iyeTek if the County accepts an e-Commerce Agreement that the company has offered

Attachment F
Initial Investment and Annual Recurring Cost of e-Crash
Ottawa County Sheriff's Office

	Year 11 (FY 2022)	Year 12 (FY 2023)	Year 13 (FY 2024)	Year 14 (FY 2025)	Year 15 (FY 2026)	Total (Year 11-15)	Year 16 (FY 2027)	Year 17 (FY 2028)	Year 18 (FY 2029)	Year 19 (FY 2030)	Year 20 (FY 2031)	Total (Year 16-20)
Initial Investment Cost												
Licenses	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
System Software	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Training	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
System Installation	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Software Interface (LEIN)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Software Interface (AS400 and OnBase)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Annual Recurring Cost												
Maintenance												
iyeTek e-Crash System	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495
Annual Project Cost	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495
Annual Project Cost (Grants) ¹	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Annual Project Cost (iyeTek E-Commerce Agreement) ²	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495
Annual Project Cost (County)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0
Present Value Cost (County)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0

Source: iyeTek and Ottawa County Sheriff's Office

¹ Grant funding is available to cover the initial investment cost of e-Crash as well as the first year's maintenance cost for iyeTek's e-Crash system

² The maintenance cost of the e-Crash system could be covered by iyeTek if the County accepts an e-Commerce Agreement that the company has offered

Attachment F
Initial Investment and Annual Recurring Cost of e-Crash
Ottawa County Sheriff's Office

	Year 21 (FY 2032)	Year 22 (FY 2033)	Year 23 (FY 2034)	Year 24 (FY 2035)	Year 25 (FY 2036)	Total (Year 21-25)	Total Cost (25 Years)
Initial Investment Cost							
Licenses	\$0	\$0	\$0	\$0	\$0	\$0	\$77,350
System Software	\$0	\$0	\$0	\$0	\$0	\$0	\$3,532
Training	\$0	\$0	\$0	\$0	\$0	\$0	\$4,946
System Installation	\$0	\$0	\$0	\$0	\$0	\$0	\$10,598
Software Interface (LEIN)	\$0	\$0	\$0	\$0	\$0	\$0	\$3,179
Software Interface (AS400 and OnBase)	\$0	\$0	\$0	\$0	\$0	\$0	\$4,250
Annual Recurring Cost							
Maintenance							
iyeTek e-Crash System	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495	\$522,475
Annual Project Cost	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495	\$626,330
Annual Project Cost (Grants) ¹	\$0	\$0	\$0	\$0	\$0	\$0	\$120,504
Annual Project Cost (iyeTek E-Commerce Agreement) ²	\$20,899	\$20,899	\$20,899	\$20,899	\$20,899	\$104,495	\$501,576
Annual Project Cost (County)	\$0	\$0	\$0	\$0	\$0	\$0	\$4,250
Present Value Cost (County)	\$0	\$0	\$0	\$0	\$0	\$0	\$4,087

Source: iyeTek and Ottawa County Sheriff's Office

¹ Grant funding is available to cover the initial investment cost of e-Crash as well as the first year's maintenance cost for iyeTek's e-Crash system

² The maintenance cost of the e-Crash system could be covered by iyeTek if the County accepts an e-Commerce Agreement that the company has offered

Attachment G
Projected Labor Hours Saved as a Result of e-Crash System (Ottawa County Sheriff's Office)

	Staff Time for Hard-Copy Crash Reports	Average Decrease Among Survey Respondents (Pre vs. Post e-Crash System Implementation)	Projected Staff Time for Electronic Crash Reports	Projected Staff Hours Saved as a Result of e-Crash System
Officer Time to Prepare Crash Reports				
Average Number of Traffic Crashes Investigated Per Year	5,449 ¹		5,449 ¹	
Average Number of Minutes to Prepare a Crash Report (Per Incident)	22.5 ²	43.8% ³	12.6 ⁴	
Total Average Time (Hours) to Prepare Crash Reports Per Year	2,043.4		1,148.4	895.0
Supervisor Time to Review Crash Reports				
Average Number of Supervisor Hours Spent Reviewing Crash Reports Per Day	1.50 ²	40.0% ³	0.90 ⁴	
Work Days Per Year	252 ⁵		252 ⁵	
Total Average Time (Hours) for Supervisors to Review Crash Reports Per Year	378.0		226.8	151.2
Clerk Time to Process Crash Reports				
Average Number of Minutes to Process a Crash Report	1.67 ²		0.00 ⁶	
Average Number of Crash Reports Processed Per Year	5,449 ¹		5,449 ¹	
Total Average Time (Hours) for Clerks to Process Crash Reports Per Year	151.7		0.0	151.7

Source: Ottawa County Sheriff's Office; Michigan Sheriff's e-Crash Survey

¹ Based on the number of traffic crashes investigated between 2006 and 2010

² Data obtained from the Ottawa County Sheriff's Office

³ Calculated based on information obtained from a Michigan Sheriff's e-Crash Survey that was distributed to each Sheriff's Office in Michigan

⁴ Calculated by applying the Average Decrease Among Survey Respondents (Pre vs. Post E-Crash System Implementation) to the Staff Time for Hard-Copy Crash Reports

⁵ This reflects 8 paid holidays per year

⁶ Processing tickets will be completely automated with e-Crash

Attachment H
Projected State Reporting Improvements as a Result of e-Crash System (Ottawa County Sheriff's Office)

	Hard-Copy Crash Reports¹	Average Decrease Among Survey Respondents (Pre vs. Post e-Crash System Implementation)²	Projected with Electronic Crash Reports³	Projected Savings as a Result of e-Crash System
Crash Reports with Errors				
Total Average Number of Crash Reports Submitted with Errors Per Year	1,300	92.7%	95	1,205
Crash Reports Pending Review (Daily Backlog)				
Total Average Number of Crash Reports Pending Supervisor Review (Daily Backlog)	15 ⁴	34.6%	10	5
Crash Report Submittal to the State				
Total Average Time (Hours) Between Crash Incident and Report Submittal to State	48.0	86.5%	6.5	41.5

Source: Ottawa County Sheriff's Office; Michigan Sheriff's e-Crash Survey

¹ Data obtained from the Ottawa County Sheriff's Office

² Calculated based on information obtained from a Michigan Sheriff's e-Crash Survey that was distributed to each Sheriff's Office in Michigan

³ Calculated by applying the Average Decrease Among Survey Respondents (Pre vs. Post e-Crash System Implementation) to Hard-Copy Crash Reports

⁴ According to the Ottawa County Sheriff's Office, there is no daily backlog when a Traffic Sergeant is on duty. This number reflects a worse case scenario

Attachment I

Projected Amount of Materials Saved as a Result of e-Crash System Ottawa County Sheriff's Office

	Material Usage with Hard-Copy Crash Reports	Projected Material Usage with Electronic Crash Reports	Projected Annual Amount of Material Saved as a Result of e-Crash System
Type of Material			
UD-10 Crash Reports ¹	5,449	0	5,449
Copy Machine Paper ²	5,449	0	5,449
File Folders (Labels) ³	365	0	365
Postage and Envelopes ⁴	156	0	156

Source: Ottawa County Sheriff's Office

¹ Based on the average number of crash reports prepared per year from 2006 through 2010. UD-10 crash reports would not be needed with an e-Crash system

² Currently, a copy is made of each crash report before the original is mailed to the State. The number of pages copied is based on the average number of crash reports prepared per year from 2006 through 2010

³ File folders are re-used from one year to the next. However, new labels are purchased for each daily file folder to reflect the current year

⁴ Currently, a batch of UD-10 reports are mailed to the State three times per week

Attachment J
Material Cost-Savings (e-Crash System)
Ottawa County Sheriff's Office

	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	Year 11	Year 12	Year 13
	(FY 2012)	(FY 2013)	(FY 2014)	(FY 2015)	(FY 2016)	(FY 2017)	(FY 2018)	(FY 2019)	(FY 2020)	(FY 2021)	(FY 2022)	(FY 2023)	(FY 2024)
Number of Materials Saved													
UD-10 Crash Reports	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449
Copies	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449
File Folder Labels	365	365	365	365	365	365	365	365	365	365	365	365	365
Postage	156	156	156	156	156	156	156	156	156	156	156	156	156
Dollar Per Unit													
UD-10 Crash Reports	\$0.120000	\$0.123600	\$0.127308	\$0.131127	\$0.135061	\$0.139113	\$0.143286	\$0.147585	\$0.152012	\$0.156573	\$0.161270	\$0.166108	\$0.171091
Copies	\$0.038000	\$0.039140	\$0.040314	\$0.041524	\$0.042769	\$0.044052	\$0.045374	\$0.046735	\$0.048137	\$0.049581	\$0.051069	\$0.052601	\$0.054179
File Folder Labels	\$0.087000	\$0.089610	\$0.092298	\$0.095067	\$0.097919	\$0.100857	\$0.103883	\$0.106999	\$0.110209	\$0.113515	\$0.116921	\$0.120428	\$0.124041
Postage	\$3.000000	\$3.090000	\$3.182700	\$3.278181	\$3.376526	\$3.477822	\$3.582157	\$3.689622	\$3.800310	\$3.914320	\$4.031749	\$4.152702	\$4.277283
Material Cost-Savings													
UD-10 Crash Reports	\$654	\$673	\$694	\$715	\$736	\$758	\$781	\$804	\$828	\$853	\$879	\$905	\$932
Copies	\$207	\$213	\$220	\$226	\$233	\$240	\$247	\$255	\$262	\$270	\$278	\$287	\$295
File Folder Labels	\$32	\$33	\$34	\$35	\$36	\$37	\$38	\$39	\$40	\$41	\$43	\$44	\$45
Postage	\$468	\$482	\$497	\$511	\$527	\$543	\$559	\$576	\$593	\$611	\$629	\$648	\$667
Annual Cost-Savings	\$1,361	\$1,402	\$1,444	\$1,487	\$1,532	\$1,578	\$1,625	\$1,674	\$1,723	\$1,775	\$1,829	\$1,884	\$1,939

Source: Ottawa County Sheriff's Office

Attachment J
Material Cost-Savings (e-Crash System)
Ottawa County Sheriff's Office

	Year 14 (FY 2025)	Year 15 (FY 2026)	Year 16 (FY 2027)	Year 17 (FY 2028)	Year 18 (FY 2029)	Year 19 (FY 2030)	Year 20 (FY 2031)	Year 21 (FY 2032)	Year 22 (FY 2033)	Year 23 (FY 2034)	Year 24 (FY 2035)	Year 25 (FY 2036)	Annual Average Savings (25 Years)
Number of Materials Saved													
UD-10 Crash Reports	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	
Copies	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	5,449	
File Folder Labels	365	365	365	365	365	365	365	365	365	365	365	365	
Postage	156	156	156	156	156	156	156	156	156	156	156	156	
Dollar Per Unit													
UD-10 Crash Reports	\$0.176224	\$0.181511	\$0.186956	\$0.192565	\$0.198342	\$0.204292	\$0.210421	\$0.216733	\$0.223235	\$0.229932	\$0.236830	\$0.243935	
Copies	\$0.055804	\$0.057478	\$0.059203	\$0.060979	\$0.062808	\$0.064692	\$0.066633	\$0.068632	\$0.070691	\$0.072812	\$0.074996	\$0.077246	
File Folder Labels	\$0.127762	\$0.131595	\$0.135543	\$0.139609	\$0.143798	\$0.148112	\$0.152555	\$0.157132	\$0.161846	\$0.166701	\$0.171702	\$0.176853	
Postage	\$4.405601	\$4.537769	\$4.673902	\$4.814119	\$4.958543	\$5.107299	\$5.260518	\$5.418334	\$5.580884	\$5.748310	\$5.920760	\$6.098382	
Material Cost-Savings													
UD-10 Crash Reports	\$960	\$989	\$1,019	\$1,049	\$1,081	\$1,113	\$1,147	\$1,181	\$1,216	\$1,253	\$1,290	\$1,329	\$954
Copies	\$304	\$313	\$323	\$332	\$342	\$353	\$363	\$374	\$385	\$397	\$409	\$421	\$302
File Folder Labels	\$47	\$48	\$49	\$51	\$52	\$54	\$56	\$57	\$59	\$61	\$63	\$65	\$46
Postage	\$687	\$708	\$729	\$751	\$774	\$797	\$821	\$845	\$871	\$897	\$924	\$951	\$683
Annual Cost-Savings	\$1,998	\$2,058	\$2,120	\$2,183	\$2,249	\$2,317	\$2,387	\$2,457	\$2,531	\$2,608	\$2,686	\$2,766	\$1,985

Source: Ottawa County Sheriff's Office

Attachment K
Cost Savings and Increased Revenue from e-Crash
Ottawa County Sheriff's Office

	Year 1 (FY 2012)	Year 2 (FY 2013)	Year 3 (FY 2014)	Year 4 (FY 2015)	Year 5 (FY 2016)	Total (Year 1-5)	Year 6 (FY 2017)	Year 7 (FY 2018)	Year 8 (FY 2019)	Year 9 (FY 2020)	Year 10 (FY 2021)	Total (Year 6-10)
Increased Revenue												
e-Commerce Agreement with iyeTek	\$734	\$734	\$734	\$734	\$734	\$3,670	\$734	\$734	\$734	\$734	\$734	\$3,670
Material Cost-Savings												
Sheriff's Office	\$1,361	\$1,402	\$1,444	\$1,487	\$1,532	\$7,226	\$1,578	\$1,625	\$1,674	\$1,723	\$1,775	\$8,375
Annual Cost-Savings (County)	\$2,095	\$2,136	\$2,178	\$2,221	\$2,266	\$10,896	\$2,312	\$2,359	\$2,408	\$2,457	\$2,509	\$12,045
Present Value Cost-Savings (County)	\$2,014	\$1,975	\$1,936	\$1,899	\$1,862	\$9,686	\$1,827	\$1,793	\$1,760	\$1,726	\$1,695	\$8,801

Source: Ottawa County Sheriff's Office

Attachment K
Cost Savings and Increased Revenue from e-Crash
Ottawa County Sheriff's Office

	Year 11 (FY 2022)	Year 12 (FY 2023)	Year 13 (FY 2024)	Year 14 (FY 2025)	Year 15 (FY 2026)	Total (Year 11-15)	Year 16 (FY 2027)	Year 17 (FY 2028)	Year 18 (FY 2029)	Year 19 (FY 2030)	Year 20 (FY 2031)	Total (Year 16-20)
Increased Revenue												
e-Commerce Agreement with iyeTek	\$734	\$734	\$734	\$734	\$734	\$3,670	\$734	\$734	\$734	\$734	\$734	\$3,670
Material Cost-Savings												
Sheriff's Office	\$1,829	\$1,884	\$1,939	\$1,998	\$2,058	\$9,708	\$2,120	\$2,183	\$2,249	\$2,317	\$2,387	\$11,256
Annual Cost-Savings (County)	\$2,563	\$2,618	\$2,673	\$2,732	\$2,792	\$13,378	\$2,854	\$2,917	\$2,983	\$3,051	\$3,121	\$14,926
Present Value Cost-Savings (County)	\$1,665	\$1,635	\$1,605	\$1,578	\$1,550	\$8,033	\$1,524	\$1,498	\$1,472	\$1,448	\$1,424	\$7,366

Source: Ottawa County Sheriff's Office

Attachment K
Cost Savings and Increased Revenue from e-Crash
Ottawa County Sheriff's Office

	Year 21	Year 22	Year 23	Year 24	Year 25	Total	Total Savings
	(FY 2032)	(FY 2033)	(FY 2034)	(FY 2035)	(FY 2036)	(Year 21-25)	(25 Years)
Increased Revenue							
e-Commerce Agreement with iyeTek	\$734	\$734	\$734	\$734	\$734	\$3,670	\$18,350
Material Cost-Savings							
Sheriff's Office	\$2,457	\$2,531	\$2,608	\$2,686	\$2,766	\$13,048	\$49,613
Annual Cost-Savings (County)	\$3,191	\$3,265	\$3,342	\$3,420	\$3,500	\$16,718	\$67,963
Present Value Cost-Savings (County)	\$1,400	\$1,378	\$1,356	\$1,334	\$1,313	\$6,781	\$40,667

Source: Ottawa County Sheriff's Office



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