Safety Assessment & Analysis Report

Milwaukee Fire Department

2013

Completed by Health Safety Officer Jason Mims

This document reviews and documents safety data, initiatives, and achievements for 2013 in comparison to prior years, and highlights goals and initiatives for 2014.

Section I: Policy Statement

It is the policy of the Milwaukee Fire Department (MFD) to have an organized, purposeful, and effective system of safety and risk management that reaches far beyond hazard recognition. We must take a proactive approach to identify and evaluate risks, prioritize them, implement control measures, and effectively follow up on the hazards that affect the safety of our members. Injuries negatively impact members' readiness to serve the Milwaukee community and interrupt their family life as well. For these reasons, while injuries may occur, whether emergent or non-emergent, they cannot be viewed as acceptable. We will constantly strive to improve the safety of the work environment. In order to fulfill this commitment we will ensure the following.

a. *That progressive and responsible health and safety programs, policies and procedures are implemented, maintained, and enforced. These must minimize unnecessary risks to complete the mission and be in accordance with applicable laws, regulations, and fire service industry best management practices (BMP).*

b. *That members (sworn and civilian staff) receive a training program that is innovative as well as meets all regulatory and fire service standards/best management practices in order to improve mission effectiveness, prevent occupational accidents, injuries, illness, and death.*

c. *That all members understand their responsibilities within the safety program, and the resources that are available to them in which to minimize the risk required to successfully complete the mission.*

d. *That operational and personal protective equipment (PPE) is available, appropriately effective for the tasks at hand, sound, functioning as intended, and properly used in order to accomplish the mission and minimize injuries, illnesses, and death.*

e. *That all fire department facilities provide a safe working environment by complying with all health, safety, building, and fire code standards and regulations.*

f. *That a health wellness and injury prevention program is in place that provides firefighter-specific, information and resources that address the comprehensive health hazards that are endemic to the fire service industry.*

Section II: Safety Best Practices

This section details how the department complies with safety best practices and ensures safety is an ongoing priority for supervisors and employees as outlined by the following activities.

- Fill in the table below

Abbreviation Key:
AC = Assistant Chief
BC = Battalion Chief
BETE = Bureau of EMS, Training, and Education
HSO = Health and Safety Office/r
ISO = Incident Safety Office/r

Safety Items	Currently in Place? Yes/No	Date Effective	Who's Responsible	Last Time Updated
Work Rules/Handbook that Outlines Safety Expectations and Guidelines	Yes	2000	ACs of Support, BETE, & Operations, ISO & HSO	
Mandatory Safety Training*	Yes	2008	Training Division BC & HSO	2012
Optional Safety Training*	Yes	2010	Training Division BC & HSO	2013
Viable & Functioning Safety Committee**	Yes	2006	AC of BETE	2012
Safety Orientation for New Employees	Yes	1960	Training Division BC & HSO	2013
Job Hazard Analysis	No			
Safety Field Inspections	No			
Accident Investigation Protocol & Forms	Yes	2010	AC of BETE & HSO	2013
Mechanism for Employees to Report Safety Concerns before Accident Occurs	Yes	2000	HSO	2011
Recognition Programs/Safety Awards	No			
Medium for Sharing Safety Information & Report with Employees	Yes	2007	BC Training Division, ISO & HSO	2011
Supervisory Job Descriptions that Include Safety Related Goals/Outcomes	No			
Designated Individual Responsible for Safety Program Effectiveness	Yes	2006	ISO & HSO	2007

**Attach a list of any mandatory and optional safety training programs offered by the Department*
***Attach an overview of the Safety Committee and a description of committee activities*

Section III: Data Analysis

In 2013, the primary focus to address firefighter health and injury prevention was to complete the development of the Wellness Fitness Initiative (WFI). The WFI is the gold standard health wellness and injury prevention program for the fire service. The WFI program in Milwaukee was implemented as an injury prevention control measure just as much as a health wellness program. The WFI is a mandatory non-punitive, joint labor management program. The WFI program in Milwaukee consists of six main components:

1. Medical Screening
2. Fitness/Injury Prevention
3. Behavioral Health
4. Injury Rehabilitation and Case Management
5. Data Analysis
6. Health Education

A major risk factor for firefighter safety has been addressed by improving the overall health and fitness condition of firefighters, training them on how to move, and empowering them with the knowledge on how to guard their health.

In 2012, the MFD received an "Assistance for Firefighter Grant" from FEMA for $354,000.00. The purpose was to fund annual firefighter physicals and to purchase fitness training equipment; program implementation occurred in 2013. This commenced the medical screening component of the WFI. Program components already in place were:

- Framework for a fitness program run by certified Peer Fitness Trainers (PFTs)
- Behavioral health program guided by the city of Milwaukee Employee Assistance Program (EAP) and a trained Critical Incident Stress Management (CISM) Team /Peer Support Team (PST)
- Health education

Through an analysis of firefighter injuries since 2010, it was discovered that over 50% of the causal factors for firefighter injuries were related to firefighter fitness. In 2012, through research with the Kinesiology Department and Human Performance Lab of the University of Wisconsin Milwaukee (UWM), it was identified that:

- Firefighters' ability or lack of ability to move (mobility, flexibility, coordination, strength, core stability) was a critical link to firefighter injuries. The MFD's fitness program must address this area.

- A number of firefighters work with injuries or movement limitations that require orthopedic evaluations and or treatment. In most cases, firefighters require rehabilitation that is synonymous with an athlete; in this case an industrial or tactical athlete. A comprehensive injury rehabilitation program was required that:
    - Improves access to care
    - Streamlined the process for a firefighter to reach definitive diagnosis
    - Is occupationally specific
    - Will help reduce time lost and reduce additional injuries that derive from strains/sprains and other orthopedic musculoskeletal related injuries

This data analysis will study:

1. How the WFI was developed and implemented in 2013
2. Why it was implemented to address injury prevention and safety
3. How it has impacted the safety of the MFD personnel

INITIATIVES

1. Annual Firefighter Physicals

Knowledge of their current health condition is the most important resource firefighters can have when managing their health. The organization should use this same knowledge when operating a health promotion and disease reduction program.

> *"Properly implemented, this clinical program will allow for an appropriate medical assessment, early detection of diseases, injuries and illnesses, as well as implementation of health promotional programs. The annual medical examination is an integral element that provides invaluable health status assessments of both the individual and department-wide. Moreover, collecting unidentifiable aggregated data during such exams allows for long-term analysis and the implementation of preventive programs."* **WFI Manual 3rd Edition**.

Funded by the Assistance for Firefighter Grant, in 2013 the MFD implemented annual physicals for all firefighters. This medical screening encompasses:

- Skin
- Head, ear, eyes, nose, throat
- Neck
- Cardiovascular
- Pulmonary
- Gastrointestinal
- Genitourinary
- Lymph nodes
- Neurological, musculoskeletal
- Vision
- Blood
- Spirometry
- Chest X-ray
- EKG
- Cancer
- Heavy Metal
- Infectious Disease
- Comprehensive Consultation derived from lab and physical results

Participation is voluntary. The entire physical is a medical/health screening. When risk factors or health markers are identified, firefighters are referred by the screening physician for further follow-up. These markers may identify medical or orthopedic conditions that may lead to injuries. Froedtert staff and the MFD HSO are able to assist firefighters in finding a specialist or primary care physician. In 2013, the participation rate was 99.5%. While the results of each member's health condition are strictly held confidentially, the department does receive aggregate data to strategically plan for future disease (including injury) reduction programs.

2. Fitness and Injury Prevention Program

In 2013 within the MFD, 49% of firefighter injuries were directly related to strains and sprains. This was 8% below national figures from the NFPA. Driven by the department Peer Fitness Trainers (PFTs), the fitness program is designed to provide resources that will help MFD firefighters reduce injuries, and improve their professional performance and personal health regardless of their current health condition. This is achieved by taking the activities that the firefighters/EMTs perform in the field and breaking them down to the most basic quality movements. Firefighters are then taught how to protect their body from injuries and improve performance by increasing core stability, mobility, and flexibility. Complexity is added to the movements and then programming is added that mimics the conditioning (cardiovascular efficiency and muscular endurance), strength, and power demands that are necessary to perform effectively in the field. The program is voluntary and free to all MFD firefighters. The fitness program offers different resources and classes for both on- and off-duty personnel to promote empowerment and participation.

Program Goals and Philosophies

The program goal is simple; change the attitude that surrounds firefighter health and fitness.

- Empower firefighters to guard their health with tactical tools and resources so they know how to move and **train** with the dynamic loads in awkward and unstable positions. This is designed to reduce the frequency and severity of strains and sprains and improve their performance, as well as professional and personal health.
- Administratively provide consistent, safe and sound resources in all of the firehouses. Firefighters may train in the firehouses on- or off-duty.
- Provide the knowledgebase of firefighter-specific health and fitness, and injury prevention (movement) education.
- Expertly train PFTs, the main guide and resource for firefighters. Their goal is to train to empower, not train to retain (a client).

Program Philosophies:

- We will meet firefighters where they are at based on fitness conditions; we will challenge them so they strengthen. No one should feel intimidated to start.
- Train to empower.
- The concentration on funding will always go toward resources to educate and empower, rather than equipment.
- Our performance and injury prevention training programs are limited only by safety, our knowledge and creativity.
- **The Firefighter fitness program is a component of training. Exercise is a by-product of the training.** The training programs are designed to improve firefighter performance. They incorporate movement patterns that:
    - Are firefighter specific
    - Are unstable

- Incorporate dynamic loads (loads that constantly shift)
- Challenge core stability,
- Train members how to activate specific muscular sectors of the body prior to certain movements. With the goal of reducing the probability of the firefighter's exposure to a variety of orthopedic injuries
- Challenge heart rate recovery and muscular endurance
- Force emphasis on mobility and flexibility, to improve range of motion, which improves performance and reduces probability for additional strains and sprains
- The more the firefighters practice these tactical based programs of movement patterns, the greater the probability that they'll incorporate these movement patterns and techniques in the field. This reduces the probability for overexertion and other performance based risk factors, thus leading to a reduction in the severity and frequency of injuries .

Peer Fitness Trainers (PFTs)

Our Peer Fitness Trainers are firefighters certified through the American Council on Exercise and the IAFF/IAFC as personal trainers for firefighters. Every certified PFT possesses the knowledge and skills required to design and implement fitness programs, improve the wellness and fitness of the firefighters in the department, assist in the physical training of recruits, and assist the broader community in achieving health, wellness, and fitness.

Each component of the WFI is designed to empower firefighters to "Guard Their Health." Within the fitness program, we accomplish this through PFTs. They provide firefighters with trusted subject matter experts (SMEs) in firefighter tactical fitness; great emphasis is placed on training and development. With the additional community partners that support the program the scope of practice includes:

- Development and implementation of individual fitness programs
- One-on-one fitness consultations
- Movement screen analyses and recommendations (injury prevention)
- Development and implementation of strategic organizational fitness programs
- Group Firehouse Interval Training (FIT) Camps for off-duty firefighters (The purpose of FIT Camps is to train firefighters how to run FIT camps in their own firehouses with their crews and the equipment that is provided by the department.)
- Developing and implementing conditioning programs for injured firefighters
- Performance of Fitness Assessments
- Providing monthly health and fitness classes on training topics such as:
    - Suspension and body weight training
    - Principles of movement
    - Dynamic Variable Resistance
    - Resistance bands
    - Principles of weight training
    - Nutrition

- Fitness Principles
  - Flexibility/Mobility/Core/Stability
  - Strength
  - Power

(All health and fitness classes are designed to educate firefighters on how to improve performance which includes protecting their body against strains and sprains.)

Equipment

With the right tactical training equipment, firefighters should only be limited by creativity and safety.

Characteristics of Effective Tactical Training Tools

- Requires minimal space
- Represents the occupational-specific tool, or mimics task-specific activities
- Mobile (can be used inside, outside, upstairs, downstairs, small and large places)
- Easily replaceable (financially and logistically)
- Programming versatility (mobility, anaerobic respiration, strength, core stability, coordination, power, balance, and flexibility)
- A quality education program developed around the training tool
- With proper instruction, does not require a coach or personal trainer to supervise activity
- Can effectively be integrated with other fitness training tools in any training session
- Can easily be used to regress or progress a training movement

Training Tools Used in MFD Firehouses

- TRX
- TRX Rip Trainer
- Ultimate Sandbags
- Resistance Bands
- Kettlebells
- Out-of-Service Hose
- Out-of-Service Foam Jugs
- Plyo-Boxes
- Medicine Balls/Dynamax
- Foam Rollers
- Softballs
- Battle Ropes

Tactical Fitness Programs that PFTs Support and Operate

- Academy Fitness Program
  - Cadet and Recruit Fitness Program
  - Introduction to Health and Fitness Symposium
  - Fitness Assessments
    - Movement Efficiency Screens (MES)
    - Combine (Tactical and Health Fitness Assessment)

    - Health and Fitness Research with UWM
- Department Fitness Program
    - One-on-One Consultations
    - Injury Rehab Conditioning
    - Education and Training
        - Company- and Battalion-Based Trainings
        - Health and Fitness Classes
        - Firehouse Interval Training (FIT) Camps
    - Assessments
        - Wellness Fitness Initiative (WFI)
        - Movement Efficiency Screens (MES)

Movement Efficiency Screens

How firefighters are able to move has a direct correlation to their performance, propensity for injuries, and overall fitness condition. The more accurately we are able to identify critical movement patterns and offer solutions to the limitations identified, the better we are protecting firefighters, their crew, career, family, and retirement. Through a great deal of research we have partnered with Fusionetics as our central fitness electronic program platform. Fusionetics developed three assessments for performance:

1. Movement Efficiency Screens; a program that assesses the total body movement. https://www.youtube.com/watch?v=kE0h70noBDc
2. Range of motion; performed by licensed rehab professionals, measuring joint range. (Primarily for injured firefighters.)
3. Rest and recovery; the self-reporting assessment of firefighters' lifestyle and how it affects their readiness to perform.

Firefighters are also able to:

- Access their fitness profile.
- Participate in a 30-or 60-day program of corrective exercises to address movement limitations identified in the Movement Efficiency Screen.
- Purchase the same fitness equipment available in the firehouse for personal use.
- Work with a PFT during a one-on-one consultation.

3. Injury Rehabilitation and Case Management Program

Injury rehabilitation (rehab) is one of the core components of the WFI. In addition to providing a streamlined and effective healing process for injured firefighters, the program saves the City money by reducing lost time and back-fill pay. The cost savings is achieved by reducing the unproductive time on injury leave which is typically found waiting for appointments with an orthopedist, for imaging, or physical therapy. There is also a significant medical cost savings from shortening the overall injury treatment timeframe. MFD is working with DER to better quantify the medical savings.

The MFD Injury Rehabilitation Program is a collaborative case management resource between the MFD, Local 215, rehabilitative providers, the City of Milwaukee Department of Employee Relations Workers' Compensation (Work Comp) section and, most importantly the firefighter. Participation by firefighters is voluntary.

This program is designed to:

- Create a streamlined journey through the rehabilitative process, establishing cooperative lines of communication for all entities involved including the MFD, Local 215, health care providers, and Work Comp.
- Reduce the time period that it would normally take to arrive at a definitive diagnosis. This new process can also prevent some claims from losing time previously due to the firefighter having to wait for an appointment.
- Improve the care process by ensuring health care providers understand the functional requirements of firefighters, ensuring that the rehab process is customized for returning a firefighter back to work.
- Improve overall conditioning while in rehab by working with certified PFTs to ensure that not only the area of injury is healed completely but, as a whole, firefighters are ready to return to active duty, thereby reducing chances for injuries upon return to work.

The MFD Injury Rehabilitation and Case Management Program have four main components built in to make it operational.

1. **Injury Rehabilitation Navigation and Provider Network**
   - Coordinated by the MFD Health and Safety Officer and the Orthopedic Patient Navigator, this component is designed to move firefighters through the injury rehab process efficiently, from injury…to the point of definitive care…to a safe return to their assigned position. The navigation resource helps to ensure firefighters are able to work with providers that understand the functionality skills required of firefighters and are able to develop a treatment plan reflecting that understanding.
   - The main goal is to make sure that we reduce wasted or nonproductive time in the rehab process; this includes reaching a definitive diagnosis as efficiently as possible.
     - On average, it typically takes injured firefighters four to five shifts of lost time to get a definitive diagnosis. To expense to backfill for one injured firefighter for five shifts is $3,250. If we include physical therapy before the MRI, the time-frame to definitive diagnosis can reach ten shifts or $6,500.
     - This voluntary program, which began in 2013 helped 35% (48 injuries) of the injured firefighters that lost time. Through our program, on average, we helped

firefighters get to definitive diagnosis in two ($1,300) shifts vs. five ($3,250). This would equate to a cost savings of $1,950 per claim, a total cost savings of **$93,600** (for 48 injuries).

- Within this program rehab providers (physicians and rehabilitative therapists) are expected to be committed to:
  - Understanding the functionality skills required of firefighters
  - Treating firefighters as industrial athletes
  - Making time within their schedule to assess firefighters within 24 hours of notification of injury
  - Determining a definitive diagnosis as expeditiously as possible
  - Developing a treatment plan designed around returning firefighters functionally to field work and not simply healing the injured site

2. Case Management

- The case management component works with firefighters to ensure they understand the administrative side of the injury recovery process. It includes monitoring the progression of the injury cases, assisting the member in avoiding inherent logistical obstacles that would impede the recovery process (i.e. ensuring the firefighter regularly communicates with their case worker). It also includes a collaborative relationship with the worker's compensation section of the Department of Employee Relations (DER). It involves a monthly forum for all parties involved with injured firefighters to communicate updates. This monthly meeting allows all case management team members (providers, department, Work Comp) to have their questions answered, concerns resolved, and processing needs met. The purpose is to reduce the inherent administrative and logistical obstacles that may impede the work flow of the rehabilitation process for the injured firefighter.
- In 2013, 48 firefighters participated in this program, leading to a cost savings estimate of $93,000. This figure was derived from reducing the time it took arrive at a definitive diagnosis from 5 shifts to 2.
- The MFD Chief Medical Officer, the MFD Health and Safety Officer, representatives from the Department Employee Relations Workers' Compensation Section, and the Orthopedic Patient Navigator are available to answer questions.
- Topics of review will consist of:
  - Current status of injured firefighters within the rehab process
  - Predicted time of return
  - Current activities (if assigned to the MFD Return to Work Program)
  - Special concerns.

  - Considerations that might lead to an independent medical exam (IME)
- Topics of conversation WILL NOT:
  - Violate HIPPA rights
  - Compromise said duties of anyone on the committee

3. Injured Firefighter Conditioning (Program to begin in 2014)

- This is a component of the Return to Work (RTW) Program. While going through rehab the primary focus of the provider is the injured site. As the rehab process grows longer, concerns for the conditioning of firefighters becomes more prevalent. If injured firefighters return to work de-conditioned, they are more susceptible to injuries. To avoid this, firefighters can focus on overall conditioning that does not violate their prescribed restrictions. The MFD PFTs are an available resource to assist firefighters in achieving this goal.
- This is a voluntary component; injured firefighters can agree to participate in the program during their 8-hour RTW shift. The treating therapist would release the firefighter to this component with prescribed restrictions.
- The department injury rehab trainer and department PFTs operate the conditioning component. The Orthopedic Patient Navigator (OPN), Health and Safety Officer (HSO), and a certified and licensed athletic trainer supervise the PFTs. The injury rehab trainer and PFTs develop customized conditioning curriculums, which are then provided to the OPN and firefighters physical therapist for approval. The OPN further serves as a resource to the physical therapist on a variety of levels. The conditioning component occurs from 0800 -1000 hours on Tuesdays and Thursdays (days firefighters are not in physical therapy). Conditioning takes place at Station 5, where the dorm room has been converted into a conditioning center for injured firefighters.
- The conditioning component is functional in nature. The equipment tools consist of the fitness equipment that has been installed in all of the firehouses and the additional weight room equipment that is available at the academy. Some of the standard equipment that is used during conditioning and rehab is:
  - TRX
  - Resistance Bands
  - Medicine Balls
  - Foam Rolls
  - Sand Bags
  - Battle Ropes
  - Plyo Boxes
  - Pneumatic Functional Trainer
  - Ergometer
  - Total Body Trainer Bike
  - Rower

- As a part of the conditioning component, PFTs will offer Movement Efficiency Screens at the appropriate period in the rehab process to address other movement limitations that can be worked on in the conditioning program.
- All of the MFD PFTs that work in this program are trained as rehab aides by the OPN.

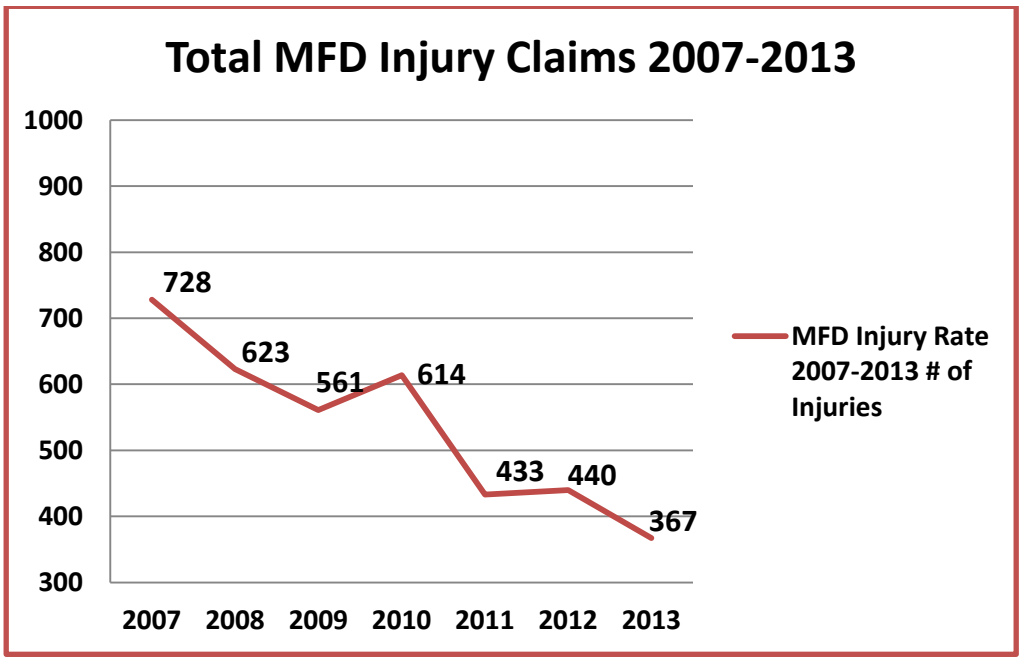
The PFTs assigned to this component will either be currently fulfilling the role as full-time PFT or have been temporarily assigned as the conditioning PFT.

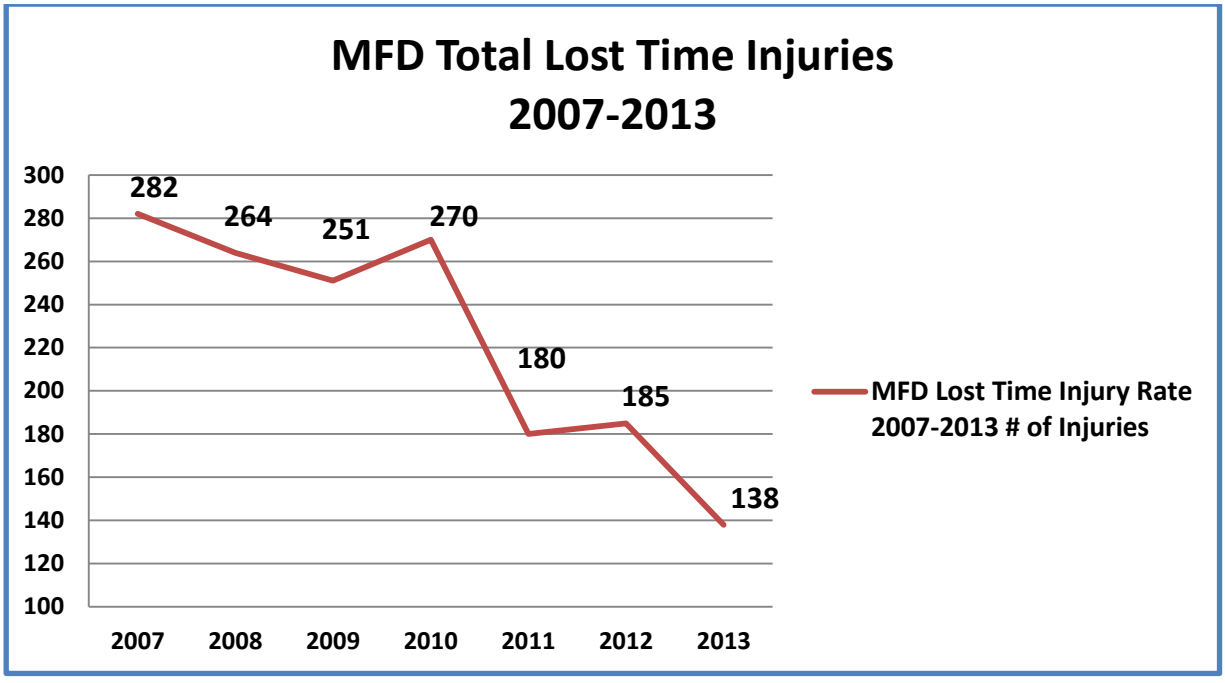
4. Behavioral Health

This team component of the WFI consists of the Critical Incident Stress Management (CISM) / Peer Support Team (PST). The mental health wellness of firefighters is a part of firefighter health and injury prevention. Firefighters not focused on their tasks in the field because of personal problems or unmanaged stresses can and has led to injuries.

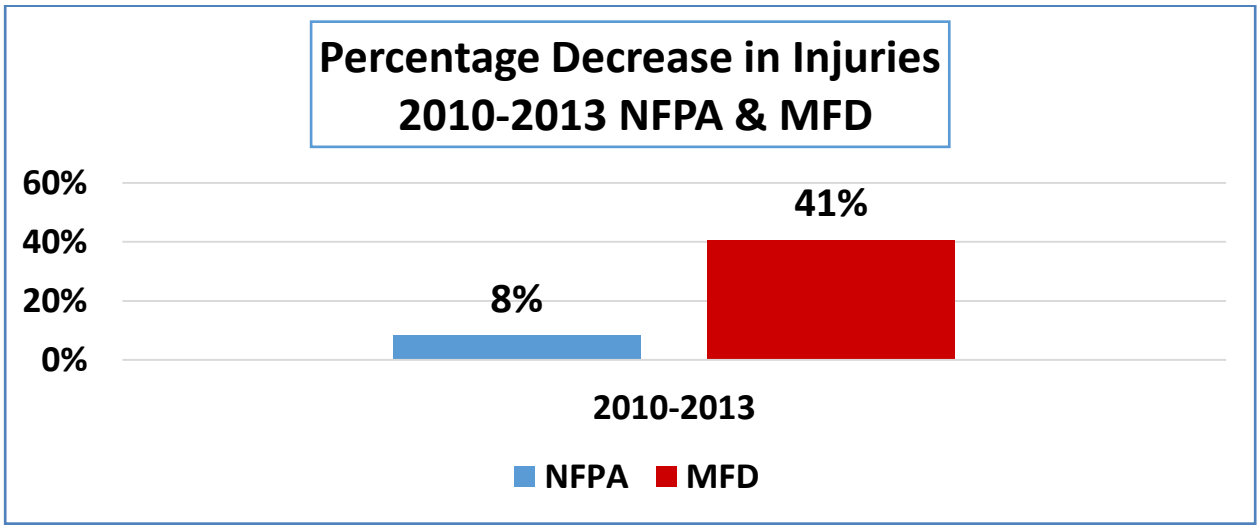
The behavioral health of injured firefighters must be addressed as well. It is not unusual to see depression, decreased motivation in rehab, relationship challenges, or problems with substance abuse arise with cases of long term rehab. The PST approaches this risk factor proactively by reaching out to firefighters that are on extended injury leave as a protocol. In 2013 the PST made over 110 contacts.

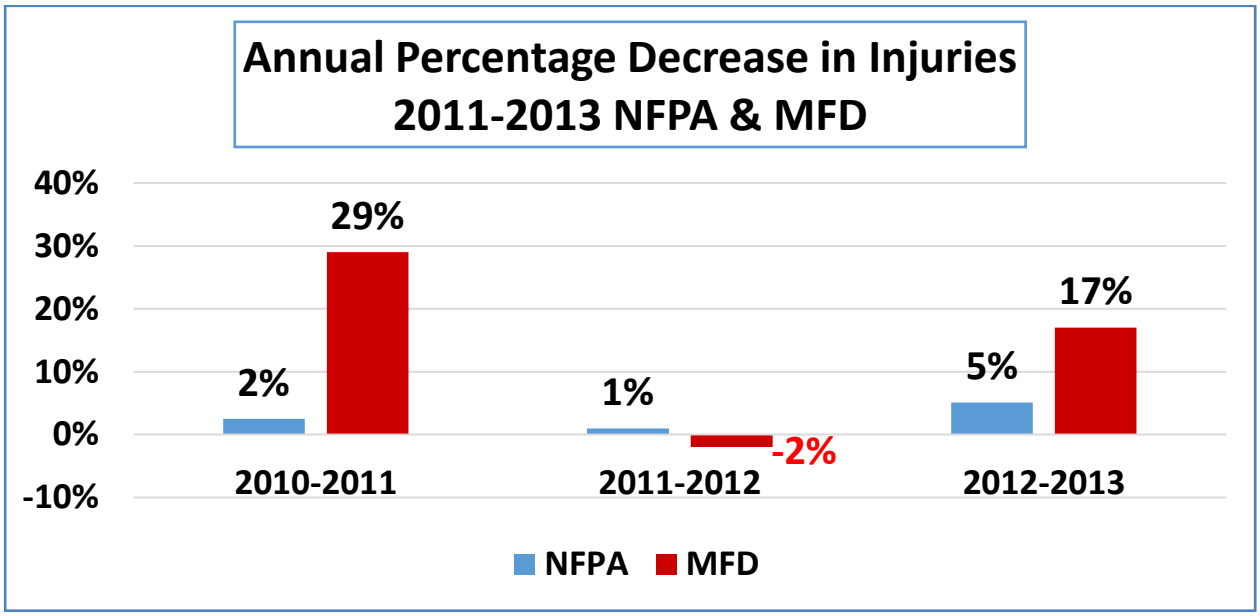
Data Analysis





This is a 25% decrease in lost time injuries from 2012. One of the goals for implementing the new, firefighter-specific fitness program was to reduce the severity of injuries. Purposes for implementing the case management program was to improve access to the appropriate level of care, reduce the wait time for appointments, and to achieve definitive diagnosis quicker.


Percentage Decrease in Injuries
2010-2013 NFPA & MFD
60%
40%
20%
0%
8%
41%
2010-2013
NFPA
MFD


Annual Percentage Decrease in Injuries
2011-2013 NFPA & MFD
40%
30%
20%
10%
0%
-10%
2%
29%
1%
-2%
5%
17%
2010-2011
2011-2012
2012-2013
NFPA
MFD

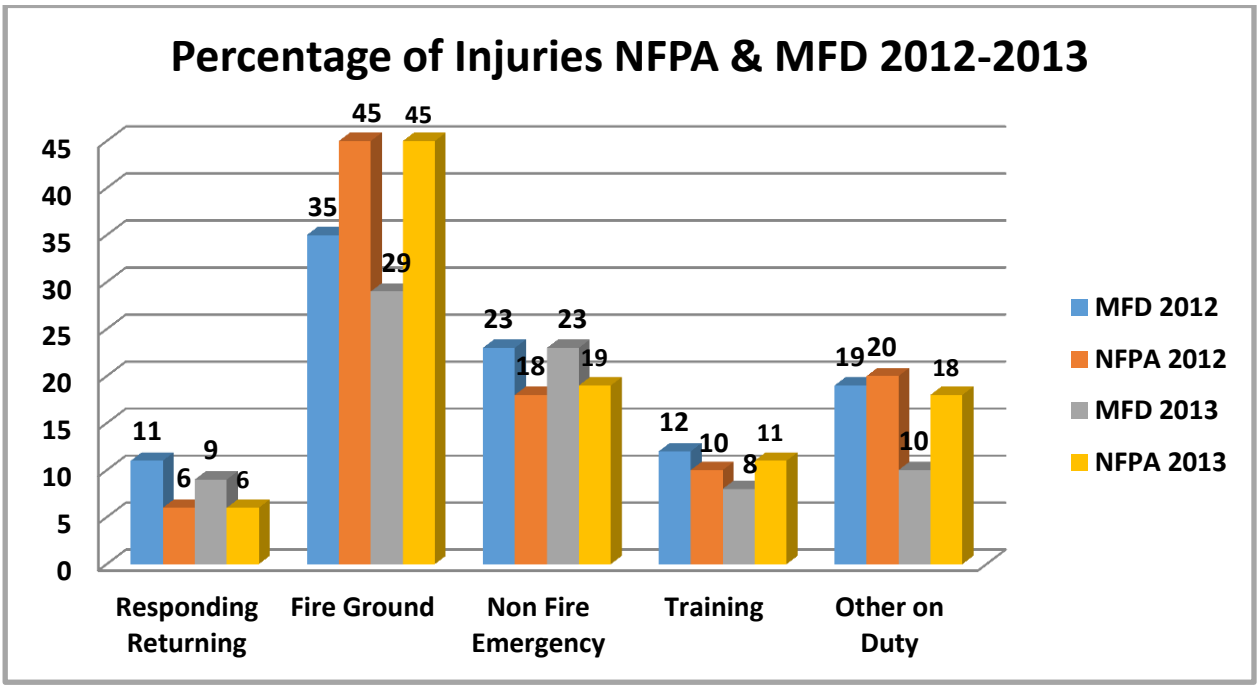
INJURIES RECORDABLE CASES IN EMERGENT ENVIRONMENT				
	Total OSHA Recordable (No LT)	LT of OSHA Recordable	Non-OSHA Recordable	Total
2007	32	163	292	487
2008	17	174	292	430
2009	16	151	292	367
2010	13	183	292	399
2011	7	99	162	268
2012	4	102	163	269
2013	10	84	134	228

INJURIES RECORDABLE CASES IN NON EMERGENT ENVIRONMENT				
	Total OSHA Recordable (No LT)	LT of OSHA Recordable	Non-OSHA Recordable	Total
2007	8	119	114	241
2008	13	90	91	194
2009	3	100	91	194
2010	12	87	116	215
2011	9	81	75	165
2012	8	83	80	171
2013	12	54	73	139

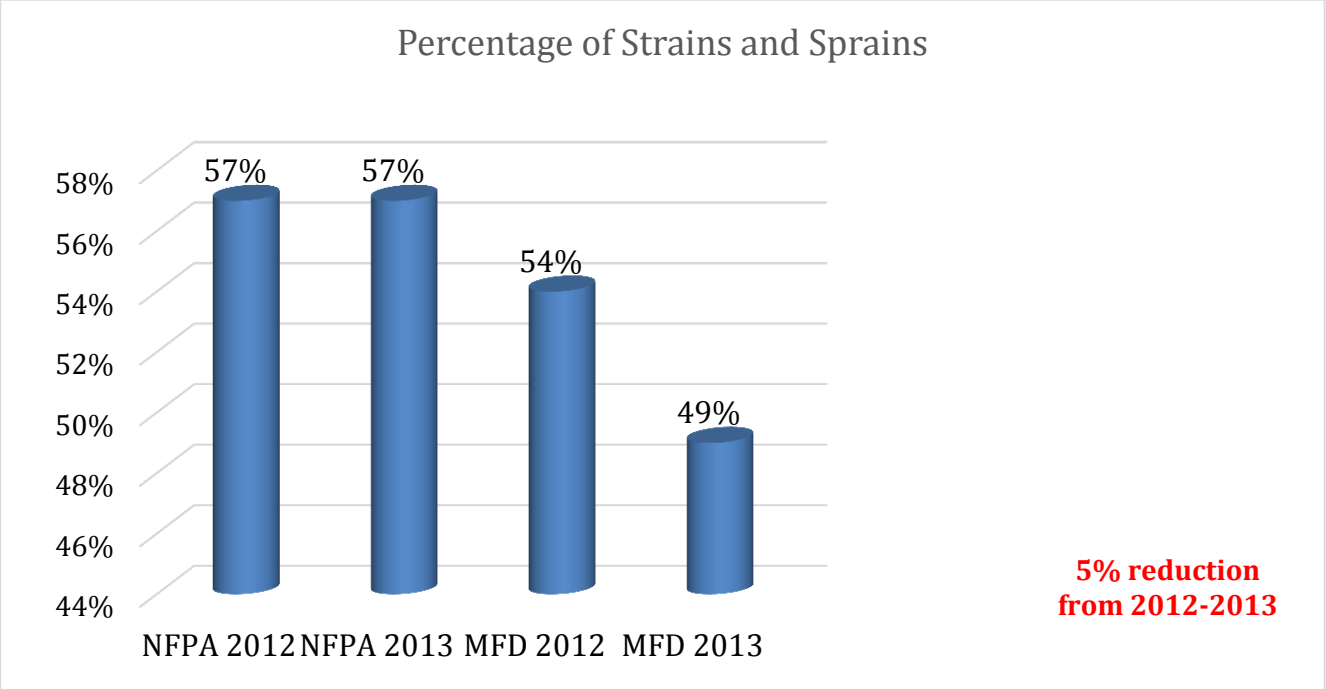
INJURY CLAIMS BY DUTY IN EMERGENT ENVIRONMENT			
	FIRE	NONFIRE / EMS	RESPONDING / RETURNING
2007	254	191	77
2008	209	171	76
2009	188	147	63
2010	216	139	62
2011	137	104	43
2012	152	100	48
2013	109	85	32

INJURY CLAIMS BY DUTY IN NON EMERGENT ENVIRONMENT		
	TRAINING	OTHER ON DUTY MNTNCE
2007	62	144
2008	29	138
2009	51	115
2010	57	140
2011	49	100
2012	56	84
2013	29	38

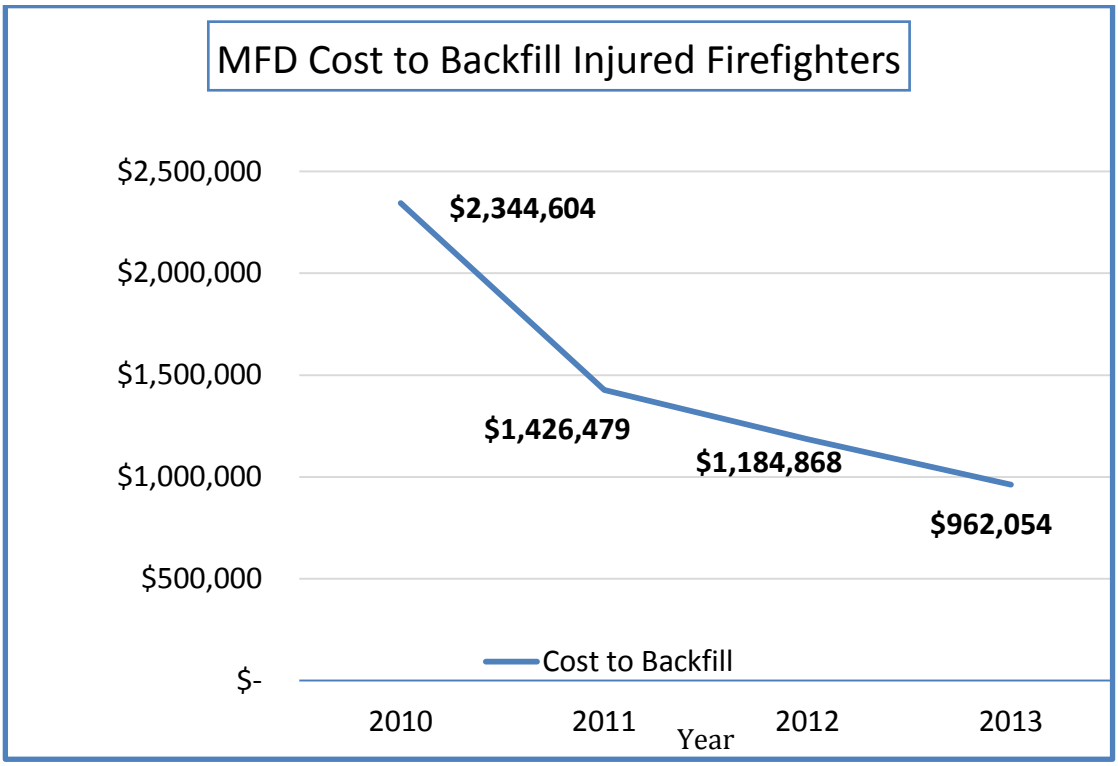
Workers' Compensation General City Data Report For MFD						
MFD	2011	2012	2013	% Change over Prior Year	% Change Since 2008	3 Yr Avg
Claims	432	437	367	-16.6%	-41.3%	414
Recordable Cases	197	195	159	-18.5%	-45.9%	184
Incidence Rate	17.86	17.79	14.48	-18.6%	-41.0%	16.7
Lost Workdays	4,614	4,652	3850	-17.2%	-62.0%	4,372
Injury Hours	52,670	43,749	35,522	-18.8%	-66.8%	43,980
Injury Pay	$1,010,069	$889,758	$749,192	-15.1%	-61.7	$883,181



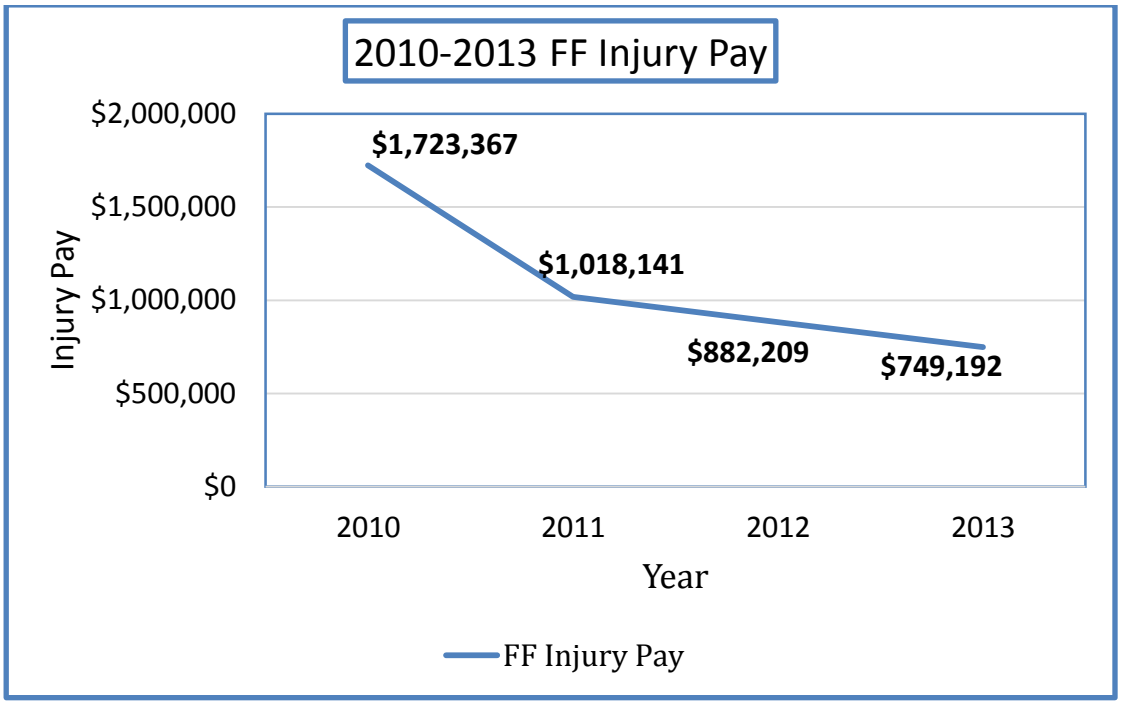
Percentage of Injuries MFD / NFPA 2012-2013					
	Responding Returning	Fire Ground	Non Fire Emergency	Training	Other on Duty
MFD 2012	11	35	23	12	19
NFPA 2012	6	45	18	10	20
MFD 2013	9	29	23	8	10
NFPA 2013	6	45	19	11	18



Strains and sprains are a result of lack of range of motion, excessive load handling, or overexertion that yields poor movement or body mechanics. This is especially important for firefighting since a great deal of the work in the field is performed in awkward or unstable positions. The MFD fitness program is designed for firefighters to train with dynamic loads in awkward positions, at high intensities for short periods of time, with a focus on strength, power, coordination, mobility, core stability and flexibility.

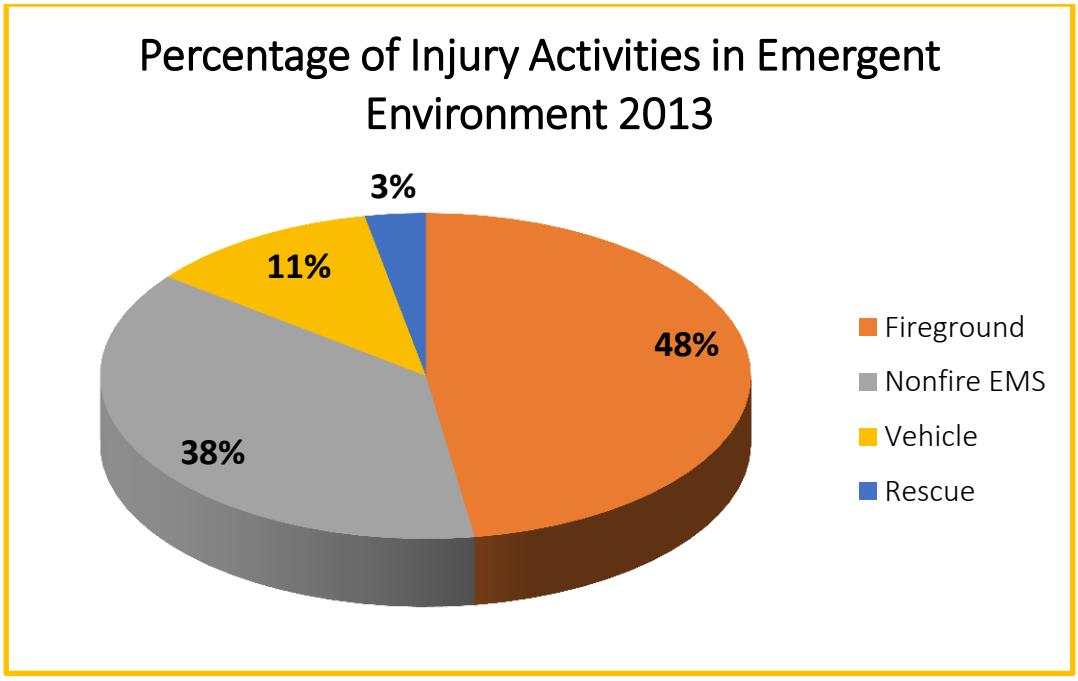


$1,382,550 in spending reduction for backfilling firefighters since 2010.



$974,175 in spending reduction on injury pay for firefighters since 2010.

EMERGENT ENVIRONMENT

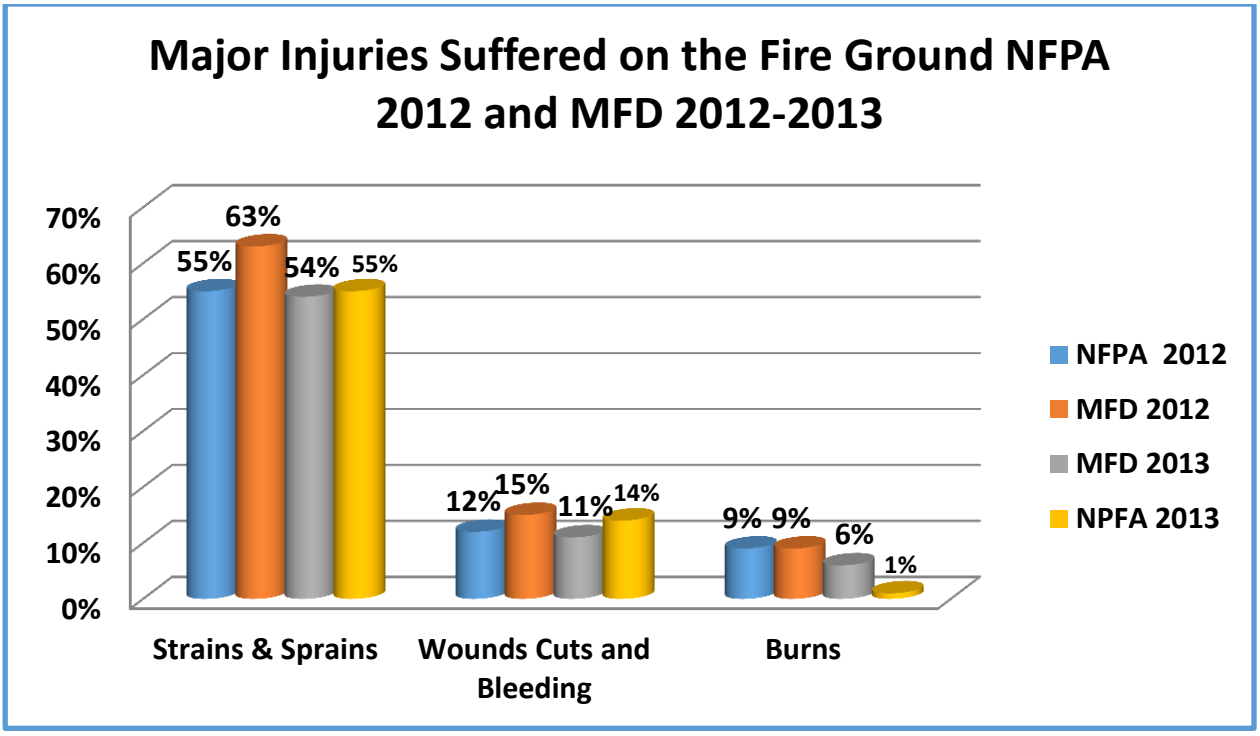


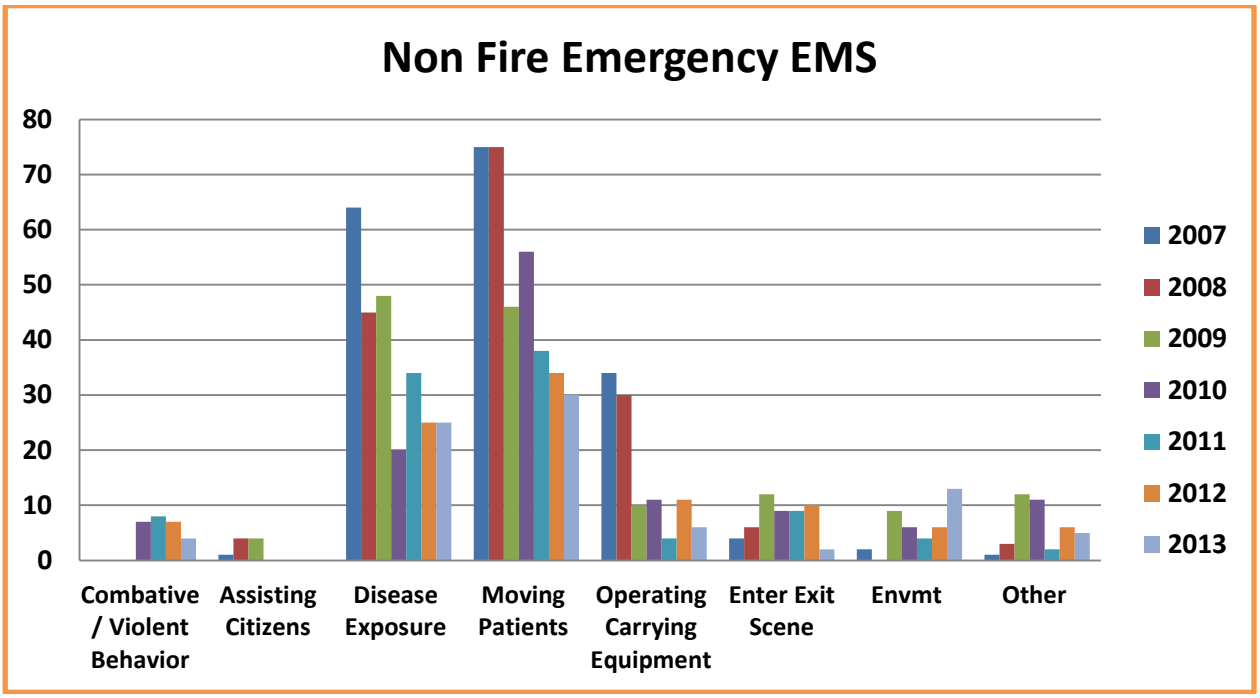
Emergent Environment Nature of Injury												
	Fire STF	Non-Fire STF	STF	Burns	Fire Strain	Non- Fire EMS Strains	Exposure	Fracture / Wound	Cardio / Resp	Smoke Inhalation	Thermal Stress	Other
2007			125	19	109	105	80	28	3	4		14
2008			94	19	123	99	59	27	3	4		2
2009			67	13	139	63	50	14	2	2	13	0
2010	43	23		18	125	87	40	17	3	1	11	29
2011	26	11		7	85	58	42	13	6	0	3	15
2012	24	5		14	95	50	28	23	3	1	6	20
2013	37	20		6	58	44	30	12	1	0	5	13
% Diff 2012-2013	54%	300%		57%	39%	12%	7%	48%	67%	100%	17%	35%

Numbers in red indicate reduction; numbers in black indicate increase.

The increase in slips, trips, and falls (STF) derived from icy conditions on the fireground and on-scene for EMS runs during the 2013 winter season. During the 2014 in-service trainings special emphasis is being placed on how firefighters move on the fireground expeditiously while maintaining a more controlled speed. The Health and Safety Committee is also looking into acquiring leather boots for firefighters. The National Institute of Occupational Safety and Health (NIOSH) has conducted research which shows that the leather boot provides a more stable gait for the firefighter in the field.

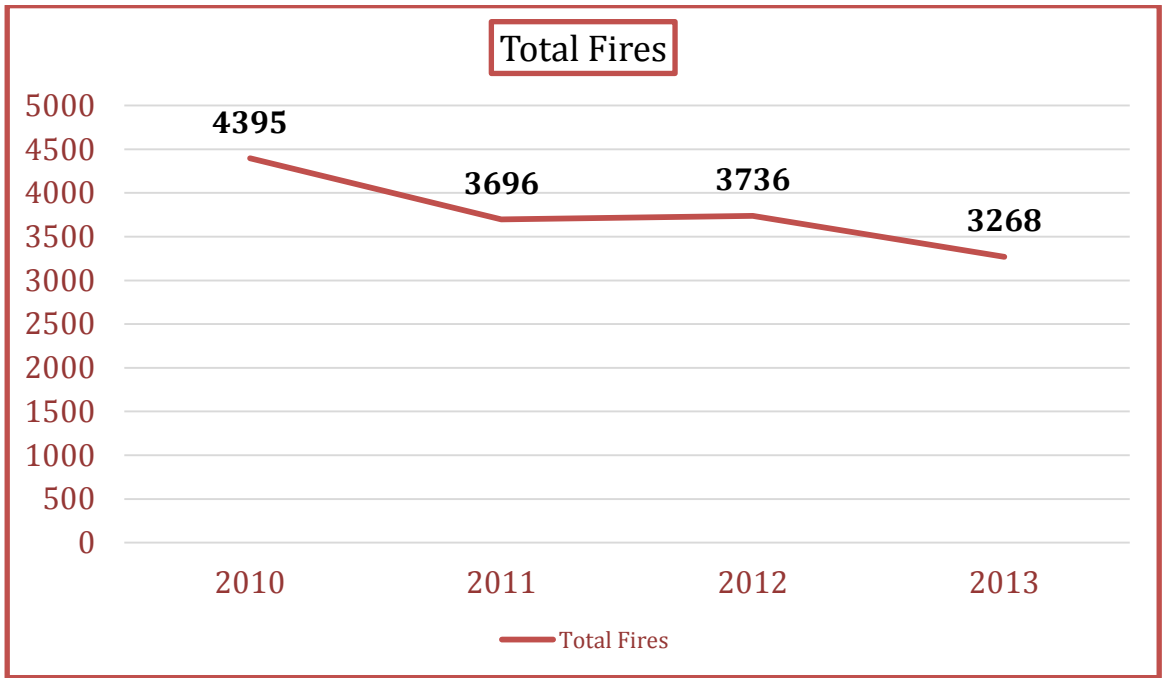
Fire Ground Activities											
	Contact with Struck by Object	Assisting Citizens	Exp. Hazardous Conditions	Search & Rescue	Fire Suppression	Overhaul	Entering / Exiting Hot Zone	Carry Equip	Donn Doff Gear	Envmt	Other
2007		0	17	7	119	61	19	23	1	3	4
2008		0	12	6	99	37	22	21	1	7	4
2009		2	0	5	84	49	13	20	1	13	0
2010	26		18	10	68	32	4	35	3	17	1
2011	15		11	5	34	29	5	24	1	11	2
2012	17		1	6	56	30	8	24	0	6	4
2013	6		1	5	39	19	8	13	1	13	4



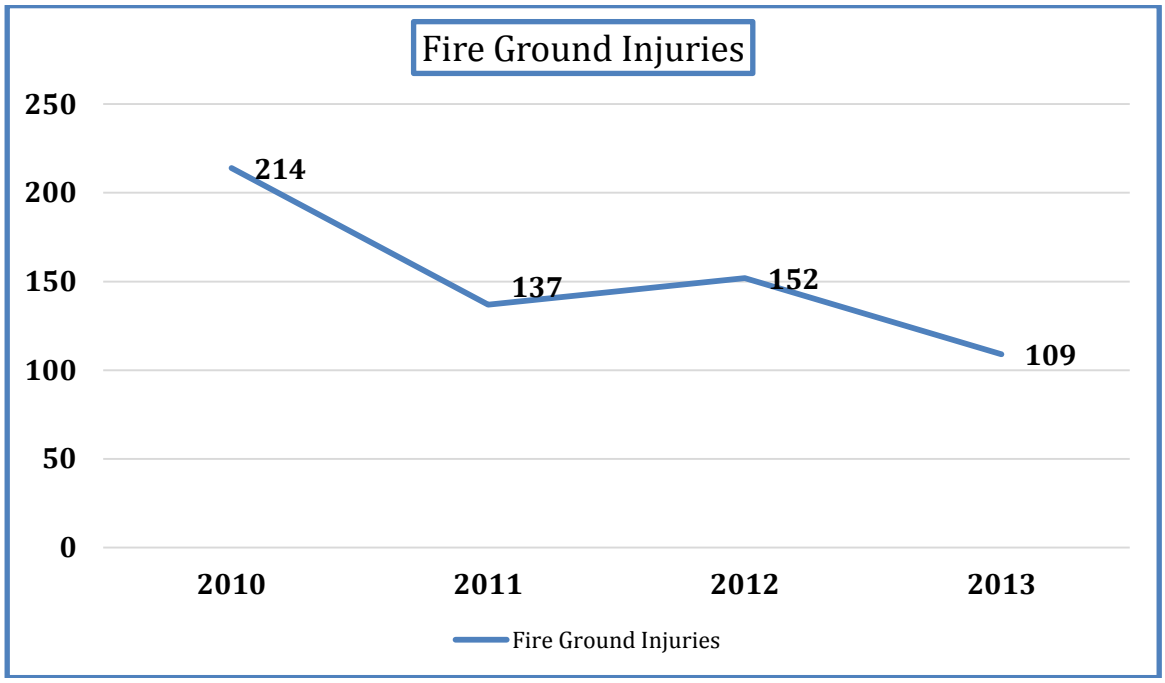


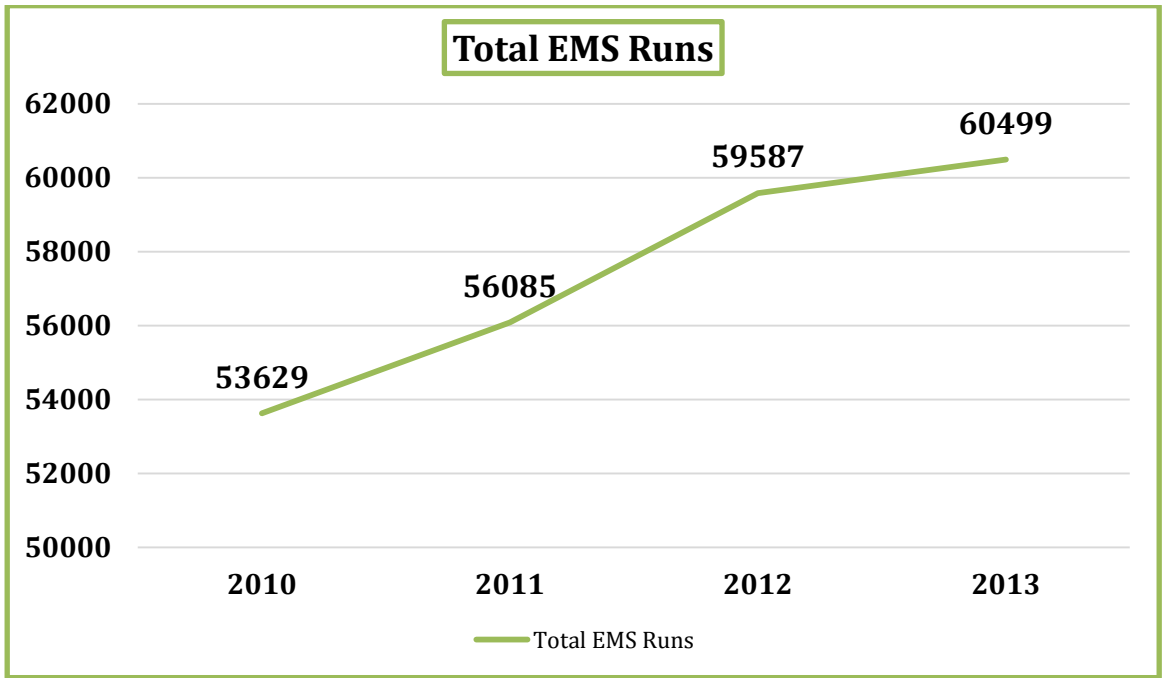
	Combative / Violent Behavior	Assisting Citizens	Disease Exposure	Moving Patients	Operating Carrying Equipment	Enter Exit Scene	Envmt	Other
2007		1	64	75	34	4	2	1
2008		4	45	75	30	6	0	3
2009		4	48	46	10	12	9	12
2010	7		20	56	11	9	6	11
2011	8		34	38	4	9	4	2
2012	7		25	34	11	10	6	6
2013	4		25	30	6	2	13	5

The increase in injury claims for the environment were due to increased exposure to bed bugs. The department implemented a containment control measure which is continually being revised.

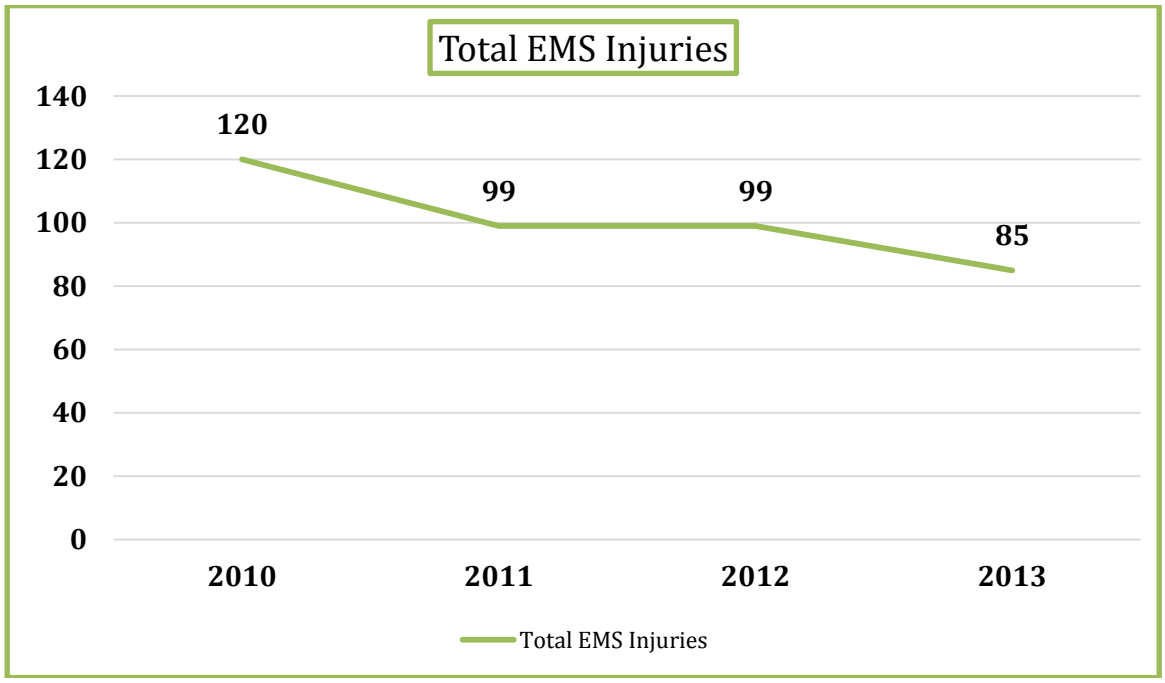


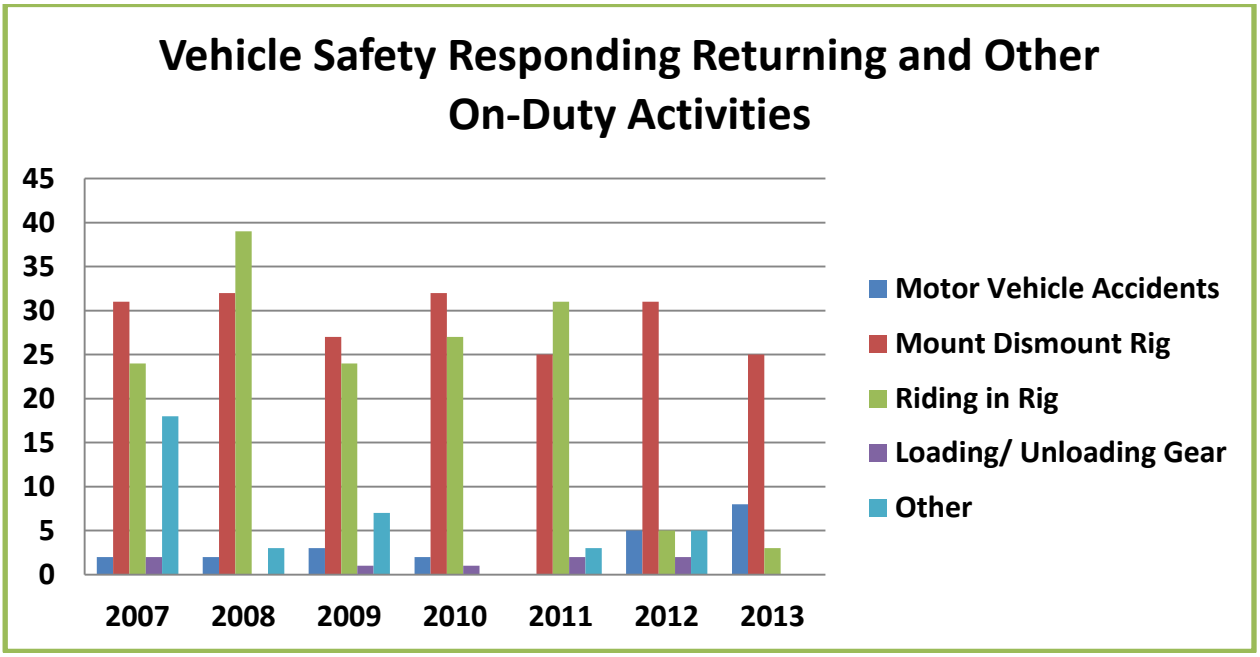
There are additional factors that contributed to the 40% reduction in total injuries and 49% reduction in lost time injuries. One factor was the frequency of risk exposure compared to the probability of injury. There was a 26% reduction in total fire responses by the MFD (since 2010). In comparison there was a 49% reduction in total fireground injuries. In theory, the higher the frequency of risk exposure, the greater the probability for injury, and vice versa. One major organizational control measures that contributed to this was Project Focus.





Analyzing the EMS injuries, there was an indirect relationship when comparing the number of EMS runs since 2010 (increase of 13%) and the total number of EMS injuries (29% decrease). Control measures related to engineering and firefighter functional movement had a greater influence. Examples are the implementation of powered cots, the separation of the BLS kit into two lighter units, and the implementation of FIT Camps and health and fitness classes that focused on efficient tactical movements (handling dynamic loads in unstable positions).





Vehicle Safety Responding Returning and Other On Duty Activities					
	Motor Vehicle Accidents	Mount Dismount Rig	Riding in Rig	Loading/ Unloading Gear	Other
2007	2	31	24	2	18
2008	2	32	39	0	3
2009	3	27	24	1	7
2010	2	32	27	1	0
2011	0	25	31	2	3
2012	5	31	5	2	5
2013	8	25	3	0	0

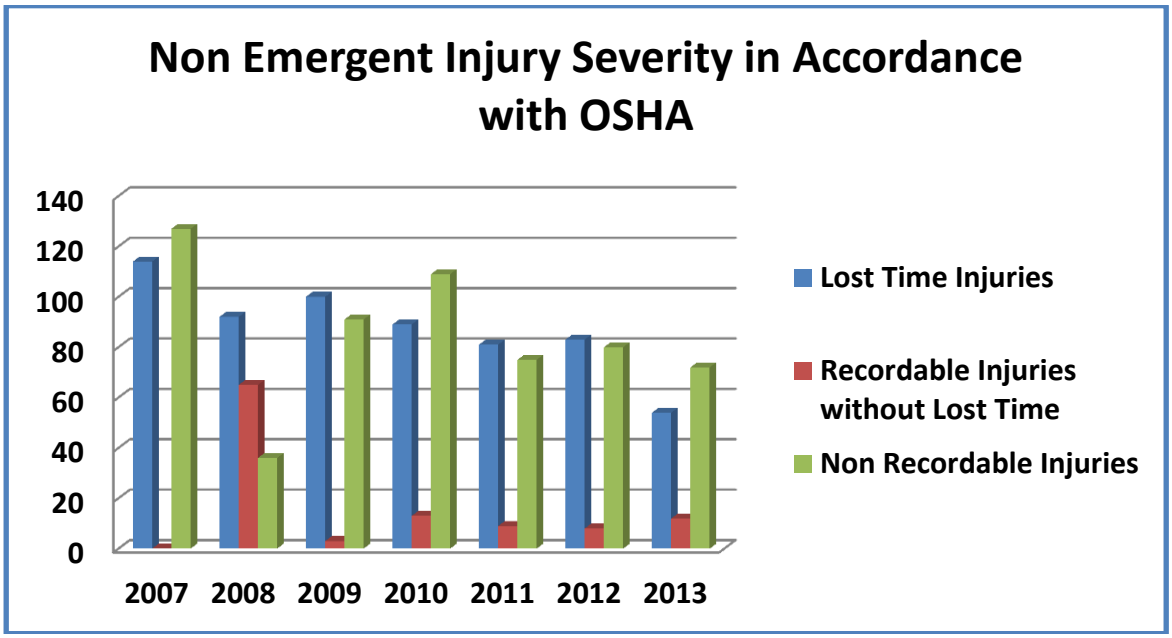
Mounting Dismounting

There are plans to develop a new training video in 2014 to review mounting and dismounting the engine or truck taking into account different terrains, such as snow and potholes and other inherent hazards. In addition, the PFT program is developing a training program for firefighters that focuses on developing the gluteal muscles as a decelerator when dismounting from the rig, rerouting the stress that typically would go against the knee.

Motor Vehicle Accidents (MVA)

Three of the injuries resulting from motor vehicle accidents (MVAs) were categorized as OSHA-Recordable. Out of those three injuries, two resulted in lost time accruing 196 total hours and $23,576.00. There is an increase in the number of MVAs involving a drunk, civilian driver against department vehicles. The control measures to address this are under investigation.

NON-EMERGENT ENVIRONMENT

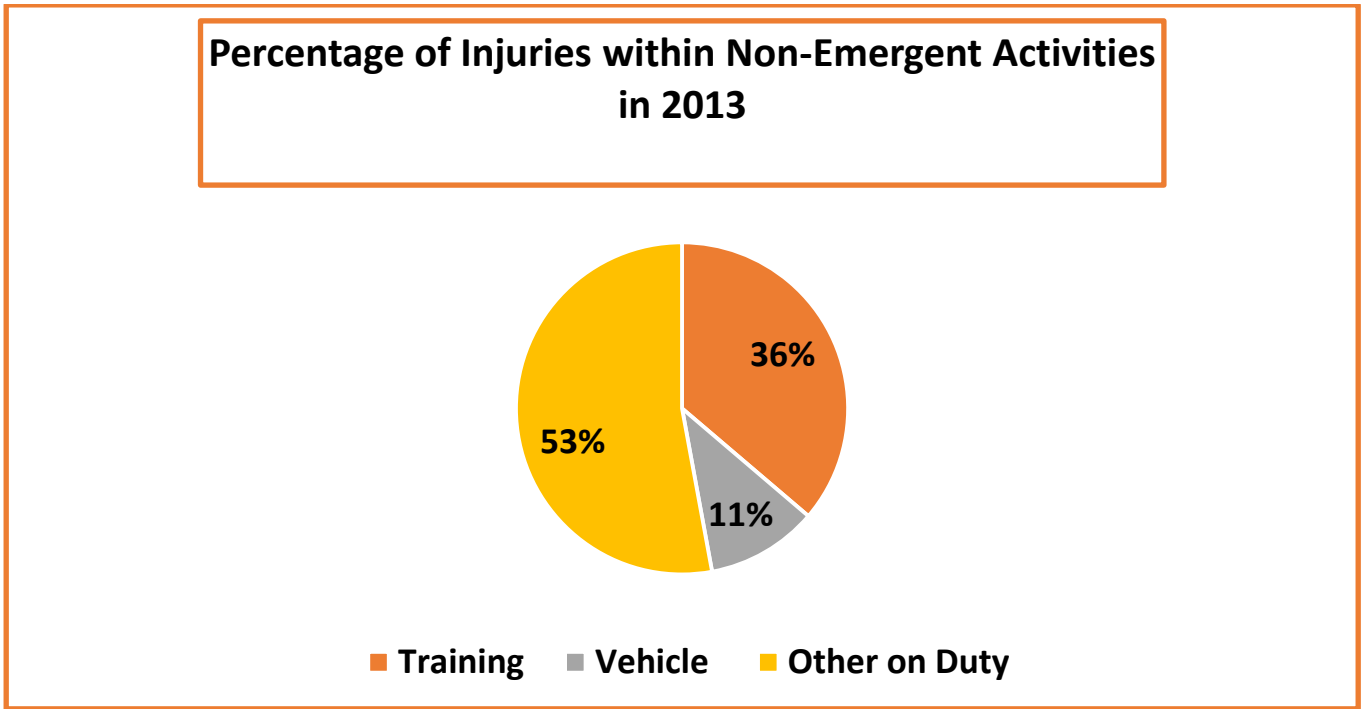


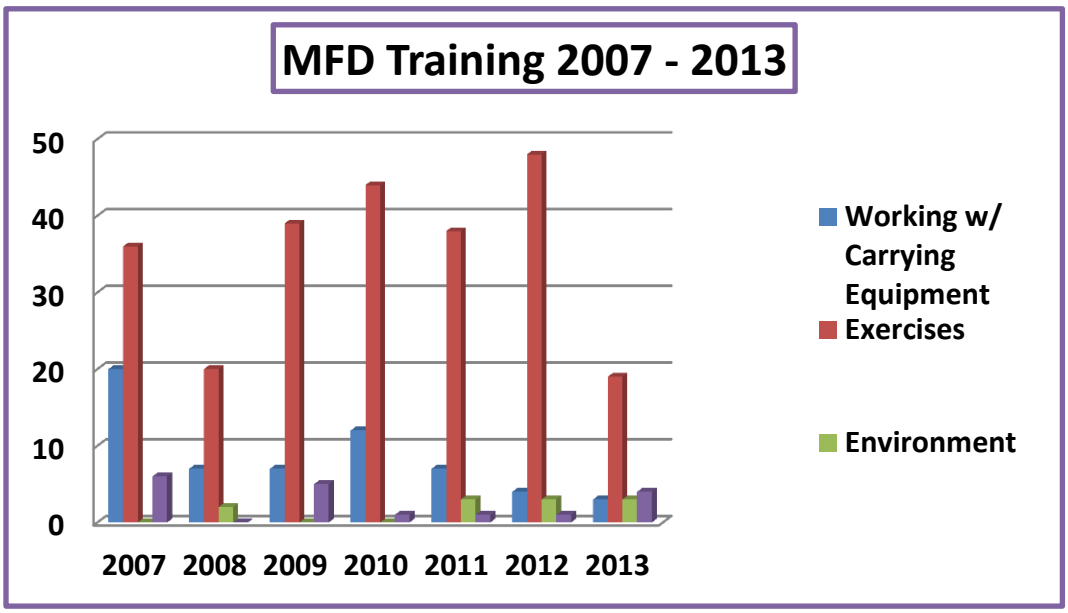
	Lost Time Injuries	Recordable Injuries without Lost Time	Non-Recordable Injuries
2007	114	0	127
2008	92	65	36
2009	100	3	91
2010	89	13	109
2011	81	9	75
2012	83	8	80
2013	54	12	73

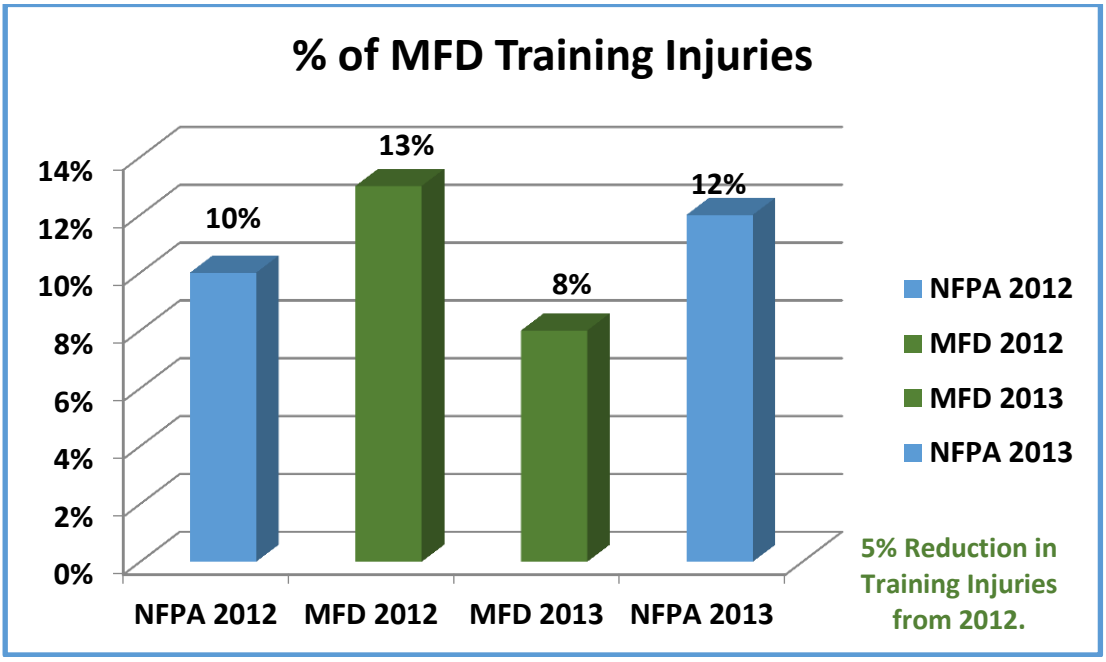
Nature of Injury Non Emergent Environment								
	STF	**Burns**	**Strains**	**Lac/Crush**	**Exposure**	**Fracture/Wound**	**Cardio / Resp**	**Other**
2007	34	4	59	18	21	16	7	82
2008	50	4	49	11	16	16	4	43
2009	39	6	107	22	0	2	4	14
2010	27	3	107	16	23	4	6	25
2011	22	2	99	12	1	6	9	13
2012	27	2	94	20	1	4	7	16
2013	24	2	77	8	6	2	6	14
%Change b/w 2012-2013	11%	No Change	18%	60%	500%	50%	14%	19%

Numbers in red indicate reduction; numbers in black indicate increase.

Three claims from swift water dive training (exposure to potential raw sewage ingested) contributed to the increase in injury claims for exposures. None of those claims resulted in lost time.

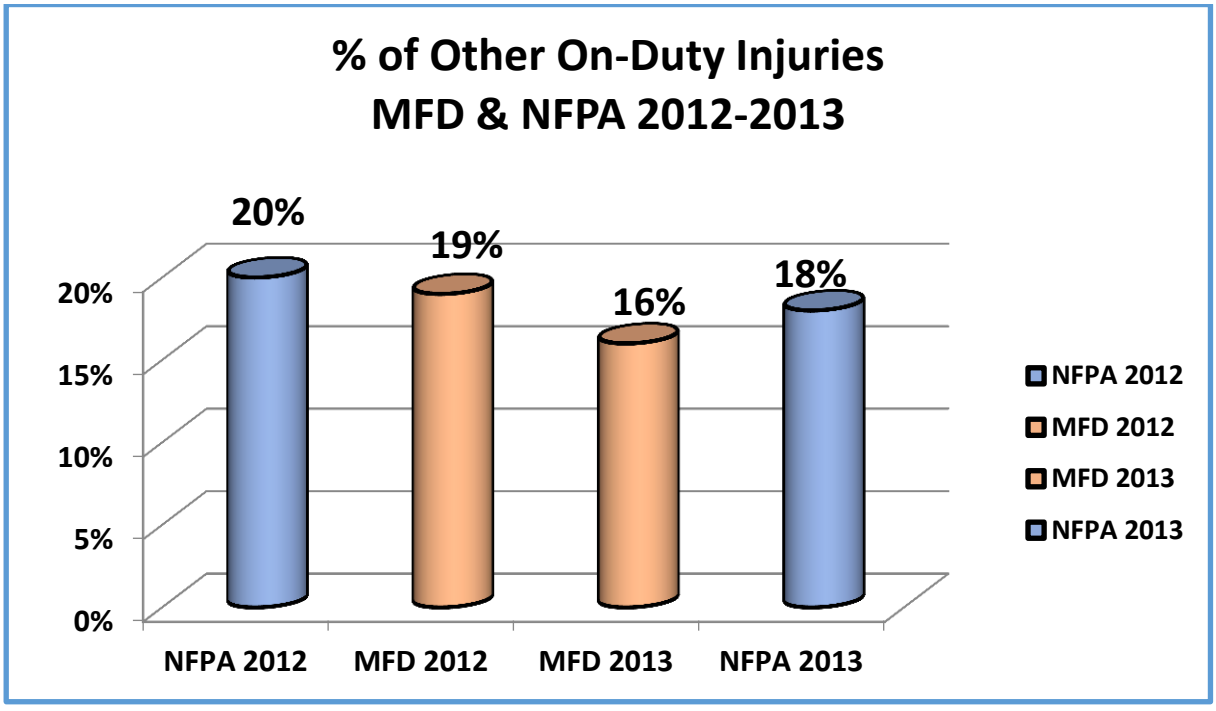

Percentage of Injuries within Non-Emergent Activities in 2013
36%
11%
53%
Training
Vehicle
Other on Duty


MFD Training 2007 - 2013
50
40
30
20
10
0
2007
2008
2009
2010
2011
2012
2013
Working w/ Carrying Equipment
Exercises
Environment



MFD Training 2007 - 2013				
	Working w/ Carrying Equipment	Exercises	Environment	Other
2007	20	36	0	6
2008	7	20	2	0
2009	7	39	0	5
2010	12	44	0	1
2011	7	38	3	1
2012	4	48	3	1
2013	5	36	4	5

Other On Duty Maintenance and Inspection 2007- 2013								
	Testing Cleaning Maintenance	Exposure	Maintenance House Duties	House Activities	Kitchen Activity	Physical Fitness	Envmt	Other
2007	29	5	18	1	17	15	16	43
2008	29	5	21	32	14	15	9	13
2009	37	0	4	12	13	15	3	30
2010	36	3	3	30	10	29	12	13
2011	26	0	2	21	7	21	10	13
2012	14	0	4	16	10	17	8	15
2013	15	0	0	18	5	10	9	17
% Change b/w 2012-2013	7%	No Change	400%	13%	50%	**41%**	13%	7%



Section IV: Accident Investigation

This section provides a detailed description of the department's safety audits and accident investigation protocols and procedures. Also included is a table summary which documents the department's safety audits, accident investigations, resulting outcomes, as well as training or other department initiatives that were implemented as part of an investigation finding. Lastly this section details any accidents that occurred as a result of negligence and the department's action(s) to prevent the occurrence of similar accidents/injuries.

A. Accident Investigation Protocols & Procedures: (*The following protocols and procedures occur with each injury claim that is submitted)*

- Injured firefighters are to report the incident to their immediate chain-of- command, regardless of whether or not they are seeking medical attention.
- Within 24 hours, the electronic injury analysis/reporting system is to be initiated.
- If the injured has received medical treatment, the reporting officer is to begin to gather all pertinent information surrounding the incident to determine exactly what happened.
- The reporting officer will initiate the injury reporting form F-149; submission must occur within 24 hours of the injury.
- Upon the submission of the electronic F-149, an electronic notification will be sent to the HSO, ISO, all Battalion Chiefs and command staff.
- The reporting officer will review all gathered information, including interviews, determine causal factors and control measures. If assistance is needed the HSO, ISO, or Battalion Chief are a ready resource.
- The reporting officer will complete the electronic causal factors and control measures form. Based on control measures recommended, implementation may require additional support.
- The next forms to complete electronically will be the injured firefighter and witness forms.
- Monitoring and follow-up of the recommended control measures is to take place within two weeks of implementation.

B. Safety Audits, Accident Investigation & Resulting Outcomes Table

- Via the department electronic injury reporting system, we identify hazards, causal factors, and recommend control measures for ever injury claim. The MFD has a system to conduct a full scale accident investigation when it is warranted, such as an incident that would lead to multiple significant firefighter injuries. As mentioned in the beginning of section 3, the primary focus in 2013 was to implement the WFI as the injury prevention control measure. While each injury went through the injury review process, a full scale accident investigation was not warranted. If hazards were identified that exceeded the scope of the measures that were being implemented in the WFI or within the appropriate bureau, an investigation would have occurred.

Section V: Transitional/Light Duty Program

This section describes the department's light duty (MFD Return to Work Program) including the rules and regulations associated with the program, standard metrics for the program, and details about how the department measures the effectiveness of the program.

A. Light Duty/Return to Work Program (RTW) Description (including the rules/regulations)

- RTW is available to all department personnel that have suffered a work-related injury, have not been released to full-duty, and have been cleared by their provider to participate in a light duty program.
- Participants that qualify are assigned to a 4-hour workweek, regardless of position. The only caveat to that is if the physician feels otherwise that a 20-hour workweek is more appropriate.
- The Assistant Chief of the Support Bureau administers the program. The Chief Medical Officer is the liaison between the department, the physicians, and Work Comp.
- Firefighters are assigned alternated duty jobs that do not violate their restrictions. This is normally at one of the department bureaus/divisions or with the HSO.
- During said 40-hour workweek assignments they are allowed to attend all doctors and therapy appointments on-duty.
- In 2014 the RTW program will also include injured firefighting conditioning.
- In order to exit RTW, one of these three criteria must be met:
  1. Be released to full duty.
  2. Must have reached their maximum healing, as determined by their physician.
  3. Updated status reports (F-149R) are not submitted.

B. Program Metrics/Measures

- Fill in the table below

Year	Number of Individuals in Return to Work (RTW) Program	Avg Length of Time (Days) on RTW	Number of Individuals Exceeding RTW Timeframe	Number of Individuals Not Placed due to lack of Assignments
2007				
2008				
2009				
2010	102	1996	0	0
2011	54	1257	1	0
2012	48	642	0	0
2013	46	630	0	0

- The light duty assignments vary based on the firefighters' skillset, the bureau/division they are assigned to, and their current restrictions. They can be assigned to:
  - Construction & Maintenance -typically delivering or stocking supplies
  - Administration - filing paperwork or working on special projects

- Special Teams – varying projects (must be a member of a special team)
- Technical Services - typically consists of delivering items throughout the city
- Health and Safety - typically consists of delivering equipment or assisting with the logistics of special projects such as respiratory fit testing or department-wide lab draws

C. Effectiveness of Light Duty/Return to Work Program (RTW)

- The department has achieved the main purpose of the RTW program, which was to reduce the amount of time firefighters spent on injury leave by offering alternate assignments.
- The program also effectively re-engages firefighters back into the firefighter family, which improves the mental health wellness of the firefighter.
- Combines with the newly implemented Injury Rehabilitation/Case Management Program.
- With the implementation of the injured firefighting conditioning program in 2014, the RTW program is developing into a rehab program for an industrial athlete. This should yield better results in the time of participation in RTW and the performance in the field.

Section VI: Problematic Areas

This section focuses on areas that may need additional departmental attention and review including high cost claims, repeat claimants, late submitted claims, and detail steps the department will take when appropriate to address these issues.

A. High Cost Claims

- 17% of injuries occurred while slipping on ice; the remaining 83% occurred while performing a lift push or pull activity. The variables that make an injury cost $100,000 vs $700 are not that far apart when it comes to orthopedic injuries and the unconventional movements required of firefighters. In the field, the specific manner in which an activity is performed cannot be standardized because of the changing variables at each scene. Yet, focusing on specific principles of movement, how to protect one's core in awkward or unstable positions, how to move objects more with gluts and hips vs. back, that will have a greater impact on the reduction in frequency and severity of such claims.
- Once the injuries have occurred, the cost of the medical bill cannot be controlled. What can be controlled is the productive vs. unproductive time firefighters spend in the rehabilitation process. Reducing wait times for appointments, and ensuring therapists and physicians have the information they need to move ahead with an appropriate program designed for firefighters is crucial. This includes ensuring Work Comp has the information they need to understand the rehab status of the firefighter, as well as ensuring firefighters' needs are met, and questions answered, so that the process is not impeded. An obstacle in the flow of the rehab process can delay care anywhere from a week to a month, which can cost thousands in backfill dollars, injury pay and medical costs from delayed treatment.

B. Repeat Claimants

- In addition to the standardized injury analysis process, firefighters that have multiple claims in one year will be sent to the Injury Review Panel to identify possible causal factors that the department can further address.
- When appropriate, each claimant that also has multiple claims will be referred to a Peer Fitness Trainer for a one-on-one consultation. The one-on-one consultation will consist of a movement efficiency screen (analysis of movement limitations or compensations that might lead to future injuries) and a customized tactical-fitness designed program.

C. Late Submitted Claims

- 83% of the claims that were submitted late stemmed from firefighters trying to manage the injury on their own, thinking that the symptoms would go away. When the symptoms from the injury would not subside then a claim was submitted.
- As part of the injury reporting process, injury forms are to be submitted within 24 hours of the incident. Firefighters are being encouraged to submit a claim regardless of whether or not they seek medical treatment. This reporting requirement is so that the hazards can be identified and mitigated, as well as timely submission of the injury reports.

Section IX: Safety Goals and Objectives

This section documents all the departmental safety goals and objectives along with the appropriate action steps necessary to ensure completion including the parties responsible for implementation and the timeframe to accomplish.

- Please use the table on the next page to document information for this section.

MFD Safety Goals

1. Based on the data analysis and information presented in this report, detail all safety goals and initiatives for 2014 including expected outcomes and estimated completion dates.
2. Please fill in all columns for each goal.

Risk Management Model 2014 Safety Goal Planning Matrix Department: Milwaukee Fire Department				
2014 Safety Goals and Action Step(s)	**Goal Outcome(s)**	**Completion Date**	**Responsible Person(s) for Goal Tracking and Completion**	**Impact or relevance to safety and/or workplace injuries**
Examples **Implement procedure for investigating workplace injuries** • Develop injury investigation procedure and share with managers • Train managers on proper injury investigation techniques • Develop mechanism to track investigation findings	• Investigation forms • Formalize investigation procedures • Training program completed by all field managers • Tracking mechanism developed and implemented	August 2014	• Safety specialist to develop procedure, investigation forms and tracking mechanism • All department managers to complete training • Safety supervisor to analyze investigation findings	Regular investigation of workplace injuries will ensure that all injuries are properly documented and reported. In addition, it will pinpoint areas, job activities, and/or positions that are more prone to injury, and highlight possible reasons for unsafe work conditions.

Risk Management Model 2014 Safety Goal Planning Matrix Department: Milwaukee Fire Department				
2014 Safety Goals and Action Step(s)	**Goal Outcome(s)**	**Completion Date**	**Responsible Person(s) for Goal Tracking and Completion**	**Impact or relevance to safety and/or workplace injuries**
Formalize a Health Education and Injury Prevention Program • Implement monthly health and fitness classes • Implement company-based trainings for topics covering mental and physical health and injury prevention	Develop the training program Injury prevention and firefighter fitness performance training is disseminated to all department personnel	January 2014	HSO to develop program SOP and training topics. PFTs and PSTs will develop an education program. Academy staff will build the Health/Fitness/Injury Prevention programs into all department- wide trainings.	The fitness/injury prevention training program will ensure firefighters have the opportunity to learn how to move and protect their bodies from injuries that occur when moving dynamic loads in awkward or unstable positions. It ensures that they have the resources to train, and the knowledge of how to train, combined with the opportunity to train in the firehouse. All of which is designed to increase the chances that the movement principles are employed in the field.
Implement an auditing and formal monitoring program for all implemented control measures	Effectively identify safety hazards and ensure that all implemented control measures for accidents are working	September 2014	HSO to develop SOP Technical Services will develop electronic auditing program Company officers will implement the program	This program will close the loop on the injury analysis process, ensuring that the control measures are effective. It also ensures that we have a formalized system to identify hazards, specifically in the firehouse.

Risk Management Model 2014 Safety Goal Planning Matrix Department: Milwaukee Fire Department				
2014 Safety Goals and Action Step(s)	**Goal Outcome(s)**	**Completion Date**	**Responsible Person(s) for Goal Tracking and Completion**	**Impact or relevance to safety and/or workplace injuries**
Implement the WFI Fitness Assessment	Establish baseline health fitness values for all firefighters	October 2014	HSO will develop program SOP and address all program logistics PFTs will conduct assessments UWM will conduct all skills training with the PFTs Operations and the academy will schedule personnel to attend	Provide firefighters with a clear understanding of their current fitness and movement efficiency levels so they know the areas in which to improve upon. Acquire aggregate data on the overall fitness condition of the fire department so that we can strategically plan training programs.
Implement the Injured Firefighter Conditioning Program for firefighters participating in the RTW program Equip Station 5 with conditioning equipment that can be used for injured firefighters Create an SOP for the program Designate a rehab trainer to be in charge of the program	Establish a conditioning program that injured firefighters can participate in to improve their conditioning and ability to move for firefighting before returning to full- duty.	May 2014	HSO to address project logistics to implement the site (design and equipment) HSO to develop program SOP HSO to assign, designate, and train a rehab trainer to run the day to day operations	Injured firefighters are released to full-duty when their injured site is healed. This program ensures from a conditioning level that the rest of their body is prepared to return to the physical demands of firefighting. Overexertion is one of the leading causal factors for strains and sprains.