

Ad Hoc HEMS Sustainability Group Report to Hudson City Council

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30 June 2017

EXECUTIVE SUMMARY

NEEDS INCREASE AND VOLUNTEERS DECREASE, RAISING COSTS

- The number of emergency calls over the past five years has **grown** from 1200 to 1700, and is expected to **continue to increase** in the future.
- Over the same period the number of **volunteers** has **declined** from 47 to 22. Because of this, the **total number of emergency responders** over this period has **dropped** to an all-time low of 43.
- Correspondingly, **paid** paramedics have had to respond to **more emergency calls**, which means that the **personnel budget of HEMS has increased** to the point where total expenditures exceed funds available.

THERE ARE TWO SOURCES OF SUPPORT FOR HUDSON EMS

- First, a **portion of the city income tax** (9% of the additional one percent tax approved in 2005) makes up approximately two thirds of EMS' total income. This amount has increased over the past five years but has not kept pace with the increase in demand for HEMS services.
- Second, **revenue from billing** of patients' insurance companies for certain of HEMS' services make up approximately one third of EMS' total income. This amount has fluctuated over past years but, with a recent change in billing company, has reached or exceeded benchmark levels.

WHAT DO WE PROPOSE TO HELP KEEP HUDSON SAFE AND HEALTHY IN THE FUTURE?

- In the **short term, realigning the income tax allocations between Fire and EMS** within the existing total beginning in FY18 will help alleviate the budget shortfalls in EMS without diminishing fire safety.
- **New full-time and part-time paramedic positions** are needed currently so that HEMS can reliably respond 24/7/365. These new positions will cost approximately \$200,000 per year above the 2016 expenditures, partially offset by anticipated savings in currently-scheduled overtime expenses. If the trend of diminishing volunteer involvement continues, personnel costs can be expected to escalate correspondingly. In a worst-case scenario in which HEMS must operate without volunteers, personnel costs will increase by a further approximate \$600,000 per year.
- **Changes to HEMS' volunteer recruitment and retention strategies** are being explored and will be implemented, and evaluated for their effectiveness.

Ad Hoc Group Membership and Charge:

On behalf of City Manager Jane Howington, on March 6, 2017 Fire / EMS Chief Jerry Varnes sent the following invitation to review the sustainability of Hudson's Emergency Medical Services for the foreseeable future:

We have a significant challenge ahead of us to look at any/all options available to the City of Hudson for supplying Emergency Medical Services to our citizens, including:

- *Staffing - (Recruitment, Retention, Volunteers, Part-time, Fulltime, Privatization, Merger, Other)*
- *Funding – (EMS Billing, Changes to soft billing policy, Income Tax % redistribution, Grants, Other)*

This will be a “gloves off/ in-depth” review of what we are doing now, what is or is not working and what we need to do in the future to keep EMS functioning effectively as a safe, high quality organization and do it in a fiscally responsible manner.

The group which received this invitation consisted of those named as authors of this report with the exception of Volunteer EMT Zach Bruce, who joined the group in May following the resignation of Volunteer EMT Ryan Arth. All agreed to work with Chief Varnes to prepare a report focusing on staffing, funding and sustainability for presentation to City Council by July 1; Dr. Boex agreed to serve as Chair. Consistent with this charge and the short time frame allowed, the group focused on these issues to the exclusion of related topics such as technological change, quality improvement and patient safety, changes in health insurance policy, and others.

With a few exceptions, the group met weekly for the months of March, April, May and June. In general the time frame addressed in the considerations described below includes the next three to five years. This report represents the completed efforts of the working group and will be supplemented with a brief presentation and Q & A session for City Council, scheduled for July 11, 2017.

I. Introduction: Hudson EMS Serving the Community

A. Qualified Health Professionals

There are two types of health professionals serving in Hudson's Emergency Medical Services (HEMS): Emergency Medical Technicians (EMTs) and Paramedics. EMTs must complete a course that is about 170 hours in length (approximately 4 1/2 months). Paramedic training must be at least 1,000 hours or 13-18 months. EMT and paramedic courses consist of lectures, hands-on skills training, and clinical and/or field internships. EMTs are educated in many skills including CPR, giving patients oxygen, administering glucose for diabetics, and helping others with treatments for asthma attacks or allergic reactions. With very few exceptions, such as in the case of auto-injectors for allergic reactions, EMTs are not allowed to provide treatments that requiring breaking the skin.

Paramedics are advanced providers of emergency medical care and are highly educated in topics such as anatomy and physiology, cardiology, medications, and medical procedures. They build on their EMT education and learn more skills such as administering medications, starting intravenous lines, providing advanced airway management for patients, and learning to resuscitate and support patients with significant problems such as heart attacks and traumas.

All EMTs and paramedics are required to obtain, and maintain, current certification from the State of Ohio. From these already selective employee classifications HEMS must typically interview three candidates to find one who meets their high standards.

B. Emergency Calls Increasing

The volume of calls to Hudson EMS has increased over the past five years from 1246 to 1710. Most of this increase has been caused by trauma-related calls (approximately 400 to over 650), although medical-related calls have also increased (approximately 700 to 850).

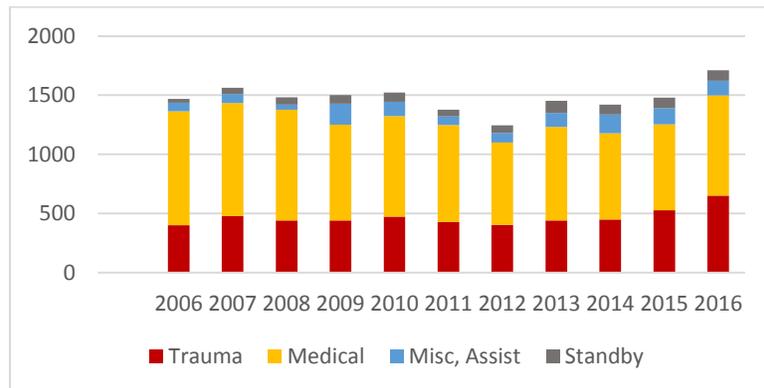


Figure 1: HEMS call history 2006-2016

C. Prompt Around the Clock Protection

As figure 2 shows, most of the city’s EMS calls occur during the daylight hours, particularly during the working day when Hudson’s population increases to include employees, shoppers, and other visitors.

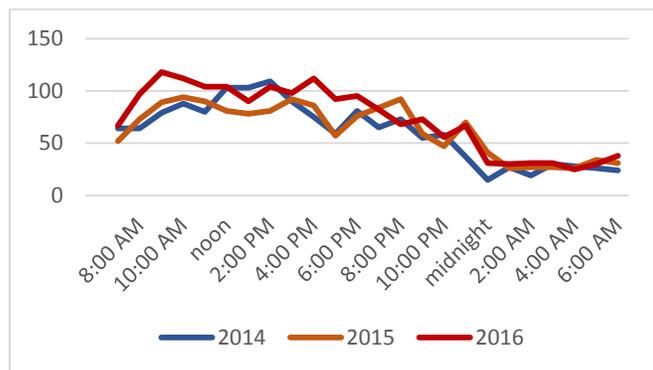


Figure 2: Hudson emergency calls by time of day

Whatever the time of day, over the past five years HEMS' emergency response times have fluctuated within a thirty-second range between 5.5 and 6 minutes. These response times are consistently below the 8 minute threshold which is generally considered to be the "gold standard" for emergency response times.¹

D. Responding to Other Community Needs

In addition to its primary emergency response role, Hudson Emergency Medical Services responds to community needs by providing support to community events, school events, educating the public, and preparing for such diverse potential (and actual) catastrophic events as the ebola and opioid addiction epidemics.

E. The Number of Emergency Calls Will Continue to Increase

When planning for the sustainability of HEMS, a key element is demand. We predict with confidence that demand for HEMS will continue to grow. We base this not only on the projected growth in population and business underway in Hudson but additionally on the fact that the population of our city is aging, as figure 3 shows.

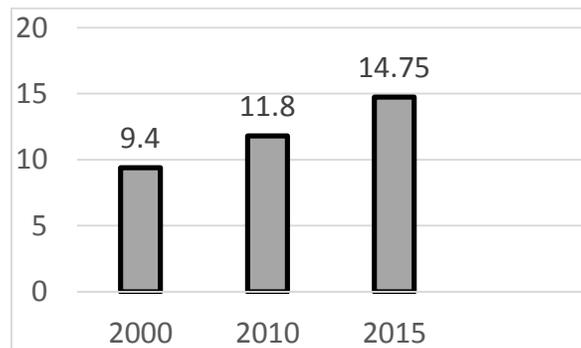


Figure 3: % Hudson population age 65 or older

Another way of understanding this dynamic is to consider that the median age of residents of Hudson has increased from 39 to 45 years during the same period shown in figure 3.

One interesting element of this increasing EMS demand is that it is partially fueled by the growth of one sector of Hudson's business success: the eldercare industry. Figure 4 documents how the increasing number of eldercare facilities in Hudson, and their growing populations, results in greater demand for emergency medical services.

¹ McCallion T, "The Great Ambulance Response Time Debate Continues," *JEMS*, Feb 16, 2012; <http://www.jems.com/articles/2012/02/great-ambulance-response-time-debate.html>

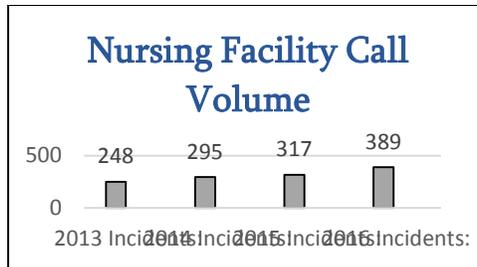


Figure 4: Eldercare Facility HEMS Call Volume, 2013-2016

II. Staffing for Our Community’s Health and Safety

A. Founding and Growth

As is well-known, HEMS began as a completely volunteer effort as a result of a group affectionately known as the “Hudson Housewives” in the 1970s. The force remained primarily a volunteer group as of 2005, when its total strength included 61 volunteers, 3 full-time administrator paramedics doing shifts, and 5 part-time paramedics.

In 2008, in response to a growing need (volunteering had begun to decline, and emergency calls had doubled between 1995 and 2008), a report based on a series of HEMS focus groups identified a need for a larger and more reliable staff. Specifically, this effort’s recommendations included an overall staff of 84 emergency medical response personnel:

- regaining the historical volunteer workforce level of approximately 60, and
- enlarging the paid staff, including hiring 4 full-time medics.

Submitted to city government at that time, this recommendation was apparently never acted upon.

B. A Slow, Then Sharp Decline in Volunteers

Following a decline from the 2005 figure of 61 volunteers, by 2008 the number of volunteers in HEMS had dropped to 45. The rate of decline began to accelerate in 2012 such that, as figure 5 shows, the number of volunteer participants currently in the force is just over 1/3 of what it was in 2005. This represents an all-time low.

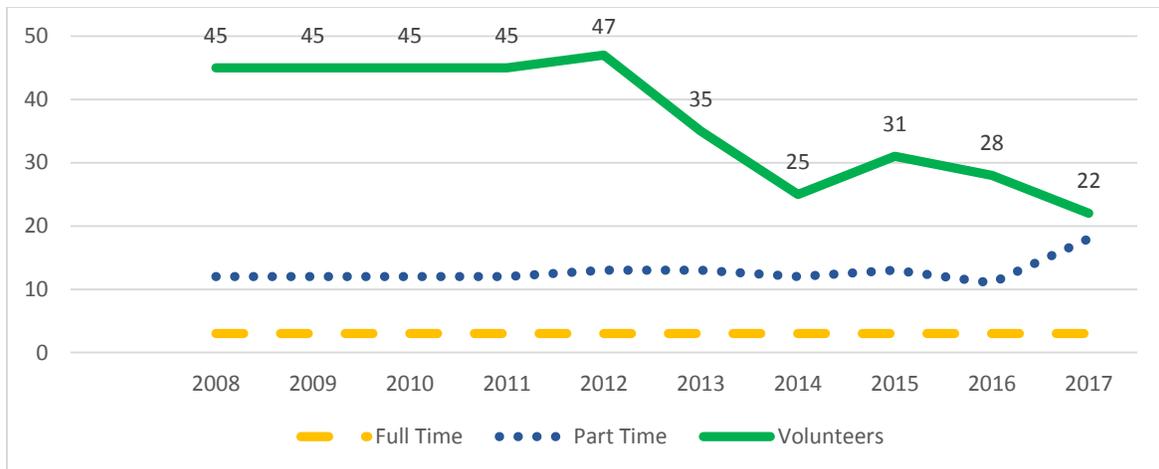


Figure 5: HEMS staffing, 2008-2017

While significant efforts have been made to detect the local dynamics behind this trend, HEMS leadership and staff have been unable to identify any Hudson-specific factors which might explain this change. National data from the Bureau of Labor Statistics, however, are suggestive of reasons:

- There has been a major drop in all volunteering across the country. The number of US Red Cross volunteers, for example, is down 61% since 1970.
- “Hudson Housewives” of the sort who founded HEMS are mostly working now. Less than half of married mothers in the US were working in 1976, but in 2016 over 70% of that group is now employed.
- The millennial generation has different volunteering habits than its predecessors: those under age 35 today are among the least likely to volunteer of any age group.
- Among those who do volunteer today, the health care sector is the least preferred among all volunteer opportunities. Reflecting both national and state data, less than 4% of those who volunteer in greater Cleveland area do so in the health sector, which includes EMS.

Among those who have volunteered for HEMS, in recent years first-year attrition among volunteers has been 75% and above, incurring tremendous turnover costs for the emergency service. Surveys and anecdotal information from HEMS staff suggest the educational and service commitments required of volunteers are prime factors in this dynamic.

C. Fewer Health Professionals Available to Respond to Emergencies

The decline in volunteers both recruited to, and remaining in, HEMS has led to an overall drop in the size of the HEMS response force. Even with a slight increase in the number of part-time paid personnel, as figure 6 indicates over the last five years the overall size of HEMS has been reduced dramatically, from a total of approximately 60 to just over 40. During this same period, as mentioned above, the number of emergency calls increased from 1200 to 1700.

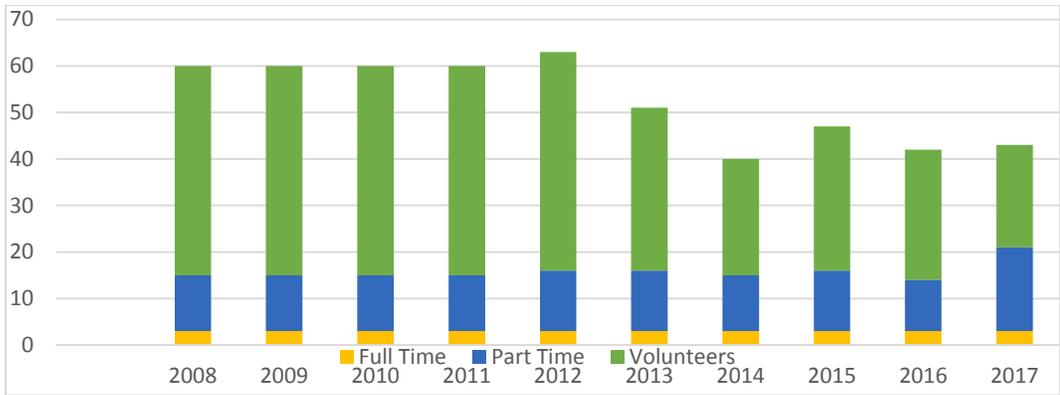


Figure 6: drop in number of volunteers leads to decline in overall number of HEMS staff

III. Revenues Increase, But Expenses Increase Faster

A. Two Sources of Income

As illustrated by figure 7, HEMS is primarily supported by two revenue streams. The larger of these two is revenue from the additional one percent city income tax approved by voters in 2005, a fixed percentage (9%) of which is allocated to emergency medical services. At that same time, a further percentage (15%) of the additional one percent tax was approved for allocation to fire services. The dollar amounts which these percentages represent rise and fall with total income tax collections; for 2016, the amount of HEMS support from income tax was approximately \$960,000. This amount has increased over the past five years but has not kept pace with the increase in demand for HEMS services.

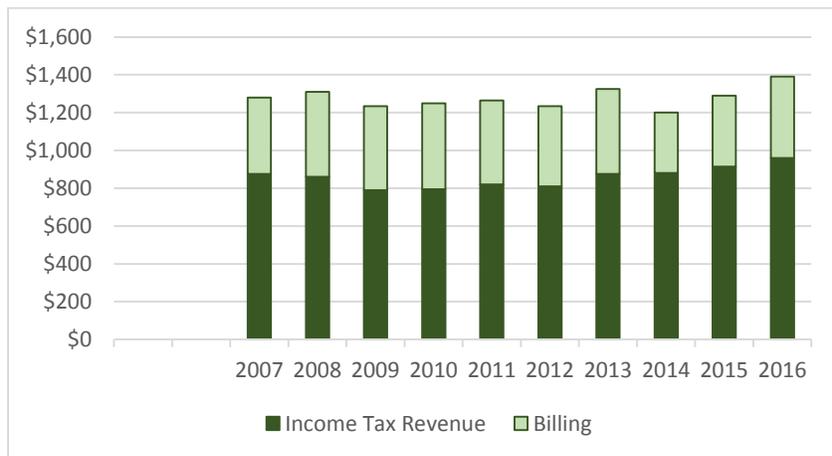


Figure 7: HEMS revenue streams, in thousands of dollars

B. Income: Billing for Services

The other revenue stream is income from billing for HEMS services: insurance reimbursement for the approximately 70% of HEMS' calls which result in patient transport. This is consistent with both state and national experience.² No reimbursement is available for calls which do not result in transport. For calendar 2016, the amount of billing income was approximately \$430,000.

Hudson residents and city employees whose emergency calls are subject to billing have only their insurance policies billed for those services, with HEMS accepting whatever payment their insurance provides. This is called "soft billing." Non-residents are billed for the total amount of their calls.

HEMS' collections on bills had dropped in the past because of difficulties with the billing company contracted to undertake collections. As a result of contracting with a different firm and increased HEMS involvement with billing practices, reimbursements have improved greatly: the collection rate (independent of the volume of calls) increased from 66% for the period May 1, 2015 – April 30, 2016 to 92% for the twelve-month period following.³ Although comparative data are not easily located, the 92% collection rate achieved for the past twelve months seems to be well above the national average.

An area not investigated by the Ad Hoc Group but which is relevant to HEMS' reimbursements is the changing health insurance environment in Ohio. At the time of the Ad Hoc Group's deliberations, consideration of potential changes in health insurance regulations at the state and federal level were in sufficient flux to make realistic change projections impossible.

C. Expenses: HEMS Part-Time Personnel Costs Drive Increased Total Expenditures

Total personnel costs in HEMS are a combination of part-time and full-time staff costs. As shown in figures 5 and 6, above, the full-time paramedic staff has not increased in size for the past ten years. In 2016, personnel costs made up 68% of HEMS' total expenditures. This is less than the national sample of EMS departments for the same year.⁴

These two graphs below (figure 8) compare personnel-related and non-personnel expenditure patterns of HEMS for the past ten years. The graph on the left demonstrates non-personnel

² Fitch & Associates, *2016 EMS Trend Report*, EMSI and National EMS Management Association, July 19, 2016; <https://www.ems1.com/ems-trend-report/articles/108710048-2016-EMS-Trend-Report-The-forces-shaping-the-present-and-future-of-EMS/>

³ The reader should note that the date ranges describing this recently-recognized achievement (a twelve-month period ending in April) do not match those displayed in figure 5 (calendar years).

⁴ *ibid*

expenses, the graph on the right shows part-time personnel expenditures.⁵ Please note the lack of an upward trend in the non-personnel expenditures since 2007, compared to the steady increase in part-time personnel expenditures over the same period.

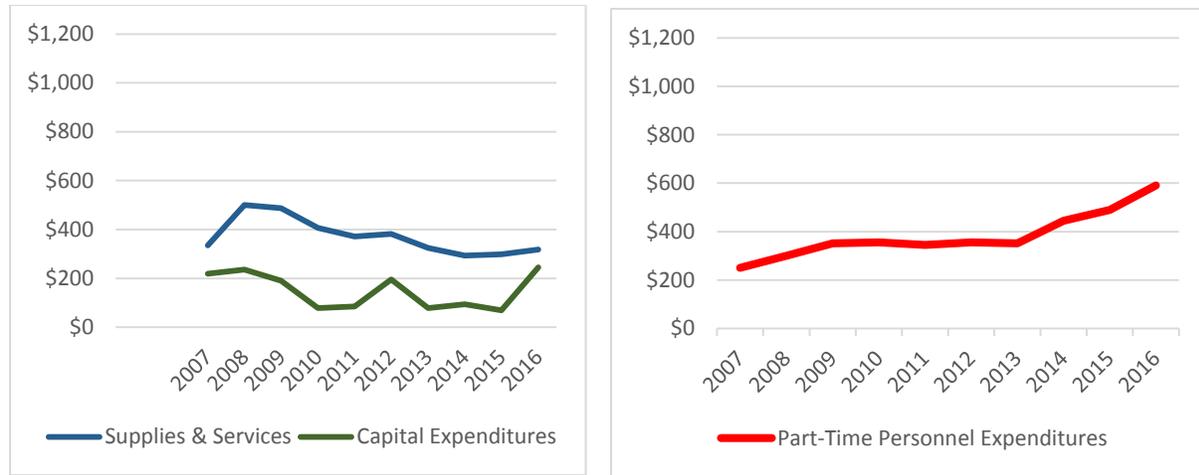


Figure 8: comparison of HEMS personnel and non-personnel costs, \$ in thousands, 2007-2016

D. Fewer Volunteers Means Unplanned Overtime Expenses as Calls Increase

The relatively sudden drop in HEMS volunteers has meant that, in an environment of increasing emergency calls, more hours and calls have to be covered by the existing paid staff.

Approximately 37% of all hours originally scheduled to be covered by volunteers had to be covered by paid staff in each of the years 2014 – 2016, and to date in 2017 the percentage has increased to 41%.

A crucial element in the growth of part-time personnel costs has been the increase in overtime pay as a percent of all part-time personnel expenses: in 2014 it was 8%, in 2015 it was 15%, and in 2016 it was 16%. Since as explained above the decrease in the number of HEMS volunteers has not been offset with a similar increase in numbers of paid staff, those available on payroll have had to work longer hours to provide the necessary level of coverage, resulting in overtime charges. These kinds of unplanned cost increases are particularly problematic from the managerial and budgetary perspectives.

⁵ Expenses for the elements which make up non-personnel expenses, such as rolling stock, up-to-date technology/equipment, clinical supplies, etc., are both highly variable and essential to the success of HEMS, but are outside of the scope of this report.

IV. Options for Sustainability

A. Sustainability Options Considered But Rejected

The Ad Hoc Sustainability Group considered a number of different options for the future of HEMS. Before detailing the proposal ultimately chosen, we believe it is important that readers understand which options were considered but not selected.

First among those not recommended is the option of merging the fire and EMS services. Although many municipalities have chosen this expediency, we are not recommending such a combination in this report. The main reason for this is that – short term financial considerations aside – both services are functioning well as separate units, and we believe that forcing a merger at this point in time would irreparably damage both units to the point where an entirely new force would have to be created, with potentially negative implications for both finance and safety.

The second major option considered, but not recommended, is the privatization of the EMS service. The main reason this option was not selected is the loss of control of both quality and cost when the health and safety of one's residents is transferred to a for-profit entity which then becomes a monopoly provider. The recent experience of communities which have chosen this route has not been a positive one.⁶

A variety of other, less draconian options were considered and rejected, as well. For example, reducing expenditures by cutting back on staffing during the relatively quiet overnight hours was proposed but rejected as being unsafe.

B. Short-Term Measure Not Requiring New Funds: Realigning the Distribution of Income Tax Revenue Between Fire and EMS

As noted above, in 2005 Hudson voters approved the allocation of 24% of the city's additional one percent income tax to the Fire and EMS services (15% and 9%, respectively). Over the past ten years the rate of increase in the support from income tax funds has fallen behind the rate of increase in demand for HEMS' services. This is one of the reasons for the budget shortfall discussed in this report.

For the foreseeable short term, existing income tax funds dedicated to Fire and EMS would be sufficient to maintain budget sufficiency in both departments if the percentages of receipts allocated to each department could be updated, based upon experience. This could be accomplished beginning in FY18 by combining the two separate funds into a single account of 24%, with subsequent distribution to the two services as recommended annually by the Chief of Fire/ EMS, subject to review and approval by the city's budgetary authority.

⁶ Ivory, Protes and Bennett, "When You Dial 911 and Wall Street Answers," *The New York Times*, June 25, 2016; https://www.nytimes.com/2016/06/26/business/dealbook/when-you-dial-911-and-wall-street-answers.html?mcubz=0&_r=0

Such a change would have to be approved by voters, but since no new tax funds would be required, it is reasonable to hope that following an appropriate educational campaign a proposal could be approved. August 9, 2017 is the Board of Elections deadline for filing to place such an issue on the November 2017 ballot.

C. Protecting the Public's Health and Safety Requires Additional Paid Paramedics

Given the experience of the past fifteen years, we believe it is not realistic to assume that the 24/7/365 demands upon Hudson EMS can be reliably met by the volunteer-centric approach of the past. We believe it is essential that HEMS ambulance Units 1 and 2, which respond to over 95% of all emergency calls, be covered primarily with paid paramedics supplemented with volunteer participation.

Based upon a projected average volume of 1700 - 2000 emergency calls per year, in addition to retaining paid staff and volunteer participation at its current levels, the Ad Hoc group recommends filling 2 additional part-time paramedic positions at 24 hours per week and 2 new full-time paramedic positions. The additional salary and benefits required would increase 2016 HEMS personnel costs by approximately \$200,000. There would be some relatively small offset of this amount by a corresponding reduction in currently scheduled overtime expenses.

In addition to meeting minimal response force requirements, filling these positions as outlined would have salutary effects upon crew stability and training, and therefore upon the quality of patient care. Should the proposal that the Fire and EMS income tax allocations be combined as described in IV(B), above, it is possible that these additional personnel costs could be absorbed without additional funds through FY21.

The number and mix of emergency responders needed in any given future year will depend upon a variety of factors including

- call volume and type
- crew safety
- patient care quality
- technological change, and others.

If the trend of diminishing volunteer involvement continues and drops below the current level, the cost of the additional paid paramedics needed to provide coverage will correspondingly grow beyond the additional \$200,000 figure. In a worst-case scenario in which HEMS must operate completely without volunteers, we foresee the need for 6 additional part-time paramedic positions (at 24 hours per week) and 5 additional full-time paramedic positions. The additional salary and benefits required would increase HEMS personnel costs by an additional approximate \$600,000.

The financial projections supporting this recommendation are attached to this Report.

D. Improving Recruitment and Retention of Volunteers A Key to Sustainability

For a variety of reasons we believe it is important to allow volunteers to continue to learn and serve as members of Hudson Emergency Medical Services. One of the efforts initiated by the deliberations of the Ad Hoc Group, but which exceeds the strict scope and time frame of the Group's charge, was an updated and systematic review of volunteer recruitment and retention practices within HEMS. Based upon the experiences of other EMS squads, and survey and interview data from within HEMS, a number of proposals for changes have been identified and will be reviewed prior to renewed recruitment and retention efforts. Among those under consideration are:

- the development of a menu of consistent educational and recruitment messages targeted at a variety of age groups, including Hudson City School District and local service organizations (Rotary, Chamber of Commerce, League of Women Votes, etc)
- the appointment of an individual or a small team of individuals charged with delivering these messages
- for recruits, the conversion of existing classroom instructional material to an on-line educational format which could be completed at their own time and pacing, allowing for a shortening and simplifying of an imposing orientation process, and
- reinvigorated efforts to recognize and reward all staff – including volunteers – for excellence, service, quality of care and other accomplishments

V. Presentation of This Report on July 11th

At the City Council meeting of July 11, 2017 a brief presentation based upon this report will take place. We invite your questions following that presentation.