Data Collection and Analysis for Organizational Decision Making

Ryan Tibbets

Kalamazoo Department of Public Safety, Kalamazoo, Michigan
CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and the appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _________________________________
Table of Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Abstract</td>
<td>3</td>
</tr>
<tr>
<td>Introduction</td>
<td>4</td>
</tr>
<tr>
<td>Background and Significance</td>
<td>5</td>
</tr>
<tr>
<td>Literature Review</td>
<td>7</td>
</tr>
<tr>
<td>Procedures</td>
<td>17</td>
</tr>
<tr>
<td>Results</td>
<td>19</td>
</tr>
<tr>
<td>Discussion</td>
<td>26</td>
</tr>
<tr>
<td>Recommendations</td>
<td>29</td>
</tr>
<tr>
<td>References</td>
<td>32</td>
</tr>
<tr>
<td>Appendix: A: Dr. W. Fales Questionnaire</td>
<td>36</td>
</tr>
<tr>
<td>Appendix: B: S. Cooper Questionnaire</td>
<td>38</td>
</tr>
<tr>
<td>Appendix: C: C. Lark Questionnaire</td>
<td>40</td>
</tr>
<tr>
<td>Appendix: D: K. Thomas Interview</td>
<td>42</td>
</tr>
<tr>
<td>Appendix: E: C. Tinney Interview</td>
<td>44</td>
</tr>
<tr>
<td>Appendix: F: B. Brown and R. Pease Interview</td>
<td>46</td>
</tr>
<tr>
<td>Appendix: G: B. Loman and G. Ginnebaugh Interview</td>
<td>48</td>
</tr>
<tr>
<td>Appendix: H: D. Obreiter Questionnaire</td>
<td>50</td>
</tr>
<tr>
<td>Appendix: I: D. Ubbink Interview</td>
<td>52</td>
</tr>
<tr>
<td>Appendix: J: M. Corfman Questionnaire</td>
<td>54</td>
</tr>
<tr>
<td>Appendix: K: M. Beauchamp Questionnaire</td>
<td>56</td>
</tr>
<tr>
<td>Appendix: L: L. Matterese Interview</td>
<td>58</td>
</tr>
</tbody>
</table>
Abstract

The problem was that the Kalamazoo Department of Public Safety has never determined what fire and Emergency Medical Services (EMS) incident data to collect and analyze to guide organization making. The purpose of this applied research project was to determine what fire and EMS incident data should be collected and analyzed by the Kalamazoo Department of Public Safety. The descriptive research approach was utilized to guide the following research questions: What fire and EMS incident data is currently collected and analyzed, what fire and EMS incident data are other departments collecting and analyzing, and what fire and EMS incident data should be collected and analyzed? An in-depth literature review was conducted as well as interviews with public safety departments in the State of Michigan and questionnaires were sent to all fire departments in Kalamazoo County and the Kalamazoo Medical Control Authority. Five recommendations were made regarding what data should be collected and analyzed.
Introduction

Fire and Emergency Medical Services (EMS) data at some level is collected by fire departments across the country. This data can provide important information that can be used to make organizational and budgetary decisions, guide fire prevention and educational programs, and to understand and improve performance. Understanding what data is currently collected and identifying additional data that should be collected allows an organization the ability to analyze the collected data at determined intervals. The analyzed data can then be compared to industry standards, internal benchmarks and service delivery goals relative to desired outcomes. As municipal budgets continue to shrink, the importance of quantifiable and defendable organizational performance data has become paramount as the expectation of real time data by the internal and external stakeholders has become the norm rather than the exception.

The problem was that the Kalamazoo Department of Public Safety has never determined what fire and EMS incident data to collect and analyze to guide organization making.

The purpose of this applied research paper was to determine what fire and EMS incident data should be collected and analyzed by the Kalamazoo Department of Public Safety.

The descriptive research approach was utilized to guide the following research questions: (a) What fire and EMS incident data is currently collected and analyzed? (b) What fire and EMS incident data are other departments collecting and analyzing? (c) And what fire and EMS incident data should be collected and analyzed?
Background and Significance

The City of Kalamazoo is a socio-economically and racially diverse community located in Kalamazoo County and is the region’s urban center. The City of Kalamazoo is located halfway between Chicago and Detroit on the I-94 corridor. According to the 2012 United States Census Bureau estimate, the population of the City of Kalamazoo is 75,092 with a land area of 24.68 square miles and the County of Kalamazoo population is estimated to be 254,580 (United States Census Bureau, 2013). It is estimated that the population in the city increases to 150,000 during business hours considering the four colleges and universities, their student population and the commuting workforce. The City of Kalamazoo maintains the largest local government in Kalamazoo County.

KDPS was fully integrated into a public safety department in 1982 with the merger of the separate police and fire departments. Staff from both the police and fire departments were given the ability to become cross-trained so all members were certified police officers, firefighters, and medical first responders. Today, KDPS is the largest fully integrated police and fire department in the United States with 262 employees. Operating out of seven public safety facilities, the 210 sworn personnel provide police, fire, non-transporting EMS, vehicle extrication, hazardous materials technician level, and technical rescue response for the residents and visitors of Kalamazoo. Five of the seven public safety facilities are staffed 24 hours per day by public safety officers who work a traditional 24 hour schedule. The public safety officers assigned to these facilities respond to fire and EMS calls and are referred to as public safety equipment operators (PSO/EO’s) along with public safety officers who are assigned to a district and primarily perform police from a public safety vehicle (PSO’s). In 2012, KDPS responded to approximately 7,500 fire and EMS calls for service with the 5 engine companies, 2 ladder companies and 3 rescue units (cross staffed) that are staffed daily. The City of Kalamazoo has a
manager-commission form of government, whereby city manager is hired by the city commission. Under section 45a of the city charter, the city manager is the Director of Public Safety (p. 19). However, the position of Public Safety Director/Chief is appointed by the city manager and runs the daily operations of the department. The city commission is made up of seven commissioners that are elected at-large by the voters of the City of Kalamazoo and they are presided over by a mayor and the vice mayor who are the top two vote getters respectively.

As municipal budgets across the nation in the state of Michigan and in the City of Kalamazoo continue to shrink, the ability to align resources with the available funding is paramount. Local governments across the country provide a myriad of services that affect the quality of life of their citizenry. Most notably and generally the largest portion of the budget is public safety. Since the recession began in Michigan in the early 2000’s, municipal budgets have been slashed and have jeopardized the ability to maintain quality services. According to the Citizens Research Council of Michigan (2013), local government employment in Michigan has decreased by 11.9% from July of 2008 to May of 2013 (p. 5). Across the country, public safety employment makes up 10.5% of governmental budgets and from 2000 to 2011 more than 20% of these jobs have been eliminated (Citizens Research Council, 2013, p. 6). KDPS has realized this firsthand as the staffing levels have been reduced by 39 full time employees in just five years. With the reduction in staffing, KDPS, like many other agencies continues to struggle with balancing the safety of our employees and the residents of Kalamazoo while attempting to keep costs contained. One identified area of weakness is that there is no historical evidence that indicates that KDPS has utilized the fire and EMS incident data that is collected through the Computer Aided Dispatch (CAD) system or the National Incident Reporting System (NFIRS) to guide organizational decision making or to understand the basic performance level of the fire and EMS operations within the department.
This applied research project related to two enabling objectives listed in the Executive Development student manual. The first objective was, “the students will; describe the effects of competing demands on producing quality outcomes” (Department of Homeland Security, 2011 p. SM 11-2). Another objective for this applied research project was, “the students will; given a specific area and known customer base, evaluate equality dimensions relative to each” (Department of Homeland Security, 2011 p. SM 11-2). The descriptive research method was selected for this applied research project to determine what fire and EMS incident data should be collected and analyzed by the Kalamazoo Department of Public Safety.

This applied research project relates to four of the five of the United States Fire Administration’s operational objectives. The four objectives are, “reduce risk at the local level through prevention and mitigation, improve local planning and preparedness, improve the fire and emergency services’ capability for response to the recovery from all hazards, and improve the fire and emergency services’ professional status” (Department of Homeland Security, 2010 p. 13). This applied research project will provide guidance to the Kalamazoo Department of Public Safety to determine what fire and EMS data should be collected and analyzed to make organizational decisions. Sound data collection and analysis will allow senior level staff members to better understand organizational performance relative to fire and emergency medical service delivery.

Literature Review

According to Northern Illinois University Office of Research Integrity, data collection is defined as “the process of gathering and measuring information on variables of interest, in an established systematic fashion that enables one to answer stated research questions, test hypotheses, and evaluate outcomes” (Data Collection, n.d., para. 1). Recognizing the importance of fire service data collection and analysis, a panel of fire service experts, municipal government
officials and researchers representing the National Institute of Standards and Technology (NIST),
the Commission on Fire Accreditation International-RISK, International Association of Fire
Chiefs, International Association of Fire Fighters, Urban Institute, and Worcester Polytechnic
Institute together formed a Multiphase Study on Firefighter Safety and Deployment. Funding for
this study was awarded through the 2009 Assistance to Firefighters Grant – Fire Prevention and
Safety Grants. During their first summit the consensus was that even with:

- Recent technological advances and substantial fire department efforts in data collection,
- the fire service is not yet able to scientifically quantify experiences to determine the
- relative effectiveness of deployment decisions, including the type of emergency event,
- staffing levels/crew size, asset configurations, response time frames, frequency and
- manner of personnel training, and fire prevention programs” (Averill, Moore-Merrell,

Furthermore, data analysis is defined as the “process of systematically applying
statistical and/or logical techniques to describe and illustrate, condense and recap, and evaluate
data” (Data Analysis, n.d., para. 1). The United States Fire Administrations (USFA) Fire Data
Analysis Handbook indicates that there are three good reasons for looking closely at
the data: (1) to gain insights into fire problems, (2) to improve resource allocation for combating
fires, and (3) to identify training needs. Probably the most compelling is that analysis gives
insight into fire problems, which in turn can affect operations in the department” (p. 7). In an
April 2012 article in Fire Chief Magazine, the author suggests to “evaluate the data to look for
gaps in your department and then suggest conclusions from the data you’ve gathered; create a
report that everyone can understand and draw a similar conclusion from” (Miller, 2012). Data
collection and analysis is needed to understand organizational performance and to establish
benchmarks in fire and rescue department. William G. Gay “proposes a nine step process” (as
cited in Endicott, 2002). Initially, a department should determine “(1) deciding what to benchmark, (2) selecting benchmark partners (i.e., identifying comparables), (3) collecting data, (4) determining performance gaps, and (5) communicating the results” (Endicott, 2002, p. 311). According to the Commission on Fire Accreditation International (2009) states that “with civilian and firefighter safety as an outcome, it is an industry priority to have access to accurate, defensible, and scientifically valid data that resource deployment to risk levels” (p. 57)

The importance of accurate data collection and analysis was highlighted several times in recent years. First, with the City of Los Angeles Fire Department (LAFD), where questions were raised how the department continued to meet Emergency Medical Services (EMS) response time standards even though LAFD’s budget had been reduced by 16% (LA Times). LAFD personnel admitted that previously reported data had been wrong, prompting a task force to be formed to “refine its processes for presenting clear, consistent and easily understood information regarding our response times as well as establishing measurements and benchmarks for all that we do” (Linthicum, 2012). In a task force report it was identified that "the statistical analysis of data by LAFD department staff who are not trained in this field led in part to inaccurate reporting” (Linthicum, 2012 ). In the City of Chicago, “Inspector General Joseph Ferguson released an audit of Fire Department response times for 2012. The task force criticized the department for not clearly setting and stating its goals in the area, and for lumping together "turnout" and "travel time," categories separated in national guidelines” (Cox, 2013). Finally, on January 9, 2013 sanjoseinside published an article that highlighted inaccurate information that was published by the San Jose Fire Department (SJFD) and was used to make budgetary and resource deployment decisions. SJFD staff admitted “that thousands of emergency calls in recent years were mistakenly left out when calculating response times. In the 2011-12 fiscal year, there were 52,400 reported calls for emergency medical or fire services, according to current department
statistics. But SJFD officials now acknowledge underreporting the numbers, and the total will be significantly higher” (Koehn, 2013).

USFA’s Fire Data Analysis Handbook states that “fire departments need to establish data quality procedures if they intend to take full advantage of their data. There should be a system in place to double check the collection and data entry work. Field edits and relational edits can be built into the system that will reveal unacceptable and unreasonable data. Data management personnel can use these techniques to improve and validate the data” (p. 10).

According to the USFA, the National Incident Reporting System (NFIRS) was established in 1976 “as a means of assessing the nature and scope of the fire problem in the United States” (Federal Emergency Management Agency, 1997, p. 4). The USFA now reports that more than 23,000 fire departments report in the NFIRS each year which represents more than 75 percent of all fire incidents that occur in the United States each year including more than 23,000,000 incidents and over 1,000,000 fires (United States Fire Administration, n.d.). The NFIRS report includes:

11 separate modules in which fire departments can report any type of incident that they respond to. The basic module (Module 1), which is required, includes incident number and type, date, day of week, alarm time, arrival time, time in service, and type of action taken. Modules 2 through 5 are required if applicable. If the incident is a fire, the fire module (Module 2) is completed. This includes property details, cause of ignition, human factors, equipment involved, and other information. If it is a structure fire, Module 3 (structure fire) is completed. This would include such things as structure type, main floor size, fire origin, presence of detectors and automatic extinguishment equipment, and other data. If there were civilian casualties or fire service casualties, Modules 4 or 5, respectively,
would be filled out. The remaining modules are optional at the local level. They include EMS (Module 6), Hazardous Material (Module 7), Wildland Fire (Module 8), Apparatus or Resources (Module 9), Personnel (Module 10), and Arson (Module 11) (United States Fire Administration, 2004, p. 8).

Conversely, the collection of EMS data at a national level was not formally completed until 2001 whereby the “National Association of State EMS Directors in conjunction with its federal partners at the National Highway Traffic Safety Administration (NHTSA) and the Trauma/EMS Systems program of the Health Resources and Services Administration's (HRSA) Maternal Child Health Bureau work to develop a national EMS database—known as NEMSIS, the National EMS Information System” (National EMS Information Systems, n.d.). There is an abundance of NFIRS reporting software that can be used as a Records Management System for both fire and EMS reporting. Many of these programs allow for users to produce quality reports both custom and premade.

At the National Fire Service Data Summit there were several deficiencies in the NFIRS and NEMIS reporting requirements noted by the participants:

Limited fire service response information is collected since the primary purpose is to characterize the main attributes of the fire incident. Each individual fire department collects incident response information for internal use and generally issues an annual report. There are a variety of software vendors that support this enterprise. However, each vendor and each fire department, customize their data collection such that it generally cannot be easily or reliably compared between fire departments. The Occupational Safety and Health Administration (OSHA) and many insurance companies require standardized reporting for fire incidents that involve firefighter injuries. However, these reports are generated in varying
formats, limited in availability and do not collect information about the responses that do not result in firefighter injuries thus preventing causal analysis. The National Emergency Medical Service Information System (NEMSIS) collects standardized data on pre-hospital EMS response and care and may be a role model for how to design and implement a national fire service database; however, the scope of this database currently precludes characterization of the typical response to a working fire. Although there may be local, regional, or state data reporting systems which require fire service input, the lack of standardization presents a barrier to aggregation at the national level (Averill et al., 2011, p. 15).

In Michigan, fire departments must send NFIRS reports monthly to the State Fire Marshal to receive fire investigation training and federal grants require that the applicant participate in NFIRS reporting.

An important consideration in any fire department across the country is compliance with laws and rules that impact operations. In 1998, the Occupational Safety and Health Administration revised the respiratory protection standard to include what is referred to as the 2-in-2-out rule. This rule has had a significant impact on fire department operations as it pertains to operations in Immediately Dangerous to Life and Health (IDLH) conditions. Several key elements have forced firefighters to wait for additional resources before engaging in offensive firefighting operations to improve safety, not including situations when civilians are believed to be trapped. Although not ever recommended before this rule was enacted, some fire departments would send lone firefighters into dangerous conditions without having anyone available to assist them if they became lost, trapped or injured while performing their duties. As outlined in the standard, fire departments must have a minimum of four personnel on the scene of the incident before firefighters may enter the IDLH conditions to perform assigned functions. Two of the
personnel are permitted to enter the IDLH atmosphere provided that they are wearing SCBA and remain close enough for visual or voice contact. “One of the two individuals located outside the IDLH atmosphere may be assigned to an additional role, such as incident commander in charge of the emergency or safety officer, so long as this individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident” (Michigan Department of Labor and Economic Growth, 2007, p. 6). These outside personnel must be able to remain in visual or voice contact, or signal line communication must be maintained between the personnel inside and those outside. Before entering to make a rescue, “the employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue. The employer or designee authorized to do so by the employer, once notified, provides necessary assistance appropriate to the situation” (Michigan Department of Labor and Economic Growth, 2007, p. 6).

Before the creation of National Fire Protection Association (NFPA) 1710 in 2001, there were no documents outlining how to determine the “levels of service, deployment capabilities, and staffing levels for substantially career fire departments” (National Fire Protection Association, 2004, p. 1). NFPA is a consensus standard making body that utilizes experts to identify best practices using a standardized approach to address fire and life safety topics (National Fire Protection Association, 2010). Since its inception, NFPA 1710 has provided “the body politic and the citizens a true picture of the risks in their community and the fire departments capability to respond to and manage those risks” (National Fire Protection Association, 2004, p. 1). The revised NFPA 1710-2010 edition standard outlines performance standards that fire departments should adopt, which indicates that specific fire and EMS incident data should be collected to determine compliancy with the standard to understand organizational performance. NFPA 1710 recommends that alarm answering, alarm handling, alarm processing,
alarm transfer, initiating action/intervention, total response, travel and turnout times (National Fire Protection Association, 2010, p. 7) are analyzed on an annual basis to determine compliance with previously established benchmarks. NFPA 1710 further addresses data collection and analysis in section A 4.1.2.5.2 by stating that “data collection is required to determine the organization’s ability to meet locally determined objectives” and “while the collection and analysis of all of the response data is important, attainment of the 90 percent objective is only to be evaluated against emergency incident responses” (National Fire Protection Association, 2010, p. 16).

During the National Fire Service Data Summit (2011) participants defined what data should be collected for emergency incidents and the most important was the “accurate logging of key times of completion of tasks from time of call receipt through the completion of the response” (Averill et al., 2011, p. 16). The items identified on the incident scale were:

- Turnout time, response time, comprehensive timeline for an incident, standardized benchmarks — such as call ring time, pre-incident times — time of the event occurred that caused the incident (e.g. when the pot was placed on the stove, if possible), arrival time of the first apparatus, time of arrival and assembly of effective fire fighting force time of fire attack (water on fire), at the patient’s bedside, hazmat timeframes (and other high risk, low frequency events), what was going on at the time of notification did crew respond from station — with or without AVL (automatic vehicle locator) were all of the first-due units available when dispatched, impact of mutual aid – need to know about availability of those routinely used resources, what’s happening with the firefighter when dispatched — weather — impacts travel times and personnel effectiveness, more detail on the incident (e.g. the condition of the property, the injury, severity, and characteristics of the person, the damage, and what it will take to make
things right), measuring the outcomes – matching an injury to an event, how do we
determine percent property lost or saved? National EMS Information System (NEMSIS)
and other system correlation to describe patient injuries and outcomes
property loss — insurance industry knows property loss — fire service needs better way
to estimate loss (Averill et al., 2011, p. 17).

The International City/County Manager Association (ICMA) Center for Public Safety
Management “is one of four Centers within ICMA’s U.S. Programs division, providing support
to local governments in the areas of police, fire, emergency medical services (EMS), emergency
management, and homeland security” (International City/County Management Association,
 n.d.). ICMA reports that they have conducted more than 188 studies across the United States
“by extracting calls for service and raw data from a public safety agency’s computer-aided
dispatch system. The data are sorted and analyzed for comparison to nationally developed
performance indicators. These “performance indicators (e.g., response times, workload by time,
multiple-unit dispatching) are valuable measures of agency performance regardless of
departmental size. The findings are shown in tables and graphs organized in a logistical format”
(International City/County Management Association, n.d.). The data and subsequent analysis in
conjunction with interviews with departmental staff serve as the basis for organizational and
operational recommendations. The data that is retrieved and analyzed in the available reports
generally consists of:

Call Types, Calls by District, Calls by Hour of Day, Number of Units Dispatched to Calls
Annual Deployed Time by Call Type, Call Workload by Unit, Busy Minutes by Hour of
Day, Fire Equipment: Total Annual Number and Daily Average Number of Runs by Call
Type, Fire Equipment: Daily Average Deployed Minutes by Call Type, Fire Equipment:
Annual Busy Time by Number of Busy Units, Medical Squads: Total Annual and Daily
The ICMA contends that response time in some communities has changed considerably as a result of staffing reductions that have conversely forced the closure or brownout of many fire stations and/or apparatus (Fitch, Ragone, and Griffiths, 2010, p12). The resultant impact is a “delayed response allows for fires to become larger in size and complexity, and in true medical emergencies, such as choking or sudden cardiac arrest, it may make the difference between life and death” (Fitch et al., 2010, p 12). The ICMA contends that the “fire service collects run-
volume statistics, but data is not typically outcome oriented. In other words, it’s difficult to show a direct correlation between cost-cutting reduction strategies and patient outcomes or structure fire losses” (International City/County Management Association, 2010, p. 12).

Procedures

The descriptive research approach was utilized to guide the following research questions: (a) What fire and EMS incident data is currently collected and analyzed? (b) What fire and EMS incident data are other departments collecting and analyzing? (c) And what fire and EMS incident data should be collected and analyzed? The findings of this research project will be given to the Public Safety Chief, Deputy Chief and the Information Technology Manager.

To assure that triangulation of data was accomplished and to gain the most accurate information, interviews, surveys and discussions were utilized. An interview/survey instrument was developed to understand what other fire/EMS incident data other agencies are collecting and analyzing. Interviews were conducted with ranking fire and EMS officials representing various departments in West Michigan. The same questions used for the interviews were sent out in the form of a survey/questionnaire to all Kalamazoo County fire departments, the Kalamazoo County Medical Control Authority, and traditional fire departments and various public safety departments across the State of Michigan. The first interview was performed with Lieutenants Brad Brown and Rob Pease of the Grand Rapids Fire Department (personal communication, October 11, 2013) (Appendix F). This interview was selected because Lieutenants Brown and Pease have worked tirelessly to strive for data driven, outcome based organizational decisions as the department has faced significant budgetary pressure. The next interview was performed with Chief Brent Looman and Deputy Chief Greg Ginnebaugh of the City of Kentwood Fire Department (personal communication, October 11, 2013) (Appendix G). This interview was selected because Chief’s Looman and Ginnebaugh have also faced significant organizational
budgetary pressures in recent years and took part in an ICMA Operational Analysis in 2012. An interview was conducted with Captain Chris Tinney of the Holland Department of Public Safety (personal communication, October 25, 2013) (Appendix E). This interview was selected because the City of Holland recently merged separate police and fire administrations into one public safety administration. During this administrative merger, the department explored whether to fully merge the department into a cross trained public safety department. During all of the interviews there was significant discussion surrounding the fiscal climate in Michigan and the ability to use fire and EMS incident data to drive local fire service decision making. An interview was also conducted with Battalion Chief (BC) Dirk Ubbink of the City of Wyoming Fire Department (personal communication, December 6, 2013) (Appendix I). Recently, the Wyoming Fire Department merged police and fire administrations whereby the police chief now oversees the police and fire departments as the public safety director. The Wyoming Fire Department also had an ICMA report completed to provide operational recommendations. An interview was conducted with Leonard Matterese, Director of Research and Project Development for the International City/County Management Association - Center for Public Safety Management (ICMA/CPSM) has conducted hundreds of municipal fire department operational studies across the country (personal communication, December 17, 2013) (Appendix L). An interview was conducted with Kalamazoo Department of Public Safety Deputy Chief Karianne Thomas (personal communication, December 2, 2013) (Appendix D). Chief Thomas has been instrumental in the planned departure of 54 members of the Kalamazoo Department of Public Safety through the Early Retirement Incentive Program and has worked tirelessly to situate the organization for continued success. Questionnaires were sent to the other 14 fire/EMS departments in Kalamazoo County and to the City of Grand Haven Department of Public Safety, Oak Park Public Safety Department and East Grand Rapids Department of Public Safety. Of the
17 surveys sent out, only 7 responded to the survey. Dr. William Fales, EMS Medical Director in Kalamazoo responded to the questionnaire (personal communication, November 19, 2013) (Appendix A) regarding the role of the Office of the Medical Director in collecting and analyzing EMS data. Steve Cooper, Oak Park Michigan Director of Public Safety responded to the questionnaire (personal communication, November 11, 2013) (Appendix B). The questionnaire was sent to Oak Park Department of Public Safety to understand what fire and EMS data other fully integrated public safety agencies are collecting and analyzing. Chuck Lark, Captain who is with the East Grand Rapids Department of Public Safety was also sent the questionnaire (personal communication, November 22, 2013) (Appendix C). The questionnaire was sent to East Grand Rapids Department of Public Safety to understand what fire and EMS data other fully integrated public safety agencies are collecting and analyzing. The Township of Kalamazoo, Fire Chief Dave Obreiter responded to the questionnaire (personal communication, December 11, 2013) (Appendix H). Kalamazoo Township shares many borders with the City of Kalamazoo and the departments have automatic and mutual aid agreements in place. Texas Township Chief Mike Corfman responded to the questionnaire (personal communication, December 11, 2013) (Appendix J). Texas Township shares many borders with the City of Kalamazoo and the departments have automatic and mutual aid agreements in place. Deputy Chief Matt Beauchamp of the Charter Township of Comstock responded to the questionnaire (personal communication, December 14, 2013) (Appendix K). Comstock Township shares many borders with the City of Kalamazoo and the departments have automatic and mutual aid agreements in place.

Results

This section answered the three research questions used for this research project. The research questions used were: (a) what fire and EMS incident data is currently collected and
analyzed? (b) what fire and EMS incident data are other departments collecting and analyzing? (c) and what fire and EMS incident data should be collected and analyzed?

The first research question was: What fire and EMS incident data is currently collected and analyzed? Interviews were conducted with Public Safety Deputy Public Safety Chief Karianne Thomas (personal communication, December 2, 2013) (Appendix D). KDPS collects a significant amount of police, fire and EMS data. Fire and EMS data is collected through the completion of NFIRS using a third party RMS (Firehouse Software). The data that is collected has historically been analyzed when applying for grants to answer how KDPS is compliant with the NFIRS. The police data relative to crime trends is produced weekly comparing weekly, monthly and yearly totals to understand trends in serious crimes in the community. However, the chiefs agreed that collected fire and EMS incident data is rarely analyzed but should be. There is currently no data collected beyond the scope of the required NFIRS fields. In 2011-2012, KDPS had a review from the Insurance Services Office. A significant amount of training and staffing data was collected and analyzed for the review which resulted in an improved Fire Protection Class rating from a 3 to a 2. The data collected during the evaluation process however, was “not relevant” and did not identify what data should be collected and analyzed to make organizational decisions.

The second question was: What fire and EMS incident data are other departments collecting and analyzing, and the third question was: What fire and EMS incident data should be collected and analyzed? In general, the organizations that were consulted either by interviews or surveys indicated that they use data collected through NFIRS reporting to understand basic organizational performance and to include descriptive data in annual reports.

Lieutenants Brad Brown and Rob Pease were interviewed (personal communication, October 11, 2013) (Appendix F) to determine what fire and EMS incident data the Grand Rapids
Fire Department (GRFD) is currently collecting and analyzing to make organizational decisions. In addition to collecting and analyzing basic NFIRS data the GRFD reports fire loss data that is based on the International Building Code. This data provides a much more accurate account and benchmark to measure the outcome of the fire suppression efforts at fire events in the city according to Lieutenants Brown and Pease. Dispatch and turnout times are closely monitored as these are controllable measurements that can be improved through procedural changes. The GRFD is now tracking when water is applied to the fire at a fire event. This has allowed for tracking the impact of recent resource deployment strategy changes and establishes an important benchmark that can be tracked. Another important change according to Brown and Pease was establishing the training levels of personnel. Dispatch now has the ability to send fire companies based on the personnel who are on the apparatus throughout the city. For example, if there is a call for a trench rescue, personnel who are trained in trench rescue will be sent rather than a static assignment that may not provide the discipline specific resources. The data that is “pulled” was only performed previously on an annual basis and was more descriptive in nature according to Brown and Pease. Identified data is now pulled weekly and analyzed by the Strategic Planning Office. Specifically, data in five core neighborhoods is analyzed to determine the fire prevention efforts that are taking place as a result of grant funding. Data is used to make decisions in the GRFD on a daily basis by the chief officers, any requests for resource or programmatic changes are not made unless the data supports the decision. The GRFD provides training for key city staff members and elected officials to understand the performance of the GRFD which has been “very beneficial” when funding requests and/or organizational changes are proposed, citing the recent approval of a capital improvement (apparatus replacement program). Brown and Pease have used the recommendations from the Center for Public Safety Excellence accreditation process, although not accredited to guide their operations at the GRFD.
The data collection is cited as a key reason that the GRFD was able to improve their Fire Protection Class Rating through ISO from a three to a two. Finally, Brown and Pease stated that the collection and analysis of key performance data has “transformed” the department. The result has been a more efficient department whereby much more emphasis has been placed on fire prevention rather than fire suppression and “has placed resources where they are needed”.

An interview was performed with Chief Brent Looman and Deputy Chief Greg Ginnebaugh of the City of Kentwood Fire Department (personal communication, October 11, 2013) (Appendix G). Chiefs Looman and Ginnebaugh stated that they do collect fire and EMS incident data through the completion of the basic NFIRS using FireHouse software. The additional information that is collected that is fire and EMS incident driven is ALS response times which is used to understand how well the third party ALS service is performing relative to response times. The Kentwood Fire Department analyzes individual unit response times for the various responses that are made throughout the year. One substantial change according to Chief Looman was the data analysis and subsequent recommendation through a report that was provided by the ICMA. This report (based on data) prompted the Kentwood Fire Department to change their resource deployment strategy which has provided additional flexibility and efficiency. Collected data is provided to the Mayor in the form of a monthly report and annually in the fire department annual report. Chief Looman stated that the decision to collect and analyze data has been shaped by the ICMA report and data gathered for ISO. Currently the collected and analyzed data is not being used to drive any internal decisions or changes.

Chris Tinney, Captain of Fire Operations for the City of Holland Department of Public Safety (HDPS) was interviewed (personal communication, October 25, 2013) (Appendix E). Captain Tinney stated that HDPS has always collected fire and EMS data through a fire records management system. Beyond fire and EMS incident data HDPS collects information regarding
all daily activities including time spent on fire inspections, public education programs, vehicle maintenance, building and grounds maintenance, training, etc. The decision to collect additional data was driven by questions pertaining to workload when budget are under scrutiny and defend the staffing levels when “fire responses are not very common”. Captain Tinney also stated that the data collected is regularly analyzed by fire department command staff and annually by the city staff and the city council. Data is published by HDPS on a monthly basis and is distributed to internal and external stakeholders as the data outlines the activities of the department. The decision to collect certain data by HDPS has been partially driven by ISO and HDPS “attempts to benchmark our department responses with NFPA 1710”. Captain Tinney credits the data collection and analysis for driving the decision to maintain separate police and fire departments and to maintain the current staffing deployment.

An interview was conducted with Battalion Chief (BC) Dirk Ubbink of the City of Wyoming Fire Department (personal communication, December 6, 2013) (Appendix I). BC Ubbink stated that the WFD does collect fire and EMS incident data but does not collect anything beyond the required NFIRS data. The NFIRS data has just recently been used to explore staffing and response times through an analysis by staff. BC Ubbink credits the new Public Safety Director for using the data to make decisions. A recent analysis was used to create a new resource deployment plan whereby additional funding was granted and an increase in staffing is taking place. BC Ubbink indicated that the fire and EMS incident data that is collected is underutilized and can be improved in the future.

Leonard Matterese was interviewed (personal communication, December 17, 2013) (Appendix L) and asked what fire and EMS data KDPS should be collecting and analyzing to make organizational decisions. Mr. Matterese stated that the department should identify what benchmarks to analyze on a regular basis to track fluctuations and/or deficiencies in the current
resource deployment plan. Specifically, three benchmarks were discussed: When 2 in 2 out is achieved, when water is on the fire and when search and rescue is complete. Mr. Matterese stated that these would be “great benchmarks” but how do you routinely track them? The suggestion was made to have a designated responder report the benchmark to the dispatch center and create a field in the RMS to record the milestones. Mr. Matterese also stated that although not fire and EMS incident specific the question of “what are staff members doing between calls” should be explored. He cited an innovative medical prevention program in Scottsdale Arizona whereby staff members regularly visit venerable populations in the city and provide training and a basic living environment inspection designed to reduce the amount of injuries similar to that of fire prevention is reducing fires. Mr. Matterese worked extensively with the GRFD to create the ICMA report for GRFD. He stated that “the GRFD has done a better job collecting and analyzing fire and EMS data than any fire department I have seen across the country”.

Dr. William Fales was sent a questionnaire to determine what role the Kalamazoo County Medical Control Authority (KCMCA) plays in EMS data collection and analysis. Dr. Fales indicated that the KCMCA uses data submitted by each agency that is submitted to the State of Michigan through the NFIRS/NEMSIS to analyze the fire and EMS incident data from the 16 public safety agencies in the county. This information is reviewed once or twice a year and is presented to the various external stakeholders annually and as requested. The Michigan Department of Community Health has had the greatest impact regarding data collection in the State of Michigan. The data collection and analysis process has been the most important factor in quality improvement this data has been used to improve “patient care, monitor outcomes, to identify problems and potentially high risk areas, to guide EMS educational programs, to improve injury prevention and control efforts, and to move the system forward.”
Several fire and public safety departments returned questionnaires. All of the agencies reported that they collect fire and EMS incident data. Two of the departments (Texas Township and Kalamazoo Township) reported that they collect fire and EMS incident data beyond the scope of NFIRS. Texas Township Chief Corfman (personal communication, December 11, 2013) (Appendix J) stated that “personnel responses, apparatus use and hours/miles, plus some specific incident types” data is collected. Kalamazoo Township Chief Obreiter (personal communication, December 11, 2013) (Appendix H) indicated that they collect fire investigation/fire marshal data separately from the required NFIRS data. All of the agencies reported that they analyze the collected NFIRS data that is contained in their respective RMS. The frequency of analysis and the personnel used to analyze the data varied by agency. Chief Corfman indicated that the inspectors, training officer and equipment manager analyze the data monthly and use the data for the purposes of training and budgeting. Chief Beauchamp (personal communication, December 14, 2013) (Appendix K) stated that the chief officers in the department are the personnel who analyze the collected data semi-annually to understand vehicle responses, call volume and to examine firefighter participation. Chief Beauchamp stated that the collected data has not been driven by any outside entities (ISO, CPSE, NFPA). The Comstock Fire Department “makes it a point” to track mutual aid responses to ensure equity based on coverage agreements with Kalamazoo Township. An annual report is provided to the public and the elected officials. Chief Obreiter indicated that the analyzed data has “indirectly” been shaped by outside entities and is presented on a monthly basis to internal stakeholders and a comprehensive report is provided externally on an annual basis. Oak Park, Comstock, Texas Township, Kalamazoo Township and East Grand Rapids have used data to justify staffing, budgets, and for planning purposes.
Discussion

Municipal fire departments provide a myriad of fire, emergency, and rescue services to the citizens they protect, although those services may vary widely between jurisdictions. Fire departments today have taken on additional services beyond what citizens would expect: specialties such as emergency medical service, technical rescue, hazardous materials response, carbon monoxide detection, vehicle extrication, fire prevention and business inspections. Local units of government decide what level and type of staffing, types of services, resources, and equipment that will be needed to handle emergencies in their community. It is recommended by fire service professionals that each community completes a comprehensive risk analysis. They should take into consideration the target hazards, demographics, and the age and condition of structures located in their coverage area to determine needed staffing and resources.

In a May 2012 FireHouse magazine article, Dennis Compton articulates that “good data helps leaders do a better job of identifying, using and measuring the effectiveness of fire department resources in all areas of performance, but especially in firefighter injury and death, and civilian injury and death and property loss” (p. 25). Nationally, various fire service groups have recognized the importance of improving the data that is collected. During the 2nd National Fire Service Research Agenda Symposium, the topic of data collection was discussed, and the background for the discussion indicated that:

…The fire service expends substantial efforts in data collection with varied results in the ability to inform critical decisions. Contributing to these variations is the lack of education, understanding, motivation, leadership and commitment by individual firefighters, officers and departments. For example, following a fire event, incident data is entered by most fire departments in the U.S. These data however do not inform data users of actual fire ground operations including “water on fire time”, “time to ventilation”
For the departments that do measure these factors, they are not consistent in definition. In addition, we not only don’t use consistent definitions, but it is also not clear that we are actually measuring the critical factors (Averill et al., 2011, p. 20).

Endicott (2002) contends that there are several benchmarks during an emergency situation:

A. Incident occurs
B. Incident is detected
C. Incident is reported
D. Call is processed
E. Call is dispatched
F. Units(s) respond(s)
G. Unit(s) arrive(s)
H. Unit(s) begin work
I. Incident is under control
J. Incident ends (p. 306)

Endicott (2002) continues “when deciding what emergency response time measures to collect, the department should recognize that identifying and attempting to track all the components that make up the response process is critical” (p. 306). The recommended data that an agency should collect regarding emergency incidents by the Commission on Fire Accreditation International (2009) is “event initiation, emergency event, alarm, notification, alarm processing, turnout time, travel time, on-scene time, initiating action, termination of incident and total response time” (pp. 68-69). During the National Fire Service Data Summit a graphical representation of the “key elements of community risk were identified” (Averill et al., 2011, p. 18). These elements consist of:
Prior Events:

- The historical fire loss record and EMS response history for a community are starting points for predicting future outcomes.

Community Description:

- The demographics of a community have a strong correlation to the frequency and type of fires. These factors include population density, median income levels, race, age and type of housing and other structures, road capacity, including natural barriers such as rivers or mountains, and others.

- Response capacity of the fire department, including the number and location of stations, equipment and personnel, training.

Prevention:

- Community investments in prevention and inspection programs and mandated fire protection assets (fire hydrants, automatic sprinkler systems, e.g.).

Event Characteristics:

- Initial assessment

- Notification and dispatch time

- Pre-arrival interventions
  
  automatic suppression

  manual (non-fire department) suppression or emergency aid

- Response time and size of initial deployment

- Capability of responding personnel

- Total deployed assets

Community Outcomes: Civilian and firefighter injuries and deaths and property losses (Averill et al., 2011, p. 18).
It was noted though the research that there is definitely a shortcoming relative to fire departments determining what fire and EMS data should be collected and analyzed. These shortcomings included terminology, collected data and frequency of analysis.

Before beginning the research for this project it was known that the Kalamazoo Department of Public Safety was not collecting data or analyzing the data that is currently collected. Recently, amidst the reduction in staffing, the Kalamazoo City Commission inquired about the performance of KDPS relative to response times to critical incidents and the impact that the reduction in staffing has had on meeting goals and/or outcomes if any exist. Beyond the scope of this research project is the task of determining what performance standards and benchmarks to adopt. Data collection and analysis will provide the information needed to make decisions. However, it will be up to the internal and external stakeholders to determine what benchmarks to measure the performance based on desired outcomes. The impact of adopting the recommended data collection and subsequent analysis would have a minimal budgetary impact relative to the significant perceived benefit.

Recommendations

The recommendations from this applied research project will be submitted to the Public Safety Chief, Deputy Chief and the Information Technology Manager. Listed below are the recommendations based on the research conducted.

1. Begin to notify dispatch when important fire and EMS benchmarks are reached such as: when four (4) personnel are arrive on the scene to comply with two-in two-out requirements, when water is applied to the fire, when ventilation takes place, when a building search has been initiated and arrival of ALS.

2. Create a field in the RMS to identify: Whether first due units were available, if all first alarm apparatus responded from the station and to record when four (4) personnel are
arrive on the scene to comply with two-in two-out requirements, when water is applied to the fire, when ventilation takes place, when a building search has been initiated and arrival of ALS.

3. Identify sound fire loss methodology and record the property and contents loss in the RMS fields that are currently available.

4. Basic fire and EMS data such as; number by type of responses, average response times by call type, fire injuries and fatalities (personnel and civilians), number of automatic and mutual-aid given/received, should be made available weekly when the crime reports are produced. These reports should provide an aggregate year-to-date total, comparison of the previous two years, weekly and monthly totals.

5. The recommendations from the Data summit, ICMA, and NFPA should be analyzed at least yearly and should include; call ring time, turnout time, response time, arrival time of the first apparatus, time of arrival and assembly of effective fire fighting force, time of fire attack (water on fire), at the patient’s bedside, did crew respond from station, were all of the first-due units available when dispatched, number of automatic and mutual aid received/given, calls by district, calls by hour of day, number of units dispatched to calls, annual deployed time by call type, call workload by unit, busy minutes by hour of day, fire equipment: total annual number and daily average number of runs by call type, fire equipment: daily average deployed minutes by call type, fire equipment: annual busy time by number of busy units, medical squads: total annual and daily average number of runs by call type medical squads: daily average deployed minutes by call type, medical squads: annual busy time by number of busy units, frequency distribution of the number of calls top 10 hours with the most calls received, unit workload analysis – busiest 1 hour period average dispatch and turnout, travel, and response time of first-arriving unit by
call type average dispatch time components by call type, 90th percentile dispatch and turnout, travel, and response time of first-arriving unit by call type, average dispatch and turnout, travel, and response time of first-arriving unit by hour of day, number of total calls by first-arriving unit, cumulative distribution function of response time of first-arriving unit for EMS calls, average response time for structure fire and outside fire calls by first-arriving fire unit, average response time for structure fire and outside fire calls by second arriving fire units, cumulative distribution function of response time of first and second arriving fire units for structure fire calls, cumulative distribution function of response time of first-arriving fire units for outside fire calls, matched EMS calls by type first-arriving unit by agency and call type and average response time of first-arriving unit by agency.

It is further recommended that the Kalamazoo Department of Public Safety begin to track the aforementioned recommendations and establish benchmarks based on outcomes.
References


City of Kalamazoo. (1918). *City charter*. (amended November 6, 2012). Kalamzoo, MI: Author


Retrieved from

http://www.iafc.org/MemberCenter/OnSceneArticle.cfm?ItemNumber=5841


http://www.nemsis.org/theProject/historyofNemsis.html


Northern Illinois University, Responsible Conduct of Research. (n.d.). *Responsible conduct in data analysis*. Retrieved from

http://ori.hhs.gov/education/products/n_illinois_u/datamanagement/datopic.html

Northern Illinois University, Responsible Conduct of Research. (n.d.). *Responsible conduct in data management*. Retrieved from

http://ori.hhs.gov/education/products/n_illinois_u/datamanagement/dctopic.html


Appendix A

| Name of Person Being Interviewed | William Fales, MD |
| Title                           | EMS Medical Director |
| Organization                    | Kalamazoo County Medical Control Authority |
| Organization Type               | EMS System Medical Oversight Agency |
| Population Served               | 250,000 |
| Number of Certified Firefighters|                             |
| Number of Fire Stations          |                             |
| Date                            | 11/19/2013 |
| Time                            | 1915 |
| Duration                        | 30 |
| Interview Type                  |                             |

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete.  
Yes (but not directly. We receive data from EMS agencies we provide medical control to)

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?  
Yes (The State of Michigan requires all licensed EMS agencies, including fire department BLS 1st responders, to collect and submit NEMSIS data)

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules?  
NEMSIS Data

Q4: How did you determine what additional data to collect?  
Mandated by State of Michigan

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? If yes, who analyzes the data? Is the data retrieved from a CAD system, incident reporting system, other?  
Our agency analyzes EMS data that has been uploaded to the state. The platform used varies by agency with some using a common NFIRS/NEMSIS application and others using a separate NEMSIS application

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?  
Our agency primarily analyzes non-fire EMS provider data operating at the ALS level. We typically analyze BLS fire EMS data semi-annually and annually.

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?  
We use aggregate EMS data from 16 licensed BLS fire/public safety agencies and 4 private ALS agencies for county/system wide quality improvement purposes.
Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
Data are presented to external stakeholders annually and on an as needed basis.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)?
Regarding EMS Data, the Michigan Department of Community Health has had the greatest impact on the data collection process. At the national level, NHTSA and the NEMSIS Program has had substantial impact.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what?
The availability of high quality EMS data (particularly at the ALS level) has been the single most important factor in our system wide quality improvement program. Data are used constantly to improve the quality of patient care, to monitor outcomes, to identify problem and potentially high risk areas, to guide EMS educational programs, to improve injury prevention and control efforts, and to move the system forward.
Appendix B

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Steve Cooper</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Director of Public Safety</td>
</tr>
<tr>
<td>Organization</td>
<td>Public Safety</td>
</tr>
<tr>
<td>Organization Type</td>
<td>Public Safety, Career, Combination, Part-Paid, Volunteer Public Safety (all officers are crossed trained)</td>
</tr>
<tr>
<td>Population Served</td>
<td>30,000</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>46</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>1</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>2 Pumper 2 Aerials 0 Squad/Rescue</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>Yes X No ___Transporting ___Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>November 11, 2013</td>
</tr>
<tr>
<td>Time</td>
<td>12:15 PM</td>
</tr>
<tr>
<td>Duration</td>
<td>N/A</td>
</tr>
<tr>
<td>Interview Type</td>
<td>Survey Response</td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the interview/survey is complete.
Yes

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
No

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules?
N/A

Q4: How did you determine what additional data to collect?
N/A

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? Yes If yes, who analyzes the data? Fire Marshall & Record’s Supervisor Is the data retrieved from a: CAD system, incident reporting system, other? Both (CAD and Incident Reporting System)

Q6: How often is the fire and EMS incident data analyzed? Fire data analyzed yearly, EMS data analyzed yearly (with the exception of response times. We contract with a commercial ambulance service who evaluates response time to runs on a quarterly basis). How is the analyzed fire and EMS incident data used? To evaluate use, need and to help improve service.

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations? Sometimes
Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
Yes, during community meetings and budget sessions.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)?
NFPA

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what?
Yes, allows you to better address the needs of the community, evaluate potential strengths and weaknesses of your agency, plan for the future, etc.
Appendix C

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Chuck Lark</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Captain</td>
</tr>
<tr>
<td>Organization</td>
<td>East Grand Rapids Department of Public Safety</td>
</tr>
<tr>
<td>Organization Type</td>
<td>Public Safety</td>
</tr>
<tr>
<td>Population Served</td>
<td>12,000</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>28</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>1</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>_x_Pumpers _x_Aerials ___Squad/Rescue</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>_x_Yes _x_No ___Transporting ___Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>11/22/13</td>
</tr>
<tr>
<td>Time</td>
<td>11:00 A.M.</td>
</tr>
<tr>
<td>Duration</td>
<td></td>
</tr>
<tr>
<td>Interview Type</td>
<td></td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the interview/survey is complete.
Yes

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
No

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules?
None

Q4: How did you determine what additional data to collect?
RMS Data

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? Yes
If yes, who analyzes the data? The data retrieved from a: CAD system, incident reporting system, other?
Dept. Administration, CAD/RMS

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?
Annually/Totals used for annual report

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?
Yes

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
All of the above through our annual report.
Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)?
No

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what?
Assists in mutual response, staffing levels, and work hours
Appendix D

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Karianne Thomas</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Deputy Chief</td>
</tr>
<tr>
<td>Organization</td>
<td>Kalamazoo Department of Public Safety</td>
</tr>
<tr>
<td>Organization Type</td>
<td>Career (All Cross Trained Fire, Police and EMS)</td>
</tr>
<tr>
<td>Population Served</td>
<td>74,000</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>209</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>5</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>5 Pumbers 2 Aerials 3 Squad/Rescue</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>Yes X No _Transporting Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>12/2/2013</td>
</tr>
<tr>
<td>Time</td>
<td>0700</td>
</tr>
<tr>
<td>Duration</td>
<td>30</td>
</tr>
<tr>
<td>Interview Type</td>
<td>In Person</td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete.
Yes

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
No

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules?
None

Q4: How did you determine what additional data to collect?
N/A, No additional data is collected.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? If yes, who analyzes the data? Is the data retrieved from a CAD system, incident reporting system, other?
No, N/A, data is retrieved from RMS for grants or other specifically requested reports.

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?
N/A, data is not analyzed.

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?
No.

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to
collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)? No.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what? Basic NFIRS data is collected but not analyzed.
N/A.
Appendix E

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Chris Tinney</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Captain of Fire Operations</td>
</tr>
<tr>
<td>Organization</td>
<td>Holland Department of Public Safety</td>
</tr>
<tr>
<td>Organization Type</td>
<td>Public Safety, Combination Fire Service</td>
</tr>
<tr>
<td>Population Served</td>
<td>33,279</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>47</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>3</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>5 Pumpers 2 Aerials 3 Squad/Rescue</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>X Yes  No  Transporting  Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>October 25, 2013 and October 31, 2013</td>
</tr>
<tr>
<td>Time</td>
<td>1230</td>
</tr>
<tr>
<td>Duration</td>
<td>2 Hours</td>
</tr>
<tr>
<td>Interview Type</td>
<td>In Person and Electronically</td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete.
Yes. The department has consistently collected fire and EMS data.

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
Yes.

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules?
Personnel are required to report all daily activities which include total number of hours for inspections, public education programs, vehicle maintenance, building and ground maintenance, training etc. In short if it is an activity the time and event is documented in the Fire Records Management System (FRMS).

Q4: How did you determine what additional data to collect?
It was determined that this data was needed to answer questions pertaining to workload, the volume of value added services and to be able to adjust priorities in our day to day, non fire responses. In short we can capture what activities the tax payers are receiving and say it with confidence. It has also assisted supporting the value of full-time personnel in an environment where fire responses are not very common.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? If yes, who analyzes the data? Is the data retrieved from a CAD system, incident reporting system, other? Data is analyzed by the command staff on a regular basis and reviewed annually by City staff and council. The data is retrieved from the department’s FRMS.

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?
Fire and EMS data is reviewed and published in monthly reports created by our administrative assistant. The data is used to tracks trends and provide a “dashboard” of the current activities of fire personnel. Long term it does influence decisions and planning.
Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations? 
Yes, the data does influence decisions and recommendations. Examples include apparatus replacement and staffing models to a limited extent. For the most part staffing models have been determined by the city’s ability to fund the department.

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format? 
Yes, information is placed in annual reports and circulated to internal and external stakeholders. It is in print form as well as a pdf on the department’s web page. More data is available than we publish on a regular basis but it is available. The approach we have taken is that we should track whatever we can and have it available is needed.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)? 
Yes, ISO is one of the biggest drivers of the collection of data. We do attempt to measure and benchmark our department responses with NFPA 1710.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what? 
I believe the department in its current state is a result of good data collection and analysis. The information which includes response times, the numbers of people that can turn out on a fire within a given period of time and call volumes have been instrumental in maintaining the current staffing model. It has been instrumental in maintaining functionally separate police and fire services.
Appendix F

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Brad Brown and Rob Pease</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Lieutenants – Office of Strategic Planning</td>
</tr>
<tr>
<td>Organization</td>
<td>Grand Rapids Fire Department</td>
</tr>
<tr>
<td>Organization Type</td>
<td>All Career</td>
</tr>
<tr>
<td>Population Served</td>
<td>188,040</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>210</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>11</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>7 Pumpers 4 Aerials 4 Squad/Rescue</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>Yes X No Transporting Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>October 11, 2013</td>
</tr>
<tr>
<td>Time</td>
<td>0800</td>
</tr>
<tr>
<td>Duration</td>
<td>3 Hours</td>
</tr>
<tr>
<td>Interview Type</td>
<td>In Person</td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete.
Yes.

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
Yes.

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules?
Fire loss data that is based on the International Building code rather than arbitrary estimates. Dispatch and turnout times, water on fire apparatus times including number of personnel on units. Dispatch sends units/personnel based on training for special situations/incidents.

Q4: How did you determine what additional data to collect?
Accreditation process.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed?
Data was previously only “pulled” once a year and was only descriptive. Currently the data is “pulled” and analyzed weekly by the strategic planning office. Fireview is currently being used to analyze data in five (5) core neighborhoods that are linked to grant funding.

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?
Data is analyzed on a regular basis (some weekly). The performance metrics that are analyzed are responder hours (on scene time) simultaneous calls per unit by district, distribution of stations, concentration of calls for service and reliability.

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?
Data is always used to make decisions. Any proposed operational changes are sent to the strategic planning office. City leaders were sent through training to understand the data and how organizational decisions are proposed and made.

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
Yes. Data is given to command staff, used during budget preparation and presentation.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)? The department has not adopted NFPA and is about 10 years behind. Grand Rapids Fire Department was recently classified as a 2 by the Insurance Services Office and is one of two (2) departments in the State of Michigan to hold this classification. Brown and Pease cite the data collection and analysis in the Grand Rapids Fire Department as a key factor in this improvement.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what?
Yes. Brown and Pease stated that the collection and analysis of key performance data has “transformed” the Grand Rapids Fire Department. The Grand Rapids Fire Department has added several administrative and fire prevention staff to become more proactive in preventing fires and has placed resources where they are needed.
Appendix G

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Brent Looman and Greg Ginnebaugh</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Chief and Deputy Chief</td>
</tr>
<tr>
<td>Organization</td>
<td>Kentwood Fire Department</td>
</tr>
<tr>
<td>Organization Type</td>
<td>Combination</td>
</tr>
<tr>
<td>Population Served</td>
<td>48,707</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>43 Career and 8 Part-Paid</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>3</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>3 Pumpers 1 Aerials 3 Squad/Rescue</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>___Yes X No ___Transporting ___Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>October 11, 2013</td>
</tr>
<tr>
<td>Time</td>
<td>1300</td>
</tr>
<tr>
<td>Duration</td>
<td>2 Hours</td>
</tr>
<tr>
<td>Interview Type</td>
<td>In Person</td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete.
Yes.

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
Yes.

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules? Inspection information, ALS arrival times, occupancy data and the smoke detector program.

Q4: How did you determine what additional data to collect?
Based on current programs.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed?
Yes. Response times for individual units and third party Advanced Life Support units gathered from the RMS (FireHouse).

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?
The data and recommendations produced by the International City/County Managers Association prompted the Kentwood Fire Department to change its resource deployment strategy.

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?
No.

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
A monthly report is submitted to the Mayor and in the fire department annual report.
Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)? The report by the International City/County Managers Association and the Insurance Services Office.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what? The Kentwood Fire Department is not using the data to change anything.
Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete.
Yes we do collect fire and EMS incident data

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency? We use the Firehouse reporting software. For the most part, only NFIRS required information is collected for fire responses. We also use the Firehouse reporting software for EMS response data collection, which follows the NEMSIS reporting guidelines.

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules? Fire Marshal/investigation information is collected separate from our NFIRS report. We do collect information beyond the basic NFIRS modules as needed.

Q4: How did you determine what additional data to collect? We ensured that our data collection program would be compatible with the minimum requirements of NFIRS and state reporting requirements.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? If yes, who analyzes the data? Is the data retrieved from a CAD system, incident reporting system, other? Yes, it is reviewed by the station officer, Firehouse administrator and fire chief. The information is retrieved from the Firehouse reporting system. We have no CAD interface at this time.

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used? After it is entered in Firehouse, it is reviewed for accuracy by the assigned station officer. It is then reviewed by our Firehouse administrator on a monthly basis for accuracy and content. It is then reviewed on a monthly basis by the fire chief to “quality check” the response times, personnel response statistics and any other information that could indicate a trend, strength or weakness in our response operations that should be addressed.
Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?
Yes.

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
Yes, it is provided in written and electronic format on a monthly basis to fire department personnel, The Township Supervisor, The Township Board and is available on the Township website. A more in-depth annual report is issued to the same recipients in a written and electronic format.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)?
Indirectly, yes.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what?
Yes. The information plays a large role in budgeting of personnel, vehicle and equipment costs. It also has proven to be important in the justification of operational costs.
Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete.
Yes.

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
No.

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules? N/A.

Q4: How did you determine what additional data to collect?
N/A.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? N/A, No

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?
Collected fire and EMS incident data from Firehouse Software is just recently being analyzed to look at staffing issues and response times. CAD data is controlled by the dispatch center and is not currently being used.

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?
Not in the past. New Public Safety Director is using data to make decisions.

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
In the past a monthly report was sent to the city manager outlining calls for service for the previous month. Recently analyzed data was presented to the city council to get additional funding for personnel.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)? No.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what? Not currently. Maybe in the future.
Appendix J

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Mike Corfman</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Fire Chief</td>
</tr>
<tr>
<td>Organization</td>
<td>Texas Township Fire/Rescue</td>
</tr>
<tr>
<td>Organization Type</td>
<td>Combination</td>
</tr>
<tr>
<td>Population Served</td>
<td>15,000</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>25</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>1</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>2 Engines 0 Aerials 1 Squad/Rescue 1 Tanker</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>_Yes _X_No ___Transporting ___Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>December 11, 2013</td>
</tr>
<tr>
<td>Time</td>
<td>1930</td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data? If not, thank you for your time, the survey is complete. 
Yes.

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency? 
Yes

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules? We use the State of Michigan On-Line reporting for EMS which gives us the ability to track specific medical type conditions. Our fire reporting helps us with administrative functions such as personnel responses, apparatus use and hours/miles, plus some specifics about incident types.

Q4: How did you determine what additional data to collect? Basically we use it for budget projections and end-of-year reports.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? If yes, who analyzes the data? Is the data retrieved from a CAD system, incident reporting system, other? 
Yes. Chief, inspectors, training officer, equipment manager. The data is retrieved from an incident reporting system.

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used? Monthly at a minimum. Projections for budget expenditures, develop training, forward to fire inspectors, etc.

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations? 
Yes
Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
Internal, monthly. External in year-end report and on occasion at civic events and presentations.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)?
To a certain extent, ISO and NFPA.

Q10: Has your agency recognized any benefit from collecting and analyzing data? If so, what?
Yes. In many ways it has helped us to justify new equipment, add career personnel to staff the department on a 24/7 basis, as well as add on to the station to support 24 hr staffing.
Appendix K

<table>
<thead>
<tr>
<th>Name of Person Being Interviewed</th>
<th>Matt Beauchamp</th>
</tr>
</thead>
<tbody>
<tr>
<td>Title</td>
<td>Deputy Fire Chief</td>
</tr>
<tr>
<td>Organization</td>
<td>Charter Township of Comstock Fire Department</td>
</tr>
<tr>
<td>Organization Type</td>
<td>Part-Paid</td>
</tr>
<tr>
<td>Population Served</td>
<td>14,854</td>
</tr>
<tr>
<td>Number of Certified Firefighters</td>
<td>49</td>
</tr>
<tr>
<td>Number of Fire Stations</td>
<td>3</td>
</tr>
<tr>
<td>Number of Front Line Apparatus</td>
<td>6 Engines 0 Aerials 0 Squad/Rescue 0 Tankers</td>
</tr>
<tr>
<td>Do you Provide ALS</td>
<td>Yes  X No  ___Transporting  ___Non-Transporting</td>
</tr>
<tr>
<td>Date</td>
<td>December 14, 2013</td>
</tr>
<tr>
<td>Time</td>
<td>1130</td>
</tr>
</tbody>
</table>

Q1: Does your agency collect fire and EMS incident data?
Yes

Q2: Is fire and EMS data collected beyond the scope of the required basic National Fire Incident Reporting System (NFIRS) by your agency?
No other than if a personally owned vehicle arrives before the engine.

Q3: What additional fire and EMS incident data is collected beyond the basic NFIRS modules?
Data for Fire, Structure, HazMat, Casualty, etc. modules as the incident type dictates to satisfy NFIRS.

Q4: How did you determine what additional data to collect?
See previous answers. We hope to collect more data once we are more acquainted to the new software.

Q5: Is fire and EMS data collected through completing the basic NFIRS reports analyzed? If yes, who analyzes the data? Is the data retrieved from a CAD system, incident reporting system, other?
Yes for year-end reports such as how many responses a vehicle had, average response times, call volumes by category, busiest day/time of week, etc. Also used to ensure paid on call personnel are meeting the minimum number of responses necessary per township policy. Generally the Chief Officers and Administrative Assistant. Data is retrieved from incident reporting software.

Q6: How often is the fire and EMS incident data analyzed? How is the analyzed fire and EMS incident data used?

Q7: Is data that is collected and analyzed used to make organizational decisions and/or recommendations?
On rare occasions such as apparatus & equipment purchases. Though it is not above and beyond minimum reporting, we do make a point to track initial and mutual aid responses. This is
especially true in the Kalamazoo Township Lakewood Fire District. We handle single engine and first in responses for this area and in return we get their tower/ladder from their Eastwood Station on our fires. Our township board has asked for the number of responses into Lakewood many times in the past to ensure there is a fair and balanced agreement taking place.

Q8: Is the collected and analyzed fire and EMS incident data presented to internal stakeholders (fire department personnel, City Manager, Town Supervisor, etc.) or external stakeholders (community groups, other agencies, etc.)? How often and in what format?
Fire Department personnel and Township Board though interested community members may view at a township board meeting or on website. Annual and in a department overview type reporting format.

Q9: If fire and EMS incident data is collected and analyzed by your agency, has the decision to collect and analyze the data been shaped by any independent agencies (NFPA, ISO, CPSE, etc.)?
Information was queried for the last time ISO rated our department however we did not and currently do not obtain information pertinent to their rating scales. This would be one of the many things we would like to change in the near future.

Q10: Has your agency recognized any benefit from collecting and analyzing data?
Nothing above and beyond reporting to fire department personnel and township board which is a minimum expectation.
What information should Kalamazoo Public Safety be collecting and analyzing?

1. Emergency Medical Service calls to determine how many KDPS is responding to and why. How many of the EMS calls are serious and/or life threatening where immediate intervention is needed?

2. An analysis of fire calls should take place to determine why KDPS is going to the calls and to determine if a fire apparatus is truly needed.

3. What are personnel assigned to the station doing in between calls for service. Can the extra capacity be directed to proactive programs?

Mr. Matterese contends that there is difficulty obtaining performance data relative to benchmarks on the scene of an emergency.

Fire department staffing is not driven by workload, police department staffing is.