

Analysis of Fire and EMS Dispatching in Perrysburg, Ohio

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CERTIFICATION STATEMENT

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ABSTRACT

The City of Perrysburg dispatches fire and EMS from the communications center located in the police department. Communications officers have dispatched fire and EMS prior to having any full-time fire staffing on duty. As the population, geographic size and call volume has increased the need for full time fire staffing, there has not been much change in the operation of dispatching calls. Changes in standards and technology over the years has changed the operation of dispatching centers, has Perrysburg kept up with these changes?

The purpose of this descriptive research paper was to analyze fire and EMS dispatching in the City of Perrysburg. The research was done through literature review, a survey of fire and EMS personnel who use the service and interviews with dispatchers and supervisors of outside agencies. During the research national standards and operations were studied and researched. Priority dispatching by emergency medical dispatchers trained to use pre-arrival instructions to better utilize emergency responders by sending the appropriate number of responders to the highest priority scene first. The intent to survey Perrysburg dispatchers was denied due to upcoming contract negotiations. Interviews were conducted with outside dispatching agencies. The first was an EMD dispatcher that dispatched for a county wide agency that also gave pre-arrival instructions on how they handled calls and dispatched county life squads to emergency medical calls. The second interview was director of another county service that operates a PSAP and dispatches multiple fire and EMS units throughout the county. The third interview was with a liaison representing fire chiefs of multiple departments to a county operations center.

A survey was done with the fire division over a defined period to get a representation of different times of day and days of week on how calls were dispatched, if there was any problems during the call or if appropriate resources were sent. The surveys were filled out for each call and

tabulated to see if there were any problems or inconsistencies from either dispatcher or fire division personnel. Using this data the questions is there a national standard for dispatchers or dispatching centers, and how does Perrysburg compare to these centers. Is using the Perrysburg Communications center the best option for now and into the future. These recommendations will be made available to fire and city administration for their review.

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INTRODUCTION

Statement of the Problem

Communication with the dispatch center is a vital part of any fire and emergency medical service (EMS) and efficient processing of 911 calls is high priority of any Public service answering point (PSAP). When this communication breaks down it affects the entire service.

The City of Perrysburg currently uses police communication officers to answer emergency lines and dispatch fire and EMS services provided by the fire division. As the city continues to grow, calls for service continue to increase for police, fire, and EMS. When dispatchers have multiple calls coming in at the same time with only one dispatcher on duty, this may affect the public as well as crews on scene and their response. The problem this descriptive research project addressed, was with the growth of the city and increased calls for service has the communication center kept pace with current standards to provide adequate service to the community and research the need to increase resources or training in the communications center.

Purpose of the Study

The purpose of this descriptive research study was to provide city administration data and information that has helped to evaluate the communication center operations do to increase calls for service for both fire and police division personnel.

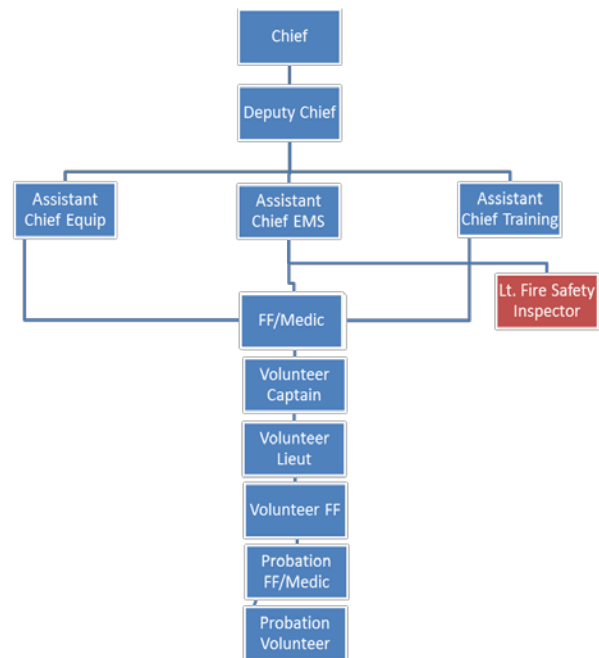
Research Questions

The following questions were answered by this descriptive research study:

1. Is there a national standard for dispatch centers?
2. How does Perrysburg's communication center compare to these standards?
3. Is using the Communications Center the most efficient option for Fire and EMS dispatching?

Perrysburg boasts a policy of service with responsible growth to its citizens. Being a suburb of a larger city, most residents do not understand that there is only one staffed fire station for the entire city, from which all vehicles respond. Current staffing levels for the fire division is 24 full-time employees including a chief, deputy chief, three assistant chief, one lieutenant fire inspector, eighteen firefighter paramedics. The staffing has evolved from a completely volunteer department established in 1938 to the combination staffing of today in order to meet the higher call demands and larger response area. The current full-time staffing is supplemented by 12 part paid (volunteers) firefighters only a few of which have any emergency medical training.

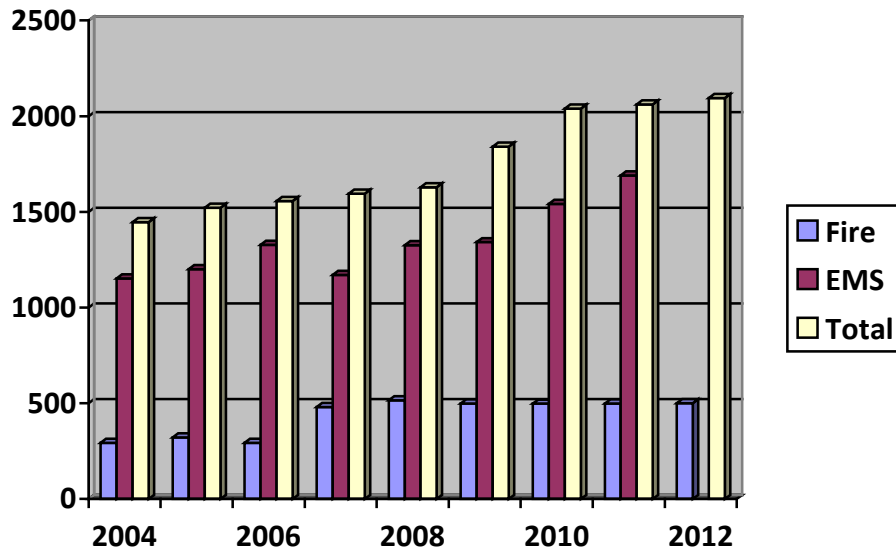
The full-time staffing has three shifts working a schedule of 24 hours on 48 hours off, while the chief, deputy chief, and lieutenant fire inspector work a Monday through Friday schedule. Seven personnel are assigned to a shift with a maximum of two personnel allowed off per shift, thus giving a minimum of five personnel to respond on an emergency provided there is not another call going on at the same time.



Perrysburg uses the same concept of a fire engine first responder and a two person medic crew. Perrysburg operates a public service answering point in the police division staffed by eight full-time police division communication officers, with minimum of one dispatcher on duty. These communication officers are responsible for answering emergency and non-emergency phone

calls, dispatching police and fire divisions on emergency and non-emergency runs, as well as court transport units and street division personnel. As the city has grown, the requested calls for

Table 1 Call volume for the Perrysburg Fire Division

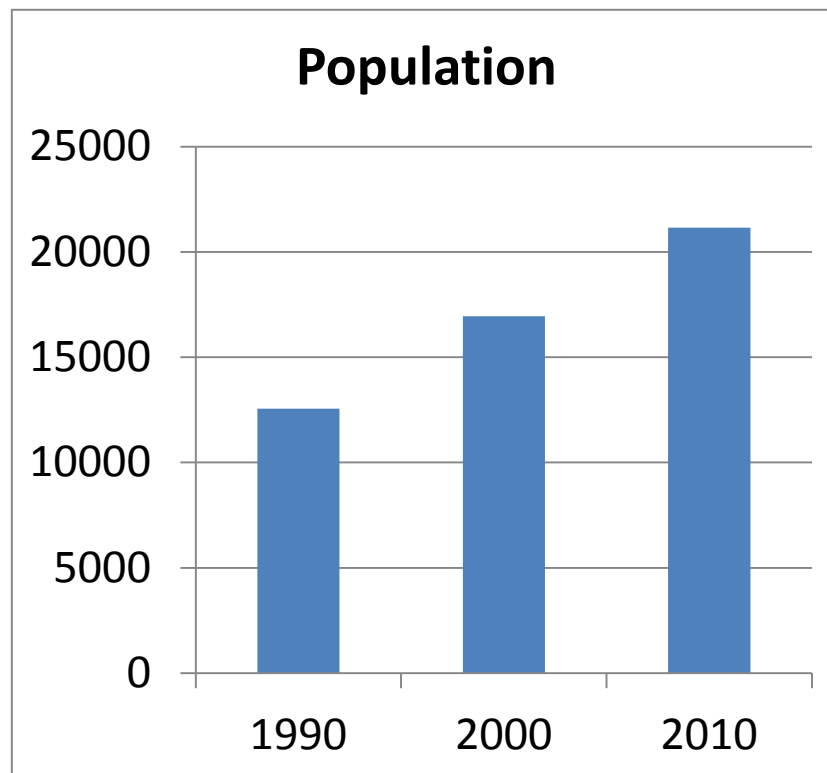


service for both the police and fire divisions have also increased significantly. There has been increased occurrences where communication officers have not answered radio traffic from responding units, or are unsure which unit is calling in due to multiple calls, multiple radios or multiple units out. There also has been instances where fire and EMS have not been called to injury accidents because detailed information of injuries was not able to be obtained thus, delaying response.

While returning from a call on the interstate in March of 2006, Chief Thompson tried to call in service four times with no acknowledgement from the communications center. Such an occasion occurred on October 4, 2013 when a fire unit was passing an accident on the opposite side of a divided highway and while attempting to turn around to investigate police were dispatched to a non-injury accident so the fire unit continued to the station. After police arrived on scene

requested fire division to respond for injuries at this accident and three patients were transported. On November 25, 2013 a call for the police for a motor vehicle accident at a major intersection in town an additional five minutes elapsed before EMS units were requested and when the first unit called out on scene, no acknowledgement was given by the dispatcher. These examples are just few recent examples of calls not being dispatched because of initial information gathered during the caller interview and gaps in radio communication between dispatchers and fire units.

Table 2 Population Changes



LITERATURE REVIEW

The information used was obtained from industry standards, peer literature, and training standards. A history of the development and implementation of emergency communication and dispatching of emergency medical services was reviewed to establish acceptable industry standards.

NFPA 1221 (2013) The Standard for Emergency Communications describes what a communication center should have and the training requirements for those who work in the center. According to NFPA 1221 ninety five percent of all calls shall be answered within fifteen seconds and ninety nine percent shall be answered within thirty seconds. Ninety five percent of all call processing shall be completed within sixty seconds and ninety nine percent shall be completed within ninety seconds. When alarms are answered at a PSAP and transferred to a dispatching center, ninety five percent shall be done within thirty seconds. Minimum staffing shall be with two dispatchers and a supervisor.

Bowman (2002) analyzes the emergency communications center in Prince William County Virginia. With a significant increase of population and an even higher increase in call volume in the 1990's led to a consolidation of resources to a single dispatch center. Operating separately from the fire and rescue departments it is civilian based organization with ranking fire officers in a position of oversight. Operating out of 17 stations dispatching 805 volunteer personnel and 241 uniformed personnel, the establishment of performance goals that measure priority 1 and 2 incidents focuses the processing of alarm times and the impact of Emergency medical dispatchers.

NENA (2010) Established call answering standards for primary 911 lines to be answered within ten seconds for ninety percent of calls and ninety five percent of calls within twenty

seconds. There is a priority given to 911 lines then 7/10 digit emergency numbers and then non-emergency numbers. This standard also indicates how the call is to be answered and a protocol for misdialed, dropped and no response calls. Transferred calls shall keep the dispatcher on the line until it is answered by the receiving agency.

Cramer (2009) research the ability of Middleburg Heights Fire Department to handle more than one call at a time with a single radio channel. Middleburg Heights is seeing an increase of call volume resulting in multiple calls at the same time. At any time, where a large incident occurs, there may be incidents with mutual aid companies all using the one channel that they all operate on, causing confusion and missed radio traffic. With an average annual increase of six percent annually he does not anticipate this problem going away soon. He uses as an example an incident where they were operating at a large mutual aid response and the fire ground was able to have their own channel to operate on with four different sectors thereby allowing no radio traffic to go unheard. Thus, demonstrating the benefits of the multiple channels on large incidents could prove beneficial on a day to day basis.

Heath (2004) analyzes the current deficiencies in the current call prioritization and management of its high call volume in Lynchburg, Virginia. With only a prioritization between emergency and non-emergency calls there are operational holes created in the system without the ability to divert crews to higher priority calls. The delineation between life threatening and non-life threatening could be enhanced through the use of emergency medical dispatchers giving them the ability to divert resources as needed to higher priority calls. They have the ability to further classifying the emergency calls from 1-9 and non-emergent calls, so higher priority calls could be handled thus reducing the amount of time engine personnel would need to be out of service covering back up medic units. The misconception that all calls would require an EMD to

give instructions tying up call takers was shown to be less than five percent of calls. Liability is relieved by use of the instruction cards but the threat of inaction is believed to be a higher liability for those entities that are served by this communications center.

Marlar (2007) researches the impact of Emergency medical dispatch effect on service delivery in Roseburg, Oregon. Douglas County Oregon uses an intergovernmental agency, MedCom, to dispatch emergency services for Roseburg and the surrounding communities. Douglas County Emergency Center answers emergency calls for the county and using a systematic pre-arrival instruction protocol then dispatches the appropriate department. Although there is one county-wide answering center, each department responds to calls according to their individual protocols. The disadvantages of not having standardized response policy throughout the same regional dispatch area, initiates different responses from different agencies even though they have one standard answering center, all calls are being answered and dispatched with the same priority . This is thought to put the public at risk with unnecessary code three responses due to jurisdictional protocols and response guidelines.

Ekk (2012) discusses the Hanford call center that dispatched the city's police and fire departments and their prioritization of calls and responses. The call is answered by a police dispatcher, but if it is an EMS request the dispatcher dispatches the appropriate fire units then transfers the call to a third party ambulance dispatcher that uses emergency medical dispatchers. The ambulance will respond code three to priority one and two calls while it will respond without red lights and sirens to lower priority calls. The concern was until 2010 that fire units were responding code three regardless of how the ambulances were responding creating a disparity of responses to the same call. The focus of this study was on how to maintain consistency of responses throughout different departments that are being dispatched by the same

call center. Responding units would contact the dispatch center to confirm the response type, as the response priority would vary between agencies and dispatchers as well.

Maggiore (2004) writes about the liability associated with not having a priority dispatch program. Patient care begins when the phone is answered and questions are asked to begin sending the appropriate help to the caller, this may also begin with pre-arrival instructions to aid the caller prior to EMS arrival. She goes on to cite multiple litigations against municipalities for improper dispatching or prioritization. With the development of priority dispatching in 1976, no longer are dispatchers just clerks who answer the phones, but medical professionals with training certifications.

Clawson (1989) describes the trained emergency medical dispatcher as the first line of patient care by predetermined questions, pre-arrival telephone instructions, and pre-assigned response levels and modes. From the time the call is answered, the patient interview helps to deploy the proper resources and if available give pre-arrival instructions to give immediate first aid prior to EMS arrival. The setting of standards by the governing authority helps to maintain standardization in training and operations.

PROCEDURES

A descriptive research project of the communications center for the City of Perrysburg emergency services included data gathered during survey of call responses, interviews of dispatchers, managers, and studies conducted by the city to evaluate growth and staffing levels throughout emergency services. Dispatching procedures were compared to the national standards for emergency dispatch and call centers. Interviews conducted with dispatchers with questions regarding their duties and call volume increases and how it impacted their ability to perform their duties. The interview questions were designed to gain information on how emergency calls are answered, prioritized and dispatched. Also, how the changes in volume of calls has effected operation of the emergency call center. While the city has experienced growth in size and population, there has not been any change implemented in the call center in effort to meet national standards. Interviews were intended to be conducted with three to four dispatchers of varying experience to remove bias from the questions. Due to a change in permission from the police chief, the cities communication officers were not allowed to be interviewed. The stated reason was a conflict in the upcoming contract negotiations.

Information from three studies that the city has conducted, are used to document the cities growth in size and call volume while changes in dispatching are used to formulate interview questions for the dispatchers. A survey of calls conducted during a pre-defined period, to observe any problems or irregularities that occurred during that period are documented and tabulated to observe any patterns. The survey was completed by the fire officer on the shift for each call during that period. Questions were formulated to observe if there were any difficulties with communications between the communications center and the fire division during the call. Contributing factors that may have been associated with the difficulties such as multiple calls

ongoing or delay in dispatching due to lack of call information gathered. These surveys will then be collected and compared to the calls for service during that time period, time of day, and number of calls occurring at the time.

Definition of Terms

EMD. Emergency medical dispatcher

MPDS. Medical priority dispatch system

EMS. Emergency medical service

ALS. Advanced life support

BLS. Basic life support

NFPA. National Fire Protection Association

NENA. National Emergency Number Association

Limitations of the Study

There were several limitations of this study; first data collection for this study was a two week participation snapshot survey with limited response. Within the defined period each call was to have a survey filled out with questions pertaining to each call for service. Secondary calls were calls that happened while the first call was ongoing did not receive the participation desired. The intent of these surveys was to have the shift officer complete all of the surveys for their shift however; each shift handled the surveys differently.

The intent to survey and interview the Perrysburg Communications Officers for this

report to establish a baseline of where the dispatching services stood in comparison to national standards and other local dispatch centers was not allowed by the chief of police due to possible conflicts with upcoming negotiations and the possible listing of job duties to be used as a negotiation item either for or against the city. Because these surveys would ask questions relating to job duties communications officers perform and that they may be a negotiation items suggests that Perrysburg's communication center is knowingly not meeting the established standards in regards to call answering centers and dispatching standards. While these surveys and interviews were not conducted the information gathered by similar sized neighboring departments and other communications centers were used as a comparison to the way that Perrysburg currently operates its communications center. Due to the inability of being able to survey or interview Perrysburg dispatchers and their operation, the accuracy of the times and methods of recording those times was unable to be measured.

It should also be noted that the fire division currently does not directly pay for dispatching services directly and transferring to another entity would increase the cost to the fire division budget. While the Communications Center for the City of Perrysburg operates for all of the city's divisions, the budget for operations is completely out of the Police Division. Therefore no direct cost of operations is taken from other divisions who use the communications center. In order to meet the staffing and training standards using the current model would increase the overall city budget.

RESULTS

Interviews were conducted with representatives from three different regional dispatch centers serving in different capacities that also served as PSAPs for multiple jurisdictions. First an interview was conducted with a Lucas County EMS dispatcher, Josh Drouard who handled EMD questions and dispatched the county life squads. Lucas County operates 10 county Life Squads staffed by paramedics from different fire departments throughout the county. These fire departments handle first responder duties as well as basic life support service. Lucas County has call takers who answer the 911 lines and transfer calls to the appropriate dispatch centers including Lucas County EMS for the life squads and the local first responder dispatchers. Lucas County Communications is the PSAP for several jurisdictions including the sheriff's office inside the county. They as the PSAP answer the calls coming into the operations center and transfer the calls to the appropriate dispatch center. Several municipalities also operate their own PSAP in Lucas County independently and one regional dispatch center operates for several small fire departments. All of the EMS calls are transferred to Lucas County EMS no matter which PSAP answers the call. The EMS dispatchers are EMD trained and can give pre-arrival instructions to the caller. They maintain two dispatchers and a supervisor 24-7.

The next interview was with the manager of the Wood County Sheriff communications center, Lt. Terry James. Perrysburg is located inside Wood County. They operate a PSAP for most of the county sheriff office and dispatch several small fire departments that do not have dispatching capabilities. Several municipalities inside the county also operate their own PSAP and dispatch center and there is one small regional dispatching center operating in the county operating independently of the sheriff's office. In Wood County, the call takers answer the call and dispatch the appropriate agency, they are also EMD trained and operate out of 3or more

station counsels. They are not dedicated to a call or a unit but just answer the calls as they come to them in turn, so a responding unit could have a different dispatcher talk to them each time they contact dispatch. They have the capability of dispatching fire and EMS for the city of Perrysburg but they are not the PSAP for the city and currently would have to have the calls transferred to them after being answered by Perrysburg Communication officers still leaving the city's dispatchers determining which calls to dispatch fire and EMS to.

The last interview was with the liaison for the Hamilton County Fire Chiefs to the Hamilton County Dispatch Center, Kim Flauding. The Reading Fire Department and Wyoming Fire Department used civilian police dispatchers to dispatch fire and EMS prior to moving to the regional dispatch center. They had several reasons to moving to the regional center, the primary of which was the technology advantage. The move gave them access to a cad system for the dispatchers where before everything was on paper. The biggest challenge they faced was updating equipment to use with the new system, but that was just a programming issue, while still being able to use the existing equipment. With joining the new system they now had EMD's answering their calls giving them the ability to prioritize their calls. The fire departments within this regional center rely heavily on automatic and mutual aid within the county. This increases interoperability for responding units to communicate with each other, no matter which jurisdiction that they are in. They are the PSAP for the jurisdiction so there is no transferring of calls prior to dispatching and are operating interchangeably with mutual aid companies.

A two week survey of calls was conducted to look at radio communications during emergency runs. Baseline questions such as time of day and day of week were compared with the number of times the information given on the initial dispatch matched the situation found on scene as well as the correct resources were sent. This survey looked at any problems encountered

with radio traffic, resources or disposition of the call. The survey also accounted for time of day and day of the week in which calls were received and divided into types of calls for service. The survey also allotted for other dispatching discrepancies if any arose during a call in the survey.

Table 3 Survey Results

Question 1	number of calls	85	Returned Surveys				73		Return Rate	85%					
Question 2	Day of Week	Monday	12	Tuesday	10	Wednesday	12	Thursday	8	Friday	9	Saturday	9	Sunday	14
Question 3	Type of Call	Fire	10		EMS	59		Inservice	2		Combo	2			
Question 4	Dispatch Correctly	Yes	72		No	71									
Question 5	Were any Problems	Yes	6		No	67									
Question 6	Type of problem	improper/inadequate dispatch				Poor location directions			Poor reception						
Question 7	Time of Day	0700-1500	34		1500-2200	25		2200-0700	14						
Question 8	Did call match dispatch		Yes	61		No	12								
Question 9	describe discrepancy	inaccurate pt. info		7	improper resources			Times inaccurate		scene size					
Question 10	Did resources match?		Yes	66		No	7	More	5		Less	2			
Question 11	Was another call?		Yes	9		No									
Question 12	Yes? Call Number														
Question 13	Type of Call	Fire		EMS	8		Inservice	1		Combo					
Question 14	Mutual aid needed?		Yes	1		No									
Question 15	Radio traffic missed		Yes	2		No									
Question 16	Critical traffic standby?														
Question 17	Re-identify required?		Yes			No	38								
Question 18	Radio Traffic Unanswered		Yes			No	38								
Question 19	Was PD on scene prior?		Yes	3		No	35								
Question 20	Was an officer needed?		Yes			No	38								

DISCUSSION

The dispatch component of the emergency response system is the first critical link to any fire or EMS department. Throughout the country the level of training and services provided by dispatchers vary greatly. Many communities similar in size to Perrysburg operate their dispatch centers in a comparable way. It has been a natural progression to have police dispatchers in smaller towns also dispatch fire and EMS due to the infrastructure already being in place for dispatching police calls but as towns grow into cities, dispatching services are not keeping up with the growth. Many smaller communities have joined regionalized PSAPs and dispatching services similar to what the Wood County Sheriff's office offers.

Perrysburg operates its own PSAP answering all emergency calls for the city but does not have EMD trained call operators or dispatchers. They do not have the ability to prioritize the calls as they come in. Investing in training of dispatchers could change the way in which the fire department responds to calls. It could have an effect on the units that respond to a call and the personnel that respond to back staff the station while units are out. The added training and increased staffing for the communications center will come at a cost. The increase in training and additional personnel required may be significant or is the money better invested in fire department personnel to respond with a full complement regardless of the nature of a call. At some level, the dispatch center should have fire department input on the calls for service that it should get dispatched to and not be totally determined by the police department. Transferring dispatching services to another entity while leaving the PSAP with the police division will not be a viable option. This still leaves the police dispatcher determining when fire and EMS are called without proper training and then nothing is gained but the use of a different dispatcher. Ideally Perrysburg would have 2-3 EMD trained dispatchers on duty with one acting in a supervisory

role and one that could be dedicated to fire department while on calls. Not only on EMS but fire calls as well where a dispatcher can be assigned to an incident and handle all incident communication needs and not be transferring to different dispatchers who may not be up to date with the current incident information.

With the state reducing the number of PSAPs Perrysburg may have to look at combining with other communities to host call answering services or moving PSAP services to another agency then transferring calls to the dispatch center. While the current consolidation by the state is being re-evaluated, other options need to be researched.

There are many different types of programs for emergency medical dispatching. While they differ in brand name they utilize a categorized evaluation of the caller's problem to determine the type of resources required for a call. This leads to the next step of the dispatching process, which is prioritizing the call based on several factors revealed during the phone interview.

RECOMMENDATIONS

The cost of staffing the dispatch center with the number of dispatchers needed to meet the national standards to properly operate as a EMD dispatch center would be a high impact on the communications center and city budget. Alternative options should be explored to meet these standards until such time that the city would be able to budget enough to adequately staff an emergency operations center if the city decides to maintain this operation.

1. The City Safety Director should form a communications committee for those divisions that use the dispatching services. The purpose of this committee is to have input from all users of the communications center and evaluate how and when calls are dispatched and what equipment is to be sent. Evaluate other duties currently required to be performed by dispatchers that may be transferred elsewhere.
2. Contract with an EMD service or agency to transfer calls to for pre-arrival instructional phone assistance when required until staffing and training can be done within its own agency.
3. Evaluate up grading the center to meet national standards for staffing and training and operating a regional center versus joining a regional dispatch center along with moving the PSAP and allowing the regional center to dispatch fire and EMS, and transfer calls to the police dispatchers or continue to send a full complement of first responders to every call.

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APPENDIX 1 – SURVEY QUESTIONS

1. What was the incident number of this call? _____
2. Was this an EMS, fire, in-service or combination call? _____
3. Were there any problems with radio traffic during this call? Y N (circle one)
4. If yes to the above question describe the nature of the problem.

5. What day of the week did this call happen? _____
6. What time of day did this call occur? (0700-1500) (1500-2200)(2200-0700)
7. Did the nature of the call match the original dispatch? Y N (circle one)
8. If you answer no to the above question, describe the discrepancy

9. Did the resources dispatched meet the needs or were more resources (personnel or equipment) needed? _____
10. Could this call have been handled with fewer resources? Y N (circle one)
11. During this call, was there another call for service? Y N (circle one)

If you answered yes to the previous question please answer the next 3 questions if not skip to question 14

12. If yes what was that call number? _____
13. Was this an EMS, fire, in-service or combination call? _____
14. Was mutual-aid need to handle this call? Y N (circle one)
15. At any time on the call were you told to stand by? Y N (circle one)

16. Did you have traffic that you felt was critical when told to stand by? Y N (circle one)
17. How often does this happen?
- a. ____ Never
 - b. ____ Five times or less a month
 - c. ____ Six to ten times a month
 - d. ____ More than ten times a Month
18. Did you have to re-identify your unit number to dispatch? Y N (circle one)
19. If you answered yes to the above question were you on a call when this happened?
Y N (circle one)
20. Did any radio traffic go unanswered? Y N (circle one)
21. Were the police on scene prior to being dispatched? Y N (circle one)

APPENDIX 2 – INTERVIEW QUESTIONS

1. How long have you been a Communications Officer for the City of Perrysburg?
2. Did you have any dispatching experience prior to working for Perrysburg?
3. What do you feel is your most important duty as a Communication Officer?
4. Have you had training as an EMD?
5. Do you have the ability to transfer callers to an EMD?
6. Have you been asked by a caller on what to do in an emergency medical situation?
7. If yes to the above question, what did you do in that situation knowing the caller was looking to you for help?
8. What other responsibilities do you have besides answering emergency phone lines and dispatching police and fire?
9. How many communication officers are on duty at one time?
10. How calls are answered and dispatched in Perrysburg, are they handled by one operator from beginning to end or are duties shared?
11. Are emergency calls prioritized in any way other than first come first serve?
12. What percentage of your time is spent in non-dispatching duties?
13. What is your favorite part of being a Perrysburg Communication Officer?
14. What is your busiest time in the communications center?
15. Do you have the ability to bring in more help if it becomes busy?

APPENDIX 3 – INTERVIEW QUESTIONS

1. How was it determined the need to switch dispatching services?
2. What was the key factor in prompting the move to a regional center?
3. When it was determined to change what was the biggest challenges?
4. Do EMD's answer the calls?
5. Is this the PSAP?
6. Do you have a medical director for your system?