

**A BASE BUDGET REVIEW OF THE
MONTGOMERY COUNTY
FIRE AND RESCUE SERVICE**

PHASE II

**NET ANNUAL WORK HOUR ANALYSIS
OF FIRST RESPONDERS**



OFFICE OF LEGISLATIVE OVERSIGHT
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**A BASE BUDGET REVIEW OF THE MONTGOMERY COUNTY
FIRE AND RESCUE SERVICE
PHASE II**

EXECUTIVE SUMMARY

A. Project Scope

This report is Phase II of a two-part base budget review of the Montgomery County Fire and Rescue Service (MCFRS). The County Council held a worksession on the Phase I report on March 13, 2007. At that session, the Council directed the Office of Legislative Oversight (OLO) to conduct a “net annual work hours” analysis for MCFRS as the second phase of the base budget review. Net annual work hour calculations measure the actual number of hours per year uniform personnel are available for assignment to active duty.

MCFRS career and volunteer first responders provide front line fire, rescue, and emergency medical services in the County. Nearly 1,000 career positions and several hundred volunteers staff the 34 fire and rescue stations in the County.

Most career first responders are assigned to one of three shifts. As set forth in the MCFRS collective bargaining agreement, most career first responders work a total of 2,496 hours per year; on duty for 24 hours and off duty for the following 48 hours. Once every three weeks, career personnel receive one 24-hour shift off.

The 2,496 hours worked by a single first responder represents about 28 percent of the time needed to fill a staffing slot 24 hours a day, 365 days a year (8,760 hours). A variety of work-related activities reduce the number of hours MCFRS personnel are available to respond to emergency calls. Multiple personnel are required to cover each MCFRS first responder staffing slot. **The purpose of this study is to quantify the number of personnel needed to maintain coverage for each first responder staffing slot 24 hours a day, 365 days a year.**

B. Definition of Net Annual Work Hours and Shift Relief Factor

OLO analyzed MCFRS payroll records, staffing logs, and light duty logs from Calendar Year 2006 to calculate first responder “net annual work hours” and “shift relief factor.” A net annual work hour analysis measures the average number of hours in a year a first responder is on active duty in a station and able to respond to fire and rescue calls. The term shift relief factor means the number of workyears required to maintain coverage for each first responder staffing slot 24 hours a day, 365 days a year. For the past decade, MCFRS has based staffing plans on an assumed shift relief factor of 4.5 workyears per first responder staffing slot.

Net Annual Work Hours	Shift Relief Factor
Average number of hours first responders are available to respond to fire/rescue emergency calls.	Workyears needed to maintain coverage for each first responder staffing slot 24 hours a day, 365 days a year.

C. Study Findings – First Responder Net Annual Work Hours and Shift Relief Factors

During Calendar Year 2006, MCFRS first responders, on average, were available to respond to emergency calls about 77 percent of their total work hours. A variety of other activities consumed the remaining 23 percent of work hours. Annual leave accounted for 7 percent of first responder work hours. Other activities that reduced the number of hours first responder were available to respond to calls include light duty (6 percent); sick leave (4 percent); training and special assignment (3 percent); and compensatory leave (2 percent).

The table below summarizes the net annual work hour and shift relief findings of the OLO analysis. OLO notes that these calculations do not address the number of personnel needed to adequately staff fire and rescue stations or any type of apparatus.

	All First Responders	Non-Paramedics	Paramedics
Number of Personnel	914	734	180
Available Hours	76.6%	77.4%	73.2%
Annual Leave	6.6%	6.4%	7.1%
Light Duty	5.6%	5.4%	6.4%
Sick/Family Sick Leave	4.1%	4.0%	4.5%
Training & Special Assignment	3.2%	3.1%	3.5%
Compensatory Leave	1.8%	1.6%	2.6%
Disability	1.0%	1.0%	1.0%
Administrative Leave	0.8%	0.7%	1.1%
Other	0.4%	0.4%	0.5%
Shift Relief Factor	4.58	4.53	4.79

The OLO net annual work hour calculations support the 4.5 workyear shift relief factor used by MCFRS for first responders. However, the calculation for paramedics indicates a need for a higher shift relief factor for this subgroup of first responders.

Paramedics are 20 percent of MCFRS first responders. Paramedic first responders were available to respond to emergency calls about 73 percent of their total work hours, a rate significantly lower than for first responders in general. Paramedics, on average, used more sick leave than non-paramedics and were more likely to be assigned to light duty because of injury. As a result, paramedics were available to respond to calls about 100 fewer hours per year than their non-paramedic colleagues. Correspondingly, the paramedic shift relief factor is a quarter of a workyear greater than the non-paramedic shift relief factor.

D. Study Findings – Availability by Rank

OLO disaggregated net annual work hour data by the four first responder ranks: Firefighter/Rescuer I–III; Master Firefighter/Rescuer; Lieutenant; and Captain. OLO found several notable net annual work hour variations by rank. For example, Lieutenants, on average, logged significantly more hours in the “training and special assignment” activity than any other rank. Lieutenants are more likely than other first responders to serve as instructors at the Public Safety Training Academy during regular shift hours.

On average, Master Firefighters logged about 20 more hours per year in administrative leave than first responders of other ranks. Master Firefighters comprise a disproportionately high percent of union representatives and spend more time engaged in union business than other ranks.

Non-paramedic Firefighter/Rescuers I-III were available to respond to calls a higher percentage of time (79 percent) than any other rank. Overall, Firefighter/Rescuer I-III annual leave, compensatory leave, and administrative leave usage is less than any other rank.

E. Summary of OLO Recommendations

Chapter IV details OLO’s recommendation to the Council. In summary, OLO recommends that the Council:

1. Ask the Executive to justify future year MCFRS staffing plans based on net annual work hour and shift relief calculations.
2. Request the Executive Branch use the details of the net annual work hour calculations as a tool for informing and improving management of MCFRS field operations.
3. Ask MCFRS to establish tracking systems to facilitate the updating of net annual work hour calculations at least every three years.

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CHAPTER I: AUTHORITY, SCOPE, AND ORGANIZATION OF REPORT

A. Authority

County Council Resolution 15-1554, *FY 2007 Work Program of the Office of Legislative Oversight*, adopted July 25, 2006.

B. Purpose and Scope of Report

This report is the second of two phases of the Montgomery County Fire and Rescue Service (MCFRS) base budget review. The Office of Legislative Oversight (OLO) completed Phase I of the MCFRS base budget review in February 2007 (OLO Report 2007-6). The Phase I report described the major cost components of the FY07 MCFRS operating budget and the allocation of resources among the various divisions and functions of MCFRS. The Phase I report is available at: www.montgomerycountymd.gov/olo.

The County Council held a worksession on the Phase I report on March 13, 2007. At that session, the Council directed OLO to conduct a “net annual work hour” analysis for MCFRS as the second phase of the base budget review. Many public safety departments calculate “net annual work hours” as a measure of the actual number of hours per year uniform personnel are available for assignment to active duty. Net annual work hour (NAWH) calculations take into account the number of hours uniformed personnel are unavailable as first responders because they are, for example, on leave, in training, on special detail, or assigned to light duty as the result of injury.

C. Organization of Report

Chapter II, Definition and Use of Net Annual Work Hour Calculations, provides information on the purpose and benefits of conducting a net annual work hour analysis.

Chapter III, MCFRS Net Annual Work Hour and Shift Relief Calculations, presents the results of the MCFRS net annual work hour and shift relief calculations performed by OLO.

Chapter IV presents a summary of the Office of Legislative Oversight’s **Findings and Recommendations**.

Chapter V presents **Agency Comments** received on the final draft of this report.

D. Methodology

Office of Legislative Oversight (OLO) staff members Aron Trombka and Richard Romer conducted this study. OLO gathered information through document reviews, data analysis, and interviews with staff of the Montgomery County Fire and Rescue Service.

The net annual work hour calculation utilizes Calendar Year 2006 personnel data for MCFRS Operations Division first responders. OLO gathered information from various information sources including MCFRS payroll data, staffing logs, and light duty logs. This report presents net annual work hour results aggregated for all first responders as well as separate results for paramedic and non-paramedic first responders. In addition, the report presents net annual work hours calculations for each first responder rank (Firefighter/Rescuers I-III, Master Firefighters, Lieutenants, and Captains). Appendix A provides a detailed explanation of the methodology used to calculate MCFRS net annual work hours.

E. Acknowledgements

OLO received a high level of cooperation from MCFRS in this study. OLO appreciates the significant time commitment, information shared and the insights provided by MCFRS personnel including Assistant Chief Bill Ale, Firefighter Jeff Barclay, Fire Chief Tom Carr, Battalion Chief Mike Close, Linda Dowdy, Battalion Chief Scott Goldstein, Battalion Chief Scott Graham, Division Chief Philip Guercio, Debra Shaw, and Division Chief Randy Wheeler.

In addition, OLO acknowledges the valuable information and assistance provided by County Council Staff Analyst Minna Davidson.

CHAPTER II: DEFINITION AND USE OF NET ANNUAL WORK HOUR CALCULATIONS

This chapter provides background information to explain the purpose and benefits of conducting a net annual work hour (NAWH) analysis. This chapter includes four sections.

- A. MCFRS First Responders
- B. Activities that Make Firefighter/Rescuers Unavailable to Respond to Calls
- C. Definition and Net Annual Work Hour Calculations
- D. Use of Annual Work Hour Calculations

A. MCFRS First Responders

The Field Operations Section of the MCFRS Division of Operations is responsible for the front line delivery of fire, rescue, and emergency medical services in the County. The Section is responsible for the management and direction of uniformed personnel at fire and rescue stations in the County.

Career and volunteer personnel serve as first responders¹ to emergency incidents in the County and respond to certain out-of-County incidents. The County has created nearly 1,000 career positions to staff the 34 fire and rescue stations in the County. In addition, several hundred volunteers provide front line services to County residents.

Most field operations career personnel are assigned to one of three shifts. The members of each shift are on-duty for 24 hours and then off-duty for the following 48 hours. Once every three weeks, career personnel receive one shift day off (known as a “Kelly Day”). For the purpose of this report, the term “work hours” refers to the total number of regular paid work hours in a year. Career field operations first response personnel work a total of 2,496 hours per year.

MCFRS first responders serve at one of the following ranks:

- Firefighter/Rescuers I, II, and III provide front line fire suppression, rescue, and emergency medical care under the supervision of command staff.
- Master Firefighter/Rescuers act as primary apparatus driver/operators and serve as front line fire apparatus officers for fire suppression, rescue, and emergency medical response.
- Lieutenants serve as first level supervisors of personnel responding to fire, rescue, and emergency medical incidents. Lieutenants are responsible for the operation of a fire/rescue emergency vehicle at the scene of an emergency and for supervision of all personnel assigned to that vehicle.

¹ The term “first responder” refers to MCFRS personnel assigned to fire and rescue stations who respond to emergency calls.

- Captains serve as primary station supervisors and as second level supervisors of personnel responding to fire, rescue, and emergency medical incidents. Captains manage staff from multiple vehicles at an incident and supervise all personnel assigned to a shift at a single fire/rescue station.

Battalion Chiefs and Assistant Chiefs supervise field operations activities of multiple stations.

First responders of any rank who maintain current EMT-I² certification serve as paramedics. Paramedics respond to emergency medical incidents involving life-threatening conditions.

B. Activities that Make Firefighter/Rescuers Unavailable to Respond to Calls

To measure the amount of time MCFRS personnel were available to respond to calls, OLO analyzed payroll data, staffing logs, and light duty logs from Calendar Year 2006.³ OLO identified eight categories of activities that make firefighter/rescuers unavailable to respond to calls during regular work hours.

- Annual Leave: As stipulated in the collective bargaining agreement, MCFRS first responders earn from 144 and 249 hours of annual leave per year (depending on years of service).
- Sick Leave (including Family Sick Leave): As stipulated in the collective bargaining agreement, MCFRS first responders earn 144 hours of sick leave per year.
- Compensatory Leave: As stipulated in the collective bargaining agreement, MCFRS first responders may earn overtime pay when required to work in excess of the normally scheduled work day hours. An employee may request to earn compensatory leave in lieu of overtime pay at a rate of one-and-a-half times the excess hours worked.
- Administrative Leave: MCFRS supervisors may approve administrative leave for employees (including military, court, and bereavement leave). This category also includes leave approved for employees to attend to union business.
- Training and Special Assignment: This category includes time spent (1) in mandatory and voluntary training and professional development courses; (2) serving as an instructor; and, (3) engaged in special operations duty assignments (such as for urban search and rescue or swift water rescue) and other special projects outside of a station.
- Light Duty: MCFRS assigns firefighter/rescuers who sustain minor injuries or illness, and are temporarily unable to meet the physical requirements of a first responder, to perform light duty, or support functions for the Department.

² EMT-I is the *Medical Technician-Intermediate: National Standard Curriculum* developed by the National Highway Traffic Safety Administration

³ See Appendix A for more detailed description of these data sources.

- **Disability Leave:** MCFRS may grant disability leave to firefighter/rescuers with serious job-related medical conditions that render them unable to perform first responder duties or support functions for the Department for an extended period of time.
- **Other:** This category includes time spent for firefighter/rescuers to receive physical examinations and medical tests (blood work). This category also includes hours that a firefighter/rescuer is on leave without pay (LWO) or is absent without leave (AWOL).

OLO gathered data from Calendar Year 2006 to determine the average number of hours per year a firefighter/rescuer spent on annual leave, sick leave, compensatory leave, administrative leave, training or special assignment, light duty/disability, or other activities. With this data, OLO was able to calculate, on average, how many hours per year a firefighter/rescuer is available to respond to calls during a regularly scheduled shift. This exercise is known as a “net annual work hour” calculation. The results of the OLO net annual work hour analysis appear in Chapter III.

C. Definition and Net Annual Work Hour Calculations

Net annual work hour (NAWH) calculations are an essential building block for determining the total number of positions needed to meet staffing requirements for each shift. As set forth in the MCFRS collective bargaining agreement, most career first responders work a total of 2,496 hours per year. Therefore, multiple first responders are needed to cover a staffing slot 24 hours a day, 365 days a year (8,760 hours). As illustrated in Table 2-1, the hours worked by a single first responder equals less than 30 percent of the time needed to fill a staffing slot for an entire year.

Table 2-1: First Responder Work Hours as Percent of Hours in a Year

First Responder Annual Work Hours	2,496
Number of Hours in a Year (24 hours x 365 days)	8,760
First Responder Work Hours as a Percent of Hours in a Year	28.5%

However, the calculation in Table 2-1 assumes that MCFRS first responders are available to respond to emergency calls each and every work hour of the year.⁴ As with all public safety organizations, MCFRS uniformed personnel are unavailable to respond to calls during a portion of their work time. NAWH calculations measure the average number of hours per year uniform personnel are actually available for active duty assignment. NAWH calculations draw on staffing data to measure the number of hours personnel are unavailable to serve as first responders because they are on leave, in training, on special detail, or assigned to light duty as the result of injury, or otherwise unable to respond to calls. MCFRS may use NAWH calculations to determine the number of firefighter/rescuers (either career or volunteer) needed to maintain daily round the clock coverage for each field operations staffing slot.

⁴ For the purpose of this report, the term “available to respond” (or “available work hours”) refers to the number of hours in a year a first responder is on active duty in a station and able to respond to fire and rescue calls.

The number of hours first responders are available for active duty may change over time. Public safety organizations often reassess their NAWH calculations to ensure that they reflect the current usage of work hours. About a decade has elapsed since the last comprehensive re-assessment of hours spent by MCFRS first responders.

D. Use of Net Annual Work Hour Calculations

With up-to-date NAWH calculations, MCFRS may develop a staffing plan that properly takes into account the actual “shift relief factor” for first responders. For the purpose of this report, the term “shift relief factor” means the number workyears needed to maintain coverage for each first responder staffing slot 24 hours a day, 7 days a week. In recent years, MCFRS has estimated a need to fill 4.5 workyears to provide coverage for each first responder staffing slot 24 hours a day, 365 days a year.

In preparing the NAWH calculations for MCFRS, OLO compiled aggregate data for all first responders as well as disaggregated data for subgroups of first responders. This report provides separate NAWH calculations for those first responders that serve as paramedics. In addition, the report presents NAWH data specific for the following ranks:

- Firefighter/Rescuer I – III;
- Master Firefighter/Rescuer;
- Lieutenant; and
- Captain.

The presentation of NAWH data by rank and paramedic status will assist MCFRS to develop staffing plans that reflect shift relief factors unique to specific subgroups of first responders.

The NAWH calculations in this report are a tool for estimating the workyears needed to meet shift relief requirements for each first responder slot. NAWH calculations do not address the number of personnel needed to adequately staff apparatus.

In addition to helping determine the number of workyears needed to maintain first responder coverage at all times, the NAWH calculations also provide insight as to how personnel spend their time while on duty. Examination of the number of work hours allocated to different activities demonstrates the effect of different policies and practices on the availability of first responders to respond to emergency calls.

CHAPTER III: MCFRS NET ANNUAL WORK HOUR AND SHIFT RELIEF CALCULATIONS

This chapter presents the results of the MCFRS net annual work hour (NAWH) and shift relief calculations. OLO analyzed data from MCFRS payroll records, staffing logs, and light duty logs from Calendar Year 2006 to calculate the average number of hours first responders were available to respond to emergency calls (“net annual work hours”) and the number of workyears needed to maintain coverage for each first responder staffing slot 24 hours a day, 7 days a week (“shift relief factor”). Appendix A provides a detailed breakdown of the methodology for the calculation of net annual work hour and shift relief data.

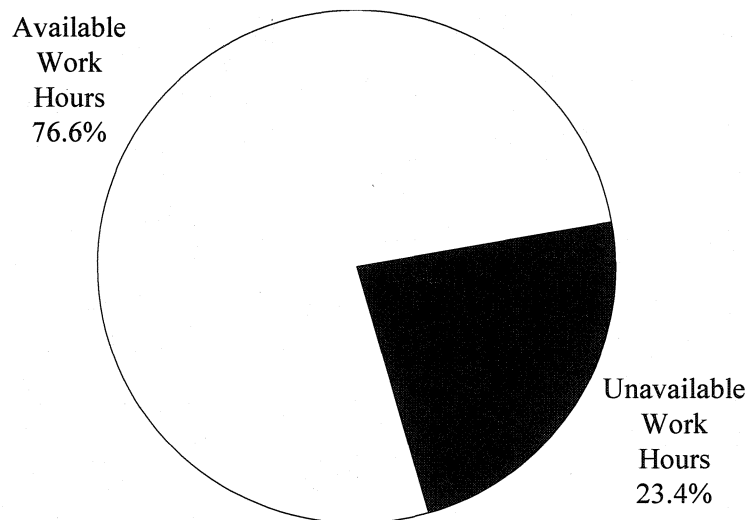
This chapter includes four sections:

- A. Net Annual Work Hours and Shift Relief Factor – All First Responders
- B. Net Annual Work Hours and Shift Relief Factor – Non-Paramedics
- C. Net Annual Work Hours and Shift Relief Factor – Paramedics
- D. Comparison of Net Annual Work Hour Calculations and Shift Relief Factors

A. Net Annual Work Hours and Shift Relief Factor – All First Responders

OLO calculated net annual work hours for all MCFRS first responders. As shown in Exhibit 3-1, during Calendar Year 2006, first responders were available to respond to emergency calls on average about 77 percent of their total work hours.

**Exhibit 3-1: Average Net Annual Work Hours (Calendar Year 2006)
All MCFRS First Responders**



In Calendar Year 2006, MCFRS first responders were unavailable to respond to calls during about 23 percent of their work hours. As shown in Table 3-1, annual leave consumes 6.6 percent of first responder work hours. Other significant uses of work time include light duty (5.6 percent); sick leave (4.1 percent); training and special assignment (3.2 percent); and, compensatory leave (1.8 percent).

Table 3-1: Net Annual Work Hour Breakdown by Activity Type – All First Responders¹

Activity Type	Percentage
Unavailable Work Hours	23.4%
Annual Leave	6.6%
Light Duty	5.6%
Sick/Family Sick Leave	4.1%
Training and Special Assignment	3.2%
Compensatory Leave	1.8%
Disability Leave	1.0%
Administrative Leave	0.8%
Other	0.4%
Available Work Hours	76.6%

Source: OLO and MCFRS

As discussed in Chapter II, the term “shift relief factor” means the number workyears needed to maintain coverage for each first responder staffing slot 24 hours a day, 7 days a week. Taking into account unavailable work hours, OLO calculated the shift relief factor for MCFRS first responders at 4.58 workyears per staffing slot. OLO also calculated NAWH and shift relief factors for each first responder rank (Firefighter/Rescuers I-III, Master Firefighters, Lieutenants, and Captains). Table 3-2 compares the shift relief factors for all first responders by rank.²

Table 3-2: Shift Relief Factor for MCFRS First Responders

	All Paramedics	Firefighter I - III	Master Firefighter	Lieutenant	Captain
Work Hours Per Year	2,496	2,496	2,496	2,496	2,496
Percent of Work Hours Available to Respond to Calls	76.6%	78.3%	74.6%	68.0%	76.6%
Net Annual Work Hours	1,911	1,954	1,862	1,697	1,912
Shift Relief Factor *	4.58	4.48	4.70	5.16	4.58

*Shift Relief Factor = number of hours in a year (8,760) / net annual work hours

Source: OLO and MCFRS

MCFRS first responders include personnel both with and without paramedic certification. OLO found that NAWH and shift relief factors differed between MCFRS non-paramedics and paramedics. The following two sections present NAWH and shift relief factors specific to those two categories of first responders.

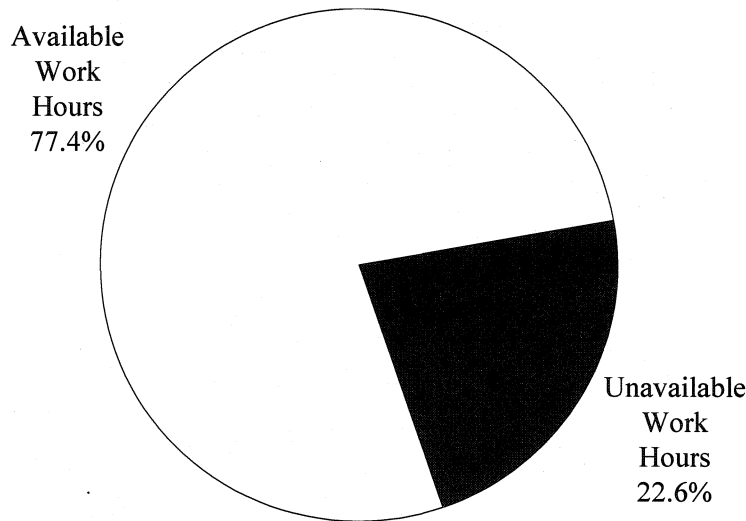
¹ Definitions of each activity type appear in Chapter II of this report.

² Chapter II of this report discusses the duties and responsibilities of each MCFRS first responder rank.

B. Net Annual Work Hours and Shift Relief Factor – Non-Paramedics

OLO calculated net annual work hours for all non-paramedic MCFRS first responders. As shown in Exhibit 3-2, during Calendar Year 2006, non-paramedic first responders were available to respond to emergency calls on average about 77 percent of their total work hours.

**Exhibit 3-2: Average Net Annual Work Hours (Calendar Year 2006)
MCFRS First Responders – Non-Paramedics**



In Calendar Year 2006, MCFRS non-paramedic first responders were unavailable to respond to calls during about 23 percent of their work hours. As shown in Table 3-3, annual leave consumes 6.4 percent of non-paramedic work hours. Other significant uses of non-paramedic work time include light duty (5.4 percent); sick leave (4.0 percent); training and special assignment (3.1 percent); and, compensatory leave (1.6 percent).

Table 3-3: Net Annual Work Hour Breakdown by Activity Type – Non-Paramedics

Activity Type	Percentage
Unavailable Work Hours	22.6%
Annual Leave	6.4%
Light Duty	5.4%
Sick/Family Sick Leave	4.0%
Training and Special Assignment	3.1%
Compensatory Leave	1.6%
Disability Leave	1.0%
Administrative Leave	0.7%
Other	0.4%
Available Work Hours	77.4%

Source: OLO and MCFRS

Taking into account unavailable work hours, OLO calculated the shift relief factor for non-paramedics at 4.53 workyears per staffing slot. OLO also calculated net annual work hours and shift relief factors for each non-paramedic first responder rank. Table 3-4 compares the shift relief factors for each rank of first response non-paramedics.

Table 3-4: Shift Relief Factor for MCFRS Non-Paramedics

	All Paramedics	Firefighter I - III	Master Firefighter	Lieutenant	Captain
Work Hours Per Year	2,496	2,496	2,496	2,496	2,496
Percent of Work Hours Available to Respond to Calls	77.5%	79.2%	73.7%	71.0%	77.4%
Net Annual Work Hours	1,934	1,977	1,840	1,772	1,932
Shift Relief Factor *	4.53	4.43	4.76	4.94	4.53

*Shift Relief Factor = number of hours in a year (8,760) / net annual work hours

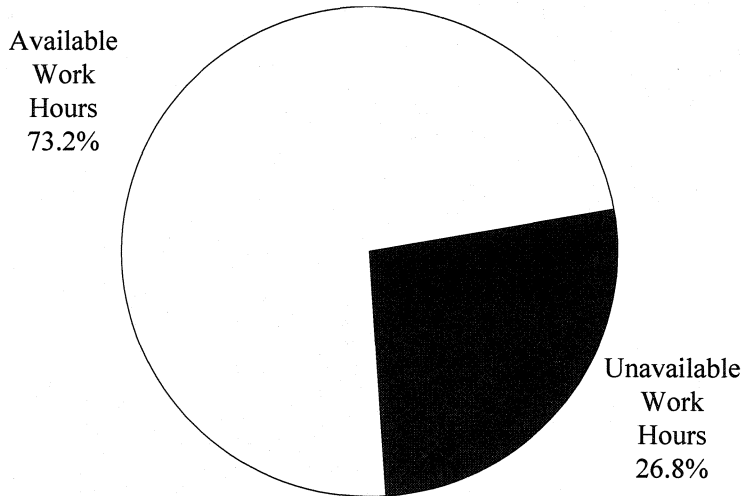
Source: OLO and MCFRS

Within the non-paramedic ranks, Lieutenants had the highest average shift relief factor at 4.94 workers required for each staffing slot. Relative to other ranks, a disproportionately large number of Lieutenants serve as instructors at the Public Safety Training Academy. The hours spent by Lieutenants serving as instructors is the primary cause for the relatively high shift relief factor for this rank. The shift relief factors for other non-paramedic ranks range from a low of 4.43 for Firefighters I – III to a high of 4.76 for Master Firefighters.

C. Net Annual Work Hours and Shift Relief Factor – Paramedics

OLO calculated net annual work hours for all MCFRS first responders with paramedic certification. As shown in Exhibit 3-3, during Calendar Year 2006, paramedic first responders were available to respond to emergency calls on average about 73 percent of their total work hours.

**Exhibit 3-3: Average Net Annual Work Hours (Calendar Year 2006)
MCFRS First Responders – Paramedics**



As shown in Table 3-5, annual leave expends 7.1 percent of paramedic work hours. Other significant uses of paramedic work time include light duty (6.4 percent); sick leave (4.5 percent); training and special assignment (3.5 percent); and, compensatory leave (2.6 percent).

Table 3-5: Net Annual Work Hour Breakdown by Activity Type – Paramedics

Activity Type	Percentage
Unavailable Work Hours	26.8%
Annual Leave	7.1%
Light Duty	6.4%
Sick/Family Sick Leave	4.5%
Training and Special Assignment	3.5%
Compensatory Leave	2.6%
Administrative Leave	1.1%
Disability Leave	1.0%
Other	0.5%
Available Work Hours	73.2%

Source: OLO and MCFRS

Taking into account the 26.8 percent of work hours unavailable to respond to calls, OLO calculated the shift relief factor for paramedics at 4.79 workyears per staffing slot. OLO also calculated net annual work hours and shift relief factors for each paramedic first responder rank. Table 3-6 compares the shift relief factors for each rank of first response paramedics.

Table 3-6: Shift Relief Factor for MCFRS Paramedics

	All Paramedics	Firefighter I - III	Master Firefighter	Lieutenant	Captain
Work Hours Per Year	2,496	2,496	2,496	2,496	2,496
Percent of Work Hours Available to Respond to Calls	73.3%	73.7%	77.3%	59.3%	74.9%
Net Annual Work Hours	1,829	1,840	1,929	1,480	1,870
Shift Relief Factor *	4.79	4.76	4.54	5.92	4.68

*Shift Relief Factor = number of hours in a year (8,760) / net annual work hours

Source: OLO and MCFRS

Within the paramedic ranks, Lieutenants had the highest average shift relief factor at 5.92 workers required for each staffing slot. The high shift relief factor for paramedic Lieutenants is a result of an anomaly in the net annual work hour data. In Calendar Year 2006, the 20 MCFRS paramedic Lieutenants experienced an unusually high injury rate and logged more than 10,000 hours (the equivalent of more than four workyears) of light duty time. The calendar year paramedic Lieutenant shift relief factor of 5.92 likely is a one year outlier and may not be predictive of future year shift relief factors. The shift relief factors for other paramedic ranks fall within a relatively narrow range from a low of 4.54 for Master Firefighters to a high of 4.76 for Firefighters I – III.

D. Comparison of Net Annual Work Hour Calculations and Shift Relief Factors

Table 3-7 shows summary NAWH and shift relief calculations for all MCFRS first responders by rank. Tables 3-8 and 3-9 show summary NAWH and shift relief calculations for non-paramedic and paramedic first responders, respectively.

Table 3-7: Net Annual Work Hour and Shift Relief Summary – All First Responders³

	Firefighter I-III	Master Firefighter	Lieutenant	Captain	All Ranks
Number of Personnel	562	177	77	98	914
Total Work Hours Per Year	2,496.0	2,496.0	2,496.0	2,496.0	2,496.0
Annual Leave	138.4	205.4	201.8	208.5	164.3
Sick/Family Sick Leave	96.8	122.3	105.3	91.0	101.8
Compensatory Leave	39.0	53.6	58.3	55.7	45.2
Administrative Leave	15.1	34.1	13.7	19.7	19.2
Training and Special Assignment	82.1	43.7	122.3	102.0	80.2
Light Duty	134.5	128.5	258.3	87.6	138.7
Disability Leave	24.5	34.0	25.5	6.4	24.5
Other	10.0	11.7	14.1	12.5	11.0
Available Hours	1,955.5	1,862.7	1,696.7	1,912.5	1,911.1
Total Hours Per Year	8,760.0	8,760.0	8,760.0	8,760.0	8,760.0
Shift Relief Factor	4.48	4.70	5.16	4.58	4.58

Table 3-8: Net Annual Work Hour and Shift Relief Summary – Non-Paramedics

	Firefighter I-III	Master Firefighter	Lieutenant	Captain	All Ranks
Number of Personnel	479	132	57	66	734
Total Work Hours Per Year	2,496.0	2,496.0	2,496.0	2,496.0	2,496.0
Annual Leave	134.1	213.0	201.4	215.2	160.8
Sick/Family Sick Leave	92.0	124.5	109.7	91.1	99.1
Compensatory Leave	33.9	48.2	64.4	49.7	40.3
Administrative Leave	13.5	33.1	11.5	16.6	17.1
Training and Special Assignment	80.2	37.5	128.6	102.9	78.3
Light Duty	133.1	153.8	167.8	67.8	133.7
Disability Leave	24.7	33.0	24.5	4.7	24.4
Other	8.7	12.7	15.4	14.9	10.5
Available Hours	1,975.6	1,840.3	1,772.8	1,933.0	1,931.7
Total Hours Per Year	8,760.0	8,760.0	8,760.0	8,760.0	8,760.0
Shift Relief Factor	4.43	4.76	4.94	4.53	4.53

³ Chapter II of this report discusses the duties and responsibilities of each MCFRS first responder rank and includes definitions of each activity type.

Table 3-9: Net Annual Work Hour and Shift Relief Summary – Paramedics

	Firefighter I-III	Master Firefighter	Lieutenant	Captain	All Ranks
Number of Personnel	83	45	20	32	180
Total Work Hours Per Year	2,496.0	2,496.0	2,496.0	2,496.0	2,496.0
Annual Leave	163.3	183.2	203.1	194.6	178.3
Sick/Family Sick Leave	124.6	115.7	92.7	90.7	112.8
Compensatory Leave	68.2	69.7	41.2	68.1	65.6
Administrative Leave	24.3	37.0	20.1	26.1	27.4
Training and Special Assignment	93.0	61.8	104.3	100.2	87.7
Light Duty	142.3	54.4	516.0	128.4	159.4
Disability Leave	23.1	37.2	28.5	10.0	24.9
Other	17.6	8.6	10.5	7.6	12.8
Available Hours	1,839.5	1,928.5	1,479.8	1,870.2	1,827.2
Total Hours Per Year	8,760.0	8,760.0	8,760.0	8,760.0	8,760.0
Shift Relief Factor	4.76	4.54	5.92	4.68	4.79

Comparisons of NAWH calculations and shift relief factors by paramedic status and rank provide some instructive information about the use of first responder time, including the following observations:

- A measurable difference exists between the net annual work hour calculations for non-paramedic and paramedics. Paramedics use annual, sick, and compensatory leave at higher rates than non-paramedics and are more likely to be assigned to light duty because of injury. As a result, Paramedics are available to respond to calls about 100 fewer hours per year than their non-paramedic colleagues. Correspondingly, the paramedic shift relief factor is a quarter of a workyear greater than the non-paramedic shift relief factor.
- Paramedics include a greater proportion of higher ranked personnel than non-paramedics. Almost 54 percent of paramedics serve as Master Firefighter/Rescuers, Lieutenants, and Captains while only 35 percent of non-paramedics serve in these ranks.
- On average, Lieutenants logged significantly more hours in the “training and special assignment” activity than any other rank. In part, this is because Lieutenants are more likely than other first responders to serve as instructors at the Public Safety Training Academy during regular shift hours.
- In Calendar Year 2006, the 20 paramedic Lieutenants experienced an unusually high injury rate and logged more than 10,000 hours of light duty time, an average of more than 500 hours per Lieutenant. Paramedic Lieutenants were on light duty at a rate about four times greater than the average for all first responders.
- On average, Master Firefighters logged about 20 more hours per year in administrative leave than first responders of other ranks. In part, this is because Master Firefighters comprise a disproportionately high percent of union representatives and spend more time engaged in union business than others.

CHAPTER IV: FINDINGS AND RECOMMENDATIONS

This chapter presents the Office of Legislative Oversight's (OLO) findings and recommendations from Phase II of the OLO Base Budget Review of MCFRS, an analysis of net annual work hours for fire and rescue first responders. Part A of this chapter summarizes OLO's findings and Part B presents OLO's recommendations to the Council.

A. Findings

The County Council directed OLO to conduct a "net annual work hour" analysis to measure the actual number of hours per year uniform personnel are available for assignment to active duty. For the purpose of this report, the term "work hours" refers to the total number of regular paid work hours in a year (equal to 2,496 for most career first responders). The term "available to respond" (or "available work hours") refers to the number of hours in a year a first responder is on active duty in a station and able to respond to fire and rescue calls.

Finding #1: Multiple personnel are required to cover a MCFRS first responder staffing slot 24 hours a day, 365 days a year.

MCFRS career and volunteer first responders provide front line delivery of fire, rescue, and emergency medical services in the County. Most career first responders are assigned to one of three shifts. The members of each shift are on-duty for 24 hours and then off-duty for the following 48 hours. Once every three weeks, career personnel receive one shift day off.

Career first responders work a total of 2,496 hours per year. The hours worked by a single first responder equals less than 30 percent of the time needed to fill a staffing slot 24 hours a day, 365 days a year (8,760 hours). A variety of work-related activities further reduce the number of hours MCFRS personnel are available to respond to emergency calls. Therefore, multiple personnel are required to cover each MCFRS first responder staffing slot.

Finding #2: Eight types of activities reduce the hours MCFRS first responders are available to respond to fire and rescue calls.

To measure the amount of time MCFRS personnel are available to respond to calls, OLO analyzed payroll data, staffing logs, and light duty logs from Calendar Year 2006. OLO defined eight categories of activities that reduce the number of hours firefighter/rescuers are available to respond to calls during regular work hours.¹

1. Annual Leave;
2. Sick Leave;
3. Compensatory Leave;
4. Administrative Leave;
5. Training and Special Assignment;
6. Light Duty;
7. Disability Leave; and
8. Other Activities.

¹ See Chapter II (pages 4 – 5) for descriptions of each of these activity categories.

From these data, OLO calculated how many hours per year, on average, a firefighter/rescuer is available to respond to emergency fire/rescue calls. The result is known as a “net annual work hour” calculation.

Finding #3: On average, MCFRS first responders are available to respond to emergency calls 77 percent of their total work hours. Paramedic first responders are available to respond to emergency calls about 73 percent of their total work hours.

During Calendar Year 2006, MCFRS first responders were available to respond to fire/rescue calls, on average, 77 percent of their total work hours. A variety of other activities consume the remaining 23 percent of work hours. Annual leave reduces work hours by 7 percent for first responders. Other activities that reduced the number of hours first responders were available to respond to calls include light duty (6 percent); sick leave (4 percent); training and special assignment (3 percent); and, compensatory leave (2 percent).

OLO separately calculated net annual work hours for the 20 percent of MCFRS first responders that serve as paramedics. A discernible difference exists between the results of the net annual work hour calculations for paramedics and those for other first responders. During Calendar Year 2006, paramedic first responders were available to respond to emergency calls on average about 73 percent of their total work hours. Paramedics use annual, sick, and compensatory leave at higher rates than non-paramedics and are more likely to be assigned to light duty because of injury. As a result, Paramedics are available to respond to calls about 100 fewer hours per year than their non-paramedic colleagues.

The following table summarizes the net annual work hour calculations for non-paramedic and paramedic first responders, as well as the combined calculations for all first responders.

Activity Type	Non-Paramedic First Responders	Paramedic First Responders	All First Responders
Number of Personnel	734	180	914
Unavailable Hours	22.6%	26.8%	23.4%
Annual Leave	6.4%	7.1%	6.6%
Light Duty	5.4%	6.4%	5.6%
Sick/Family Sick Leave	4.0%	4.5%	4.1%
Training and Special Assignment	3.1%	3.5%	3.2%
Compensatory Leave	1.6%	2.6%	1.8%
Disability	1.0%	1.0%	1.0%
Administrative Leave	0.7%	1.1%	0.8%
Other	0.4%	0.5%	0.4%
Available Hours	77.4%	73.2%	76.6%

Finding #4: The net annual work hour calculations validate MCFRS’ use of a 4.5 workyear shift relief factor for first responders. However, the net annual work hour calculation for paramedics (a subgroup of first responders) indicates a higher shift relief factor.

Net annual work hour calculations provide data needed to establish a “shift relief factor” for MCFRS first responders. For the purpose of this report, the term “shift relief factor” means the number of workyears required to maintain coverage for each first responder staffing slot 24 hours a day, 7 days a week. For the past decade, MCFRS has based staffing plans on an assumed shift relief factor of 4.5 workyears per first responder staffing slot.

Based on the calculation of MCFRS net annual work hours, OLO derived a shift relief factor of 4.58 workyears for all MCFRS first responders and 4.53 workyears for all non-paramedic first responders. OLO’s calculations validate the 4.5 workyear shift relief factor used by MCFRS as a reasonable basis for estimating staffing requirements for first responders in general.

However, OLO found a higher shift relief factor for paramedics than for other first responders. As paramedics were less available to respond to calls in Calendar Year 2006, the net annual work hour calculations produced a shift relief factor for paramedics of 4.79 workyears.

Finding #5: MCFRS net annual work hour calculations and shift relief factors vary by rank.

In preparing the MCFRS net annual work hour and shift relief calculations, OLO disaggregated data by the four first responder ranks: Firefighter/Rescuer I – III; Master Firefighter/Rescuer; Lieutenant; and Captain. The table below summarizes the results of the net annual work hour and shift relief factor calculations by rank for all MCFRS first responders as well as for non-paramedic and paramedic first responders.

		FF I-III	Master FF	Lieutenant	Captain	Total
Non-Paramedic First Responders	Number of Personnel	479	132	57	66	734
	% Available Hours	79.2%	73.7%	71.0%	77.5%	77.4%
	Shift Relief Factor	4.43	4.76	4.94	4.53	4.53
Paramedic First Responders	Number of Personnel	83	45	20	32	180
	% Available Hours	73.7%	77.3%	59.3%	74.9%	73.2%
	Shift Relief Factor	4.76	4.54	5.92	4.68	4.79
All First Responders	Number of Personnel	562	177	77	98	914
	% Available Hours	78.3%	74.6%	68.0%	76.6%	76.6%
	Shift Relief Factor	4.48	4.7	5.16	4.58	4.58

The data evidence that net annual work hour calculations and shift relief factors vary by rank. For example:

- On average, Lieutenants logged significantly more hours in the “training and special assignment” activity than any other rank. Lieutenants are more likely than other first responders to serve as instructors at the Public Safety Training Academy during regular shift hours.
- In Calendar Year 2006, the 20 paramedic Lieutenants experienced an unusually high injury rate and, on average, logged more than 500 hours of light duty in one year. Paramedic Lieutenants were on light duty at a rate about four times greater than the average for all first responders.
- On average, Master Firefighters logged about 20 more hours per year in administrative leave than first responders of other ranks. Master Firefighters comprise a disproportionately high percent of union representatives and spend more time engaged in union business than other ranks.

B. Recommendations

The Office of Legislative Oversight offers three recommendations to the County Council for action.

Recommendation #1: Ask the Executive to justify future year MCFRS staffing plans based on net annual work hour and shift relief calculations.

The Council should ask the Executive to justify future year MCFRS staffing plans based on net annual work hour and shift relief calculations. In addition, the Council should request that the Executive develop future year MCFRS staffing plans that recognize the different shift relief factors for paramedics and non-paramedics.

Shift relief factors alone do not provide full justification for any staffing plan. Shift relief factors are a tool for estimating the number of workyears needed to maintain coverage for each first responder slot. The size of the MCFRS personnel complement also is a function of other budget decisions including the number of fire and rescue stations, the number and types of apparatus based at each station, and the number of personnel staffing each piece of apparatus.

Recommendation #2: Request that MCFRS use the details of the net annual work hour calculations as a tool for informing and improving management of MCFRS field operations.

In addition to helping determine the number of workyears needed to maintain first responder coverage, net annual work hour calculations also provide insight as to how personnel spend their time while on duty. Examination of the number of work hours allocated to different activities demonstrates the effect of different policies and practices on the availability of first responders to respond to emergency calls.

The Council should encourage MCFRS to use the details of the net annual work hour calculations as a tool for improving department management. For example, the data presented in this report should prompt MCFRS to examine the following questions:

- Paramedics use annual, sick, and compensatory leave at significantly higher rates than non-paramedics. What specific factors cause this disparity and what measures may be taken to counter this occurrence?
- Lieutenants are more likely than other first responders to serve as instructors at the Public Safety Training Academy during regular shift hours. Master Firefighters comprise a disproportionately high percent of union representatives and spend more time engaged in union business than others. How does the uneven use of work hours among ranks affect the management of MCFRS field operations?
- MCFRS first responders earned over 40,000 hours of compensatory leave in Calendar Year 2006. MCFRS first responders earn overtime pay or compensatory leave when required to work in excess of the normally scheduled work day hours. MCFRS currently is conducting a review of its use and management of overtime. How should MCFRS consider the use of compensatory leave as part of its overtime assessment?

The Council should ask MCFRS to report back on how it used net annual work hour calculations as a tool for improving the management of the Department.

Recommendation #3: The Council should ask MCFRS to establish tracking systems to facilitate the updating of net annual work hour calculations at least every three years.

The number of hours uniformed personnel are available for active duty may change over time. Public safety organizations often reassess their net annual work hour calculations to ensure that they reflect current actual usage of work hours. About a decade has elapsed since MCFRS conducted its last comprehensive assessment how first responders spend their time.

OLO and MCFRS staff mined data from a diverse variety of sources and had to re-sort the information to extract the data sets necessary to complete the net annual work hour calculations included in this report. The Council should ask that MCFRS develop work hour tracking systems that would maintain and routinely update data sets that are the components of net annual work hour calculations. In addition, the Council should request that MCFRS update net annual work hour calculations at least every three years.

In developing the work hour tracking system, MCFRS should identify categories of work activities that provide information to support management oversight. For example, the net annual work hour calculations in this report include a category called “training and special assignment.” This category includes a wide range of activities including hours spent in training, taking professional development courses, serving as an instructor, performing special operations duties, and conducting other special projects outside of a station. Existing MCFRS personnel management systems are incapable of producing data to measure the amount of hours spent in each of these activities. Information of this sort could be extremely valuable for department oversight and management.

CHAPTER V: AGENCY COMMENTS ON FINAL DRAFT

The Office of Legislative Oversight circulated a final draft of this report to the Chief Administrative Officer and the Montgomery County Fire and Rescue Service. OLO appreciates the time taken by Executive Branch staff to review the draft report and provide comments. The final report incorporates technical corrections provided by the Executive Branch.

Written comments from the Chief Administrative Officer are included on the following page.



OFFICES OF THE COUNTY EXECUTIVE

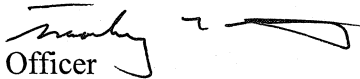
Isiah Leggett
County Executive

Timothy L. Firestine
Chief Administrative Officer

M E M O R A N D U M

June 19, 2007

TO: Karen Orlansky, Director
Office of Legislative Oversight

FROM: Timothy L. Firestine 
Chief Administrative Officer

SUBJECT: Office of Legislative Oversight Report 2007-8,
A Base Budget Review of MCFRS, Phase II - Net
Annual Work Hour Analysis of First Responders

We have reviewed the Office of Legislative Oversight (OLO) Base Budget Review, Phase II – Net Annual Work Hour Analysis of First Responders and concur with the recommendations and findings of the report. We would like to acknowledge the outstanding cooperation and hard work of Mr. Aron Trombka and Mr. Richard Romer of the OLO staff. Their task of compiling the many complex details of such a large, complex department was quite daunting but they have presented a document which is concise and direct.

We look forward to working with the Council and OLO in discussing the report and its recommendations.

TF:ld

**APPENDIX A:
METHODOLOGY OF NET ANNUAL WORK HOUR CALCULATIONS**

A. Study Objective

OLO performed a net annual work hour study on Montgomery County Fire and Rescue Service (MCFRS) first responders. The objectives of the net annual work hour study were to determine:

1. The activities that reduce the hours MCFRS personnel are available to respond to emergency fire/rescue calls;
2. The number of hours MCFRS first responders are available to respond to calls; and
3. The number of workyears needed to maintain coverage for each first responder staffing slot 24 hours a day, 7 days a week.

OLO collected data for the MCFRS Field Operations Section of the Operations Division firefighters/rescuers who respond to emergency fire and rescue calls. These personnel work shifts consisting of 24 hours on duty, 48 hours off duty. OLO and MCFRS separated Operations Division paramedic and non-paramedic first responders to derive disaggregated data. First responders of any rank who maintain current EMT-I¹ certification are classified as paramedics. OLO also disaggregated data by rank. The four ranks of MCFRS paramedic and non-paramedic first responders included in the study were:

Paramedic	Non-Paramedic
Firefighter/Rescuer I-III	Firefighter/Rescuer I-III
Master Firefighter/Rescuer	Master Firefighter/Rescuer
Fire/Rescue Lieutenant	Fire/Rescue Lieutenant
Fire/Rescue Captain	Fire/Rescue Captain

As most MCFRS personnel management databases do not differentiate between Firefighters/Rescuers I, Firefighters/Rescuers II, and Firefighters/Rescuers III, OLO combined data for all of these ranks into a single Firefighter/Rescuer I-III category. OLO did not include Battalion Chiefs and Assistant Chiefs in the study because they do not routinely serve in a first responder capacity.

To account for seasonal adjustments in leave usage and work activity, OLO collected data for a full year, Calendar Year 2006.

¹ EMT-I is the *Medical Technician-Intermediate: National Standard Curriculum* developed by the National Highway Traffic Safety Administration

B. Sources of Data

OLO accessed three primary sources of data to gather information necessary to calculate Calendar Year 2006 net annual work hour for MCFRS first responders:

1. Payroll data;
2. Staffing logs; and
3. Light duty logs.

The calculations used for each of the data sources are outlined below.

1. Payroll Data

MCFRS and the Department of Finance maintain payroll data for all MCFRS employees. Payroll data provide information on the amount of time MCFRS personnel spent on different earning activity types. OLO used payroll data to determine the number of first responders by rank and by paramedic status.

In addition, OLO used payroll data to ascertain the number of hours first responders recorded on their time sheets for each different activity types. OLO gathered payroll data for the following activity types:

MCFRS Payroll Activity Types

Leave Type	Payroll Code
Administrative Leave – Union Business	AD4
Administrative Leave – Uncontested Temporary Disability (non-operational)	AD5
Administrative Leave (court, bereavement, military, etc.)	AML
Annual Leave Used	ANL
Absent Without Leave	AWOL
Compensatory Leave Used	CPL
Disability	DAL
Family Sick Leave Used	FSL
Leave Without Pay	LWO
Sick Leave	SKL

Source: Department of Finance

OLO combined sick leave and family sick leave into a single category. Hours entered into a timesheet as military leave appears in payroll data reports as administrative leave. OLO did not factor overtime hours into the net annual work hour calculation as overtime hours are additive to the number of hours per year and do not directly reduce MCFRS first responders’ ability to respond to emergency calls.

OLO summed the data for each payroll activity type by rank and paramedic status. OLO then divided the total recorded activity hours by the total number of personnel in each rank to produce the average number of hours a given person in a given rank used each earning activity type.

2. Staffing Logs

Telestaff is the software application MCFRS uses to prepare first responder work schedules to allocate staff among the 34 fire/rescue stations in the County. Telestaff provided data on the number of hours scheduled for MCFRS Operations Division first responders for:

- Back to work physicals;
- Blood work;
- Physicals; and
- Training and special assignment.

OLO subtracted the number of Telestaff hours for paramedic ranks from the number of Telestaff hours for all first responders to get the number of non-paramedic Telestaff hours. OLO then divided the total recorded Telestaff hours for each rank by the total number of personnel in each rank to produce the average number of hours a given person in a given rank used each leave type.

3. Light Duty Logs

MCFRS assigns firefighters/rescuers who sustain minor injuries or illness (and are temporarily unable to meet the physical requirements of a first responder) to perform light duty support functions for the Department. MCFRS assesses personnel for fitness to return to first response duty and require back-to-work physicals before allowing a first responder to respond to calls again.

The Wellness and Fitness Section of the Wellness, Safety and Training Division provided OLO with light duty logs for Calendar Year 2006. OLO summed the number of days on light duty for Calendar Year 2006 for each rank. Light duty time recorded as administrative uncontested temporary disability (AD5), sick leave, or family sick leave were not included in the light duty category, as these hours are captured in payroll data.

OLO converted the total number of days spent on light duty into hours based on an assumed average work schedule of six shifts every 21 days. OLO then divided the total recorded light duty hours for each rank by the total number of personnel in each rank to produce the average number of hours a given person in a given rank was on light duty.

C. Net Annual Work Hour and Shift Relief Factor Calculations

Tables 3-7, 3-8, and 3-9 on pages 13 – 14 show the breakdown of first responder net annual work hours, and shift relief factors by rank and paramedic status.

1. Activities that Reduce MCFRS First Responder Availability

OLO calculated the average time allocation of MCFRS Division of Operations first responders by rank and job type (paramedic and non-paramedic). The activity categories used in the net annual work hour calculations were:

- Annual Leave;
- Sick/Family Sick Leave;
- Compensatory Leave;
- Administrative Leave includes administrative leave (military, court, bereavement, union business, etc.);
- Training and Special Assignment;
- Light Duty;
- Disability (including disability and non-operational medically induced disability status); and
- Other (includes absent without leave, blood work, back to work physicals, leave without pay, physicals, and professional development).

OLO divided the average amount of time for each activity category by the total work hours per year (2,496) for each rank to get the average percent of time a given person in a given rank spent on that activity in Calendar Year 2006.

2. Net Annual Work Hours

MCFRS uniformed first responders are unavailable to respond to calls during a portion of their work time. OLO calculated the average number of hours MCFRS first responders were available to respond to calls in Calendar Year 2006, or net annual work hours, by subtracting the total hours of the various other activities where a first responder is unavailable to respond to calls from the total work hours per year (2,496).

3. Shift Relief Factor

The “shift relief factor” is the number of workyears needed to maintain coverage for each first responder staffing slot 24 hours a day, 7 days a week. OLO calculated the shift relief factor by dividing the average number of hours available to respond to calls number in Calendar Year 2006 (net annual work hours) by the total number of hours in a year (8,760).²

² The total number of hours in a year is calculated by multiplying the number of days in a year (365) by the number for hours in a day (24).

**APPENDIX B:
DEFINITIONS OF TERMS USED IN THIS REPORT**

Administrative leave – Unearned paid leave approved by a supervisor for various administrative purposes including military, court, and bereavement leave. For the purpose of this report, administrative leave also includes leave approved for employees to attend to union business.

Annual Leave – Paid leave earned by an employee that may be used for vacations and other personal reasons. As stipulated in the collective bargaining agreement, MCFRS first responders earn from 144 and 249 hours of annual leave per year (depending on the officer's years of service).

Apparatus – Emergency fire-rescue vehicle(s).

Available to respond – The number of hours in a year a first responder is on active duty in a station and able to respond to fire and rescue calls (also known as “available work hours”).

Compensatory leave – Paid leave earned when a first responder is required to work in excess of the normally scheduled work day hours. An MCFRS employee may request to earn compensatory leave in lieu of overtime pay at rate of one-and-a-half times the excess hours worked.

Disability leave – Paid leave provided by the County to an employee who is temporarily disabled by an injury or illness resulting directly from the employee's work.

First responder – MCFRS personnel assigned to fire and rescue stations who respond to emergency calls.

Kelly Day – A periodic paid leave day assigned to firefighters/rescuers to keep the number of hours worked within the limit established in the collective bargaining agreement.

Light duty – The temporary assignment of a first responder who sustained minor injury or illness to perform Departmental support functions.

Net annual work hour calculation – Measure of the actual number of hours per year uniform personnel are available for assignment to active duty.

Personnel complement – The full- and part-time positions, workyears, and costs related to employees of the departments and agencies of the.

Shift relief factor – The number of workyears needed to maintain coverage for each first responder staffing slot 24 hours a day, 7 days a week.

Sick leave – Paid leave used by an employee for the reasons of personal illness or injury, medical quarantine, medical, dental, or optical examinations and treatments, or temporary disability related to pregnancy, miscarriage, or childbirth. For the purpose of this report, sick leave includes leave that an employee uses to provide medical care for an immediate family member (“family sick leave”). As stipulated in the collective bargaining agreement, MCFRS first responders earn from 144 of sick leave per year.

Training and special assignment – Alternative work hour assignments that render a first responder unavailable to respond to emergency calls including time spent in (1) mandatory and voluntary training and professional development courses; (2) serving as an instructor; and, (3) engaged in special operations duties assignments (such as for urban search and rescue or swift water rescue) and other special projects outside of a station.

Work Hours – The total number of regular paid work hours in a year (equal to 2,496 for most career first responders).

Workyear – A standardized unit of measurement of government personnel effort and costs. A workyear is roughly equal to “Full-time Equivalents” as used by other organizations. For MCFRS first responders, a workyear consists of 2,496 hours.