Project Mayday – Synopsis by Mark Bridges

All, please see below for my synopsis on the portion of the Project Mayday dealing with shift schedules/ work hours. I had sent this along with a .pdf of some articles that relate to but predate the Project Mayday but I guess they got lost in the shuffle of things before I went on vacation. I'll try and get them posted tomorrow.

*Main points highlighted at the end

http://projectmayday.net/ *Open this link and go to the “2017 Career” .pdf to follow along.

Lots of numbers and a bit of a slog. I apologize as I know this will most likely be painful to read! Please give me a shout if there is anything I can clarify. I tried to be as detailed as possible to let you all see what I was seeing. Please let me know if I missed anything or misconstrued any data.

The following is a synopsis of a small portion of Fire Chief Don Abbott's Project Mayday study. This synopsis is focused on that portion of the study pertaining to data on shift schedules and hours worked by departments that submitted mayday information for this project. This synopsis will make much more sense if it is read while simultaneously looking at the Project Mayday Career Report (found in the link above).

Project Mayday is an excellent, comprehensive study of fire department mayday events with a huge amount of invaluable data collected from over 3000 mayday events over a period of 30 months from 01/15 - 6/17. Data collected from fire departments includes overall department statistics (size, shift schedule, paid/volunteer, etc.) and detailed information concerning each specific mayday event. This information was submitted voluntarily and anonymously. Apart from the research on this project for the 48/96 committee, I think every officer in AFD should go through this power point and at least give a company school on it.

That being said, as great as it is concerning all things mayday as far as the event goes, this report left me with a few questions concerning the department statistics. Specifically, trying to determine the actual numbers and percentages when comparing mayday events occurring across the multitude of shifts that firefighters work, and factoring in maydays occurring when firefighters were working overtime (OT) proved difficult.

This project was started when Chief Abbott received a grant to begin this very large data gathering process to study all things mayday. Departments that submitted information did so anonymously, and the study was comprised of three components. The first component consisted of a series of questions concerning department statistics - shift schedules, staffing on apparatus, department size/ run volume, number & types of apparatus, and others. In order to move to component 2, the questions from component 1 were completed. The same process occurred for going to component 3 as well. Components 2 & 3 dealt with the actual mayday event (response info, tactical worksheets, radio reports, etc.) and then any follow up after the mayday. For the purposes of looking at this report for our 48/96 committee, only the information gathered in component 1 is relevant.

Data for this project was gathered over a period of 30 months from 1/1/15 - 6/1/17. The data, once compiled, was categorized into two large groups and a final report was prepared for each group. These groups are Career & Volunteer. We'll be focusing on the Career group report.

According to the 2017 Project Mayday Career Department Final Report, 3106 career departments submitted at least partial mayday information. 2931 FD's completed component 1, and 2868 departments (?) submitted a total of 2868 maydays gathered over a period of 30 months from 1/1/15
For the rest of the data from component 1 including the area of interest for us (shift schedules and hours worked), 2868 is the number being used as the total. This is the first area where I have a question on the numbers for the data. Although slide 19 states the total number of departments submitting information is 2868, I believe this number refers to the total number of maydays, not departments.

Slide 29 (Department Manning) provides data on the size of the departments that submitted mayday information. According to this slide, and using the 2868 number to mean number of departments, this means that a total of 113 FD's with >3000 personnel each submitted one mayday, 141 FD's with 2001-3000 submitted one, 136 FD's with 1501-2000 submitted one, and 142 with 1001-1500 submitted one for a total of 532 FD's with >1000 personnel each submitting one mayday. Is this correct? This seems off as I'm pretty sure there are not 113 FD's in the US with >3000 people (right?). What I think our 2868 number means is the total number of maydays submitted, not the total number of FD's submitting a mayday. Multiple departments must have submitted multiple maydays to get to our total number of 2868. While it may seem trivial to focus on the 2868 number, all of the report data for component one relates back to this number. Without having the ability to see which departments submitted multiple maydays, we are also unable to see what these departments' shift schedules were and if it in any way affects the results in terms of the percentages given for maydays occurring on a 24/48, 48/96, or other schedule.

The next slides of interest to our 48/96 discussion are slides 53-57. These slides use the 2868 number and breakdown maydays with regard to shift schedules and overtime. These slides were difficult for me to completely wrap my brain around because I don't have enough context to understand completely what the numbers are telling me. I wish I could ask Chief Abbott to clarify them for me, and they'd probably make more sense. Without this further context, I'll give my thoughts on them as I see it. If anyone reading this can clarify anything for me, please do! There was a webinar given by Chief Abbott on this report to IAFC a couple of years ago. I watched it in hopes of getting clarification on these slides, but Chief Abbott did not talk about any shift schedule data during that webinar.

Slide 53 shows that 61% (1756) of our maydays were from a 24hr FD, and 25% (719) are from a 48hr FD. 4.6% (132) is classified as other, and 9% (261) is given as OT. I took this to mean a 24hr FD is a 24/48 department, 48hr FD is a 48/96 department, other might be something like the Houston schedule, and the OT number is the number of maydays that occurred while people were on OT. Again, absent the necessary context, this is my speculation. So for now, let's remember 1756 maydays for 24/48 and 719 for 48/96.

The next slide (54), gives additional information on FD work/shift hours, but again I don't know what the context is. I believe this is a slide showing overall national percentages of what schedules FD's work (all FD's not just the ones that submitted mayday info). The vast majority of FD's are shown to be 24hr FD's (does this mean 24/48 only?) at 89%. 48hr FD's are listed at 11% and MISC are listed at 2%. This gives us 102% but we can chalk that up to a +/- 2% margin of error perhaps.

The next slide (55) lists overtime figures and breaks up the 2868 maydays a different way. This slide seems to indicate that 1631 maydays occurred on a 24hr FD with overtime and 1237 maydays occurred on a 48hr FD with overtime. This confuses me. Does this mean all the maydays submitted occurred while someone was on overtime? Surely not, and there's no way to tell what these numbers mean. The percentages given for each of these number is wrong as well. Again, it may seem trivial, but more of these numbers are not accurately listed and it makes it hard to take these numbers at face value to mean what we can only assume they mean. The reason this slide is important is because of the number given for 48hr FD's with overtime - 1237. Remember this number also.
Moving on to slide 56, we see a breakdown of maydays occurring on a 24hr shift. Remember from slide 53 that 1756 maydays occurred on a 24hr shift. Slide 56 tells us that 22.8% of these (719) occurred during the first half of the shift and 77.2% (1037) occurred on the second half. Seems simple enough and it makes sense that the majority of maydays would occur on the second half considering most FD's change shifts between 0600 & 0800. We know most maydays occur during night hours and this happens to be in the second half of the shift. No surprises there. The surprise however, is that these numbers and the percentages do not match up. 719 (1st half of shift maydays) out of 1756 is not 22.8%, it is 41%. 1037 is not 77.2, it is 59%. It may not seem like a huge deal, but this is just another small example of the numbers given not matching up with the percentages and adding to the overall confusion of the report number-wise. This adds to my wariness in believing the numbers in the entirety of the report as they are listed.

Slide 57 breaks down the percentages of the maydays occurring on a 48hr shift. The numbers and percentages on this slide do match, and the results are not anything earth-shattering. It states that of the maydays occurring on a 48hr shift, most occurred at night (either on the first or second half of the shift), and the likelihood of a mayday occurring on the second half of a 48hr shift was about 10% higher than on the first half. Now add the confusion. Remember from slide 53 our two numbers were 1756 and 719 (the number of maydays on a 24hr shift and a 48hr shift, respectively). Slide 56 used the 1756 number to give us our percentage of maydays occurring on the first half versus the second half of the 24hr shift. However, the number used to break down the maydays occurring on a 48hr shift was 1237. This is the other number I asked you to remember from slide 55. This number represents (to the best of my speculative abilities) the number of maydays that occurred on a 48hr shift including shifts where people were working overtime. Why was this 1237 number broken down and not the 719 number for maydays that occurred on a 48hr shift where overtime was not factored in? If this percentage breakdown of 1237 includes overtime numbers, in my opinion it cannot be seen as an equal comparison to the breakdown of the 1756 24hr maydays where overtime was not factored in.

In summary, I don't think these numbers were in any way meant to be misleading, but there are just too many discrepancies and not enough context provided in the slides for me to get a clear picture of mayday information with regards to a 24hr shift versus a 48hr shift from this report.

**Main Points**

1. The inconsistency of numbers presented in this study as far as shift schedules go and the lack of context to back the numbers up make this report difficult for me to see an accurate comparison of 24hr shift maydays and 48hr shift maydays. Additionally, the anonymous procedure through which this information was submitted also makes it difficult to get an accurate picture. We do not know how many departments submitted multiple maydays and what the specific shift schedules of those departments are. It may make no difference, but we just can't tell.

2. If slides 53 & 54 are accurate, and if I am reading them correctly, then the data shows that 11% of FD's work a 48hr shift and account for 25% of the maydays, but these numbers don't say whether the mayday occurred on the first half of the 48hr shift or the second half. This would be important because if the mayday occurred on the first half of a 48hr shift, you really can't blame it on fatigue any more than you could blame fatigue on a mayday occurring on a 24hr shift.

3. There is only one slide (57) showing percentages of the time of day maydays occurred on a 48hr shift. This showed an approximate 10% increase in maydays on the second half of the 48 versus the first half. I feel this is probably accurate data and may be an indicator of possible fatigue-caused maydays, but this slide also included maydays with people on overtime if what I am seeing is correct.
I've heard several folks talk about this study and they quote Chief Abbott as saying that 39% of the maydays came from 48/96 shifts. I didn't find this in this 2017 Project Mayday report but after some searching I found the articles where he says this. During his research, Chief Abbott wrote a series of three articles showing data he had collected. I will upload these articles in .pdf form to view.

The first article was written after he had been collecting data for five months from Nov. 2014-April 2015. This article claims that out of 293 maydays, 39% (106) were from 48/96 FD's. This doesn't say whether or not the mayday was on the first half of the shift or the second, however. We also don't know if any of the 48/96 departments submitted multiple maydays or not. The article states:

Total Number of Maydays

293 maydays experienced by 264 departments. Ten percent of the departments (29) had multiple maydays.

Department Profiles

Paid-243

Volunteer-21

We did not designate "combination" departments. If the department had more volunteer members, we categorized them as volunteer. If they had more paid members, we categorized them as paid.

Size of Departments

1-100: 50

101-500: 64

501-1,500: 47

1,500-3,000+: 103

Shift Schedule When Maydays Occurred

24/48: 50 percent-136 maydays

48/96: 39 percent-106 maydays
On overtime: 11 percent-30 maydays.

 Volunteers were not included in the tally as they do not work a set schedule.

 Less than 9 percent of participating departments work a 48/96 shift schedule, but this shift accounts for 39 percent of maydays.

 Overtime figures only include departments working a 24/48 shift schedule.

 The second article written in this series showed data collected from Nov 2014 - Jan 2016. Here, 913 maydays were analyzed. This states that 11% of FD's worked the 48/96 and accounted for 33% of the total maydays. This also doesn't say when the maydays occurred during the shift (first half or second half). The second article states:

 Total Number of Maydays

 913 maydays experienced by 902 departments.

 Department Profiles

 Size of Departments

 1-100: 353
 101-500: 400
 501-1,500: 119
 1,500-3,000+: 30

 Shift Schedule When Maydays Occurred

 24/48: 47 percent-411 maydays
 48/96: 33 percent-297 maydays
 Other schedules: 12 percent-109 maydays

 On overtime: 11 percent-96 maydays.

 88 percent of fire departments work a 24/48 shift schedule.

 11 percent of fire departments work a 48/96 shift schedule.

 1 percent of fire departments work an alternate shift schedule.
The third article in the series does not include any info on the mayday data collection. This is to be found in the final report (which was detailed above). Taking the data from the first two articles and the final report at face value, it seems that as data collection periods went on, maydays for a 48/96-hour shift ended up around 25% of the total without any overtime factored in. The departments that submitted mayday information working a 48/96 seem to be around 11%. So, the data from the final mayday report seems to suggest that 11% of FD’s on a 48/96 accounted for 25% of all maydays, but this doesn’t say whether or not the mayday occurred on the first or second half of the shift. Without having any concrete info, this lack of knowledge of when the mayday occurred during the 48hr shift may account for the seemingly large number of maydays from 48/96 FD's.

Mark Bridges