

Analysis of The Change to the 48/96 Hour Shift Schedule

Joshua Williams

FESA-333

Fredrick-Firestone Fire Protection District, Firestone, Colorado

May 11, 2013

## Summary

In every work force scheduling is a vital key. The schedule needs to utilize the employees in a way that maximizes effectiveness and efficiency. In emergency services the schedule is normally a shift schedule. Working shift schedules has multiple pros and cons. Many fire departments have decided to change from working the “normal” 24 hour Kelly schedule to working the 48/96 hour shift schedule. While doing my research I focused on many different aspects. The problem is while working under the current shift schedule Fredrick-Firestone Fire Protection District and its members are both wasting money and valuable time while on and off duty. The purpose is to recommend a change to the 48/96 hour shift schedule. I used multiple different questions to help guide my research. Below is a list of research questions that were used during the process.

- Does fatigue play a factor into the service our community will receive with the longer shifts?
- Are departments satisfied after making the switch?
- What are some of the benefits and drawbacks of other departments who have made the switch?
- How does the number of days worked and number of days compare to the current shift schedule?
- How do the firefighters families feel about the 48/96 hour shifts?
- Will the department need more staffing to cover the new schedule?
- Does making the switch save or cost the department money?

**Problem Statement:**

The problem is while working under the current shift schedule Fredrick-Firestone Fire Protection District and its members are both wasting money and valuable time while on and off duty. Currently there is a greater possibility for reduced response times to emergencies in the community during specific times.

**Purpose Statement:**

The purpose is to recommend a change to the 48/96 hour shift schedule.

**Background:**

Our current work schedule is a modified Kelly Shift. This is a good schedule but the Kelly shift has a few areas that negatively affect our department. With the change we would see an improvement in all levels of the department from online personnel to the chief level and even on the administration side.

The department will see a wide range of benefits including reduced response times and the department being more cost effective. Currently our shifts are 24 hours long and start at 0700 hours. The switch will lead to better communication between shifts because of more day-to-day continuity. Every morning there is room for a delayed response to emergencies in our community while shift change occurs. Changing to the 48/96 will reduce this chance of delay by 50%. While on shift the crew will only need to go to the store once during their 48 hour shift to get food or other necessities. This will reduce the amount of money the department spends in fuel costs. The commute each member will make getting to work and back over a years time will be reduced by 50%. Employees will have more time at home to help with family affairs even though they are working the same amount of shift.

The time they see will be the reduction in commute and reduced time getting ready for work.

### **Literature Review:**

The purpose of this literature review is to gather pertinent information about the feasibility of switching to the 48/96 hour work schedule at Fredrick-Firestone Fire Protection District. The research for the 48/96 hour shift comes mainly from reports that have been previously written on the topic and Internet research. A very limited amount of information was found in any fire service management textbooks that was specific to the 48/96 hour shift.

A review was done on multiple articles and websites that focused on both the feasibility and negative aspects of switching to the 48/96 hour shift. Robert D. Hall (2007) pointed out that departments that have changed to the 48/96 hour shift have experienced reduced in most shift or station related activities by 50%. This made the firehouse more efficient and has increased productivity overall. There are many activities that are affected by change to the 48/96 hour shift. Improved efficiency was seen during apparatus daily maintenance checks, resulting in time resource savings. Less wear and tear was noted on tools and equipment by 50%. This is from less starting and run time resulting in longer life for that specific tool and saving the district money in replacing worn and old tools. Making the switch would result in 50% less paperwork with the above-mentioned tasks. The individual firefighters will see a 50% reduced commute to work, which reduces the risk of accidents en route to work or the chance of being late due to traffic

congestions, and reduces the amount of pollution in the environment. These reductions will help make the station more readily available at all times and save the department money. The previous statistics were from a collection of data from other departments that was written in an executive analysis by Robert D. Hall (2007).

My findings have shown that the on-line members at the department and not the executive fire officers initiated almost every circumstance where the new shift was proposed and put into place. This switch can be seen as an advantage though from multiple avenues. According to research when the switch is made to the 48/96 hour shift departments often see a reduction in sick time and shift trading, this increases the morale of the firefighters on, which increases productivity. Below is a list of a few departments that San Jose Fire Department found that had a reduction of sick leave since changing to the 48/96 hour shift.

- Pacifica Fire Department – 20% reduction
- Manhattan Beach Fire Department – 80% reduction
- Half Moon Bay Fire Department- 10%

The reduction in sick leave is associated with reduce of long-term fatigue. Employees have 60% more days where they wake up at home. This reduces long-term fatigue and improves moral. (San Jose Local 230, 2003)

According to Craig B. Clinton, when the switch to the new schedule occurs departments will see an increase in the availability of employees for back-filling sick leave and vacation time. This can be achieved without placing the individual that is covering a shift on a 72-hour straight shift as compared to the Kelly schedule.

(Clinton, 2007)

The website 48/96.com is a great source for information on making the switch to the new schedule. It points out that since grocery shopping is only done once at the beginning of the 48-hour shift the department will see a reduction in fuel costs. This adds up to approximately 180 less trips to the store in one year. (Briggs, 2012) The new schedule would cause no change in costs to the department for staffing. The average workweek hours would be exactly the same and unchanged. This results in the same pay for all online employees with the same overtime chances. (Briggs, 2012)

One of the largest negative aspects of the switch is the possibility of the employees on shift being fatigued. According to a study from the National Highway Traffic Safety Administration the percent of drowsy crashes in general has stayed approximately steady over the past five years. This data has increased though from a study that was done from the years of 1989-1993. This study showed that between the years of 1989-1993 only 1.4 percent of crashes involved fatigue or drowsiness. ("National Highway Traffic," 2011 pg.2) The amount that we work and the hours on the job can affect these statistics. This is a low number of crashes that have been caused by fatigue.

A review was done on a summary from the National Highway Traffic Safety Administration. This summary is titled "Drowsy Driving." The summary presents data where the driver was reported as drowsy, sleepy, asleep, or fatigued. "Drowsy driving was reportedly involved in 2.2 to 2.6 percent of total fatal crashes annually during the period 2005 through 2009, nationwide." ("National Highway Traffic," 2011 pg.1) The percentage of fatalities ranges by state. The states ranged from

having zero percent and up to 9.4 percent with the median of 2.4 percent. This study was done on the overall public and does not focus directly on the fire service.

A reduction in long-term fatigue has been seen after departments switched to the 48/96 hour shift because of the increasing number of (4-days) by 50%. Long-term fatigue is fatigue that has accumulated over weeks at a time. The switch makes increases the number of (4-days) from 40 to 60 over a year time frame. This results in more rest to the employees.

FEMA has a large amount of statistics that are readily available online. A review was completed on a webpage that includes firefighter fatalities statistics and reports. The most notable statistical information is the fact that 10.1 percent of all firefighter deaths are because of a motor vehicle accident. It is ranked number 3 under the type of incidents that occurred during a fatality. (USFA, 2013) This study did not state if fatigue had any roles in the deaths of the firefighters.

The success of the 48/96 hour work schedule is dependent on the individual jurisdiction. The department is impacted differently due to size, technological sophistication, geographic location, and the amount of call volume. "A sufficiently low call volume that ensures adequate rest for the firefighters is a recognized factor that drives the ability of shift-working emergency workers, even on the less rigorous 24 hour shift." (Clinton, 2007 pg12) This is a very important aspect to take into consideration when deciding if the switch is feasible for the department.

The Fredrick-Firestone Fire Protection District currently has three firehouses and runs approximately 1200 calls annually. In 2011 the incident tally for the district was 1,457 calls, and the department estimates the number of calls to exceed 1500 for the next

couple of years. (Poszywak, 2012) Station 4 is currently being built and is projected to be completed by the end of 2014. The availability of Station 4 will help reduce the number of calls each specific station will go on. This is a relatively low call volume and will potentially allow adequate rest for firefighters while pulling a 48-hour shift.

One large benefit to the change that is specific to the Fredrick-Firestone Fire Protection District is the fact that a 48-hour shift could be pulled by a reserve employee. This would lead to improved efficiency and better familiarization with that specific crew and apparatus equipment at that station. Out of all of the research that has been completed I have found an overwhelming success rate with the switch to the 48/96 hour shift. It improves morale for the firefighters and allows for a more readily available crew to protect the citizens of their jurisdictions.

**Budget:**

Making the switch will not cost the department anything. The budget will remain the same and the firefighters will be pulling the same number of shifts during a pay period, allowing them to not gain or loose any money. In figure 1 there is a sample 48/96 hour shift month schedule. As you can see each shift will pull on average ten shifts per month.

**Figure 1: - 48/96 Hour Shift Schedule**



S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

**Recommendation:**

My recommendation is to switch to the 48/96 hour shift schedule. By making the switch the Fredrick-Firestone Fire Protection District will be able to utilize its employees better and more efficiently. Making the change will be a benefit to the department, the members and their families. These benefits can be seen both on and off shift.

## Works Cited

- Briggs, G. (2012). *48-96.com*. Retrieved from <http://www.48-96.com/>
- Clinton, C. (2007). *Impact of the 48/144 Hour Work Shift for Snohomish County Fire District 7*. Retrieved from <http://www.usfa.fema.gov/pdf/efop/efo45025.pdf>
- Hall, R. (2007). *The Feasibility of 48/96 Hour Shifts for The Westminster Fire Department*. Retrieved from <http://www.usfa.fema.gov/pdf/efop/efo40911.pdf>
- National Highway Traffic Safety Administration . (2011, March). Retrieved from <http://www-nrd.nhtsa.dot.gov/Pubs/811449.pdf>
- Poszywak, T. (2012, December 10). *2013 Budget Message*. Retrieved from [http://fffd.us/pdf/admin\\_bldg/2013\\_Budget\\_Message.pdf](http://fffd.us/pdf/admin_bldg/2013_Budget_Message.pdf)
- San Jose local 230. (2003). 48/96 work schedule. Retrieved January 14, 2007, from <http://www.sjff.org/index.cfm?category=1&Section=1&pagenum=98>
- USFA. (2013, February 05). *U.S. Fire Administration*. Retrieved from <http://apps.usfa.fema.gov/firefighter-fatalities/fatalityData/statistics>