



**MEDFORD FIRE-RESCUE
FIRE & LIFE SAFETY DIVISION**

2011 Fire Marshal Report

Prepared by Fire Marshal Greg Kleinberg



Fire Prevention Week Open House Burn Demonstration 10-8-2011

Executive Summary

In 2011, Medford Fire-Rescue (MFR) responded to 277 fire incidents that occurred within its jurisdiction. Fires involving structures accounted for 41% of the total fire incidents and vegetation (wildland/grass) fires accounted for 20% of the total fire incidents. Two civilian fatalities and eight civilian injuries were attributed to the structure fires. The fires caused \$1.4 million in total losses; however, over 98% of the potential losses associated with these fires were saved. The overall trend in number of total fires occurring each year has slightly decreased in the last decade.

The Fire and Life Safety Division (FLSD) investigated 94 out of the 277 fires in 2011 for origin and cause (the other fires were investigated by on-duty firefighters at the Company level). Of the 113 structure fires investigated, the overall determination of cause resulted in conclusions that 85% were unintentional, 10% intentional and 5% undetermined.

The structure fires primarily occurred in residential occupancies (83%), with a much smaller percentage in commercial occupancies (17%). Of the residential fires, 79% occurred in single family dwellings and 21% occurred in multifamily dwellings. Kitchens continue to be leading area of fire origin (34%), with heat from operating equipment leading the sources of ignition (25%). The overall trend in number of residential structure fires occurring each year has remained level in the past decade, with the overall trend in the number commercial structure fires decreasing in the past decade. Lack of functioning smoke alarms (disabled or missing) continues to be an area of concern in residential fires. Approximately 400 residences in this jurisdiction are now equipped with fire sprinkler systems, which greatly increases an occupants chance of survival.

In 2011, MFR was involved in 319 public education events contacting over 21,000 people with fire and life safety messages. The Department continues to support a variety of events and is involved in programs that make a difference. The FLSD also issued media releases and spoke to the media throughout the year about fires that occurred and delivered fire prevention information.

MFR staff conducted 1204 compliance inspections in 2011 in both residential and commercial occupancies, noting 828 fire code violations. Staff worked diligently throughout the year to ensure the violations were corrected and public safety was not jeopardized. An essential function of MFR is to ensure existing buildings are maintained in a safe condition for occupancy.

The FLSD was also responsible for overseeing 174 operational/construction permits and performing 177 plan reviews. FLSD staff conducted 248 inspections, noting 304 fire code violations associated with the permits. This is an important part of fire prevention, to ensure that the public is safe at events and buildings are constructed with the required fire and life safety essentials.

In summary, MFR worked diligently in 2011 to keep this community safe. This was accomplished through both reactive responses to incidents and proactive efforts to prevent tragedy. Future community risk is reduced through public education and enforcement efforts. We will continue to deliver a high level of service in 2012.

Medford Fire-Rescue's Fire and Life Safety Division (FLSD) serves a population of nearly 90,000 people that reside within a geographic area covering over 56 square miles. This area includes the City of Medford and Medford Rural Fire Protection District #2. The Division is responsible for:

- ◆ Conducting business fire and life safety compliance inspections
- ◆ Performing origin and cause fire investigations
- ◆ Providing public education encompassing all aspects of fire and life safety issues
- ◆ Issuing fire code permits and conducting related inspections
- ◆ Reviewing land development projects for access and water supply requirements
- ◆ Conducting plan review/inspections for fire protection systems in both new and existing structures.

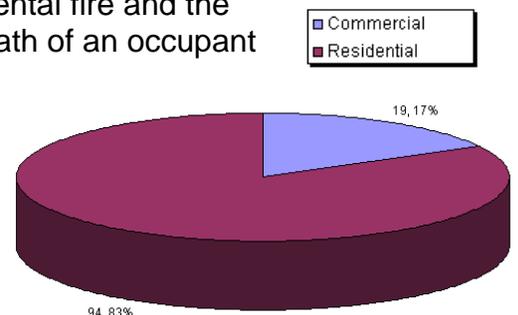
The following highlights fire statistics and summarizes the Division's 2011 activities.

2011 in Retrospect

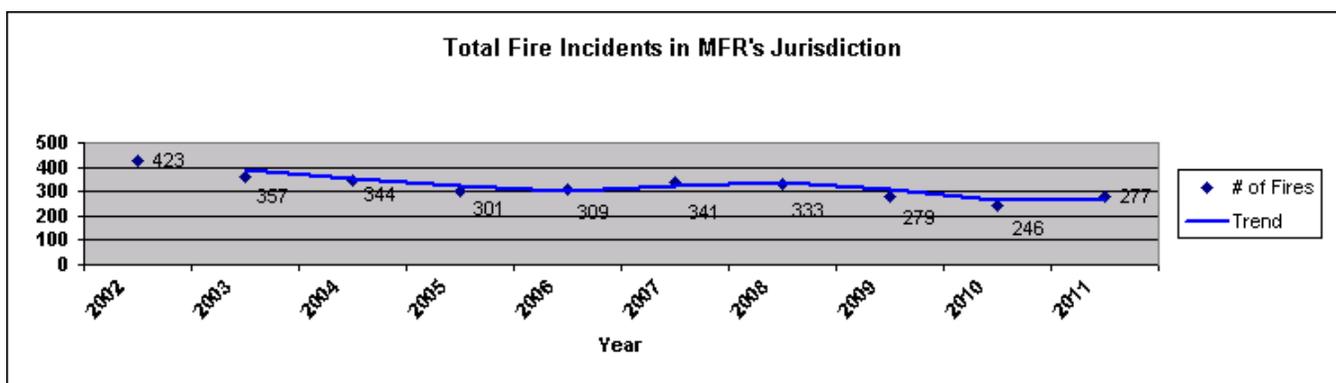
Fire Incidents

Medford Fire-Rescue (MFR) responded to 302 fire incidents in 2011, with 277 fire incidents occurring within its jurisdiction. Fire incidents accounted for 3.6% of the total call volume. Medford experienced 113 structure fire incidents in 2011 causing \$1.4 million in total losses. Over \$133 million in potential losses were associated with these incidents. There were eight civilian injuries associated with these fires. Two fire fatalities occurred in two incidents, one incident that killed a single occupant associated with an accidental fire and the other incident where the fire may have been a factor in the death of an occupant associated with an intentionally set fire.

Of the structure fires that occurred, 83% occurred in residential occupancies (79% in single family dwellings and 21% in multi-family dwellings) and 17% occurred in commercial occupancies. MFR also responded to 55 wildfires (including grass fires) during the year. The FLSD investigated a record 94 fires in 2011.



2011 Medford Structure Fires-
By Residential/Commercial





Residential Structure Fire Statistics

Number of Fires: 94

Total \$ Loss: \$ 1,329,750

Type:

- 66% Building Fire
- 22% Cooking Fire
- 12% Chimney or Flue Fire

Areas of Origin:

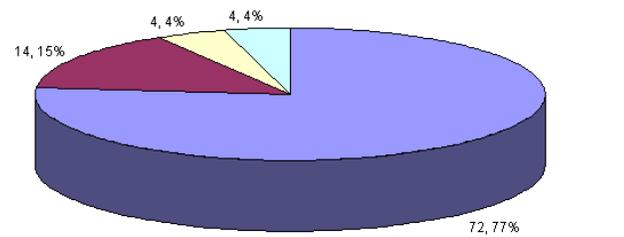
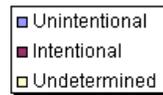
- 34% kitchens
- 11% function areas, other
- 9% bedrooms

Initial Ignition Heat Sources:

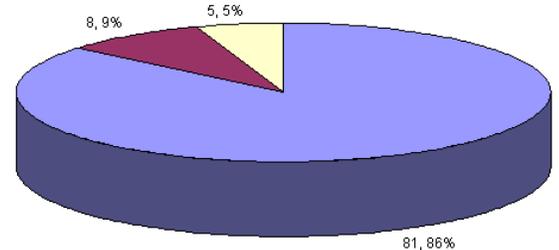
- 25% heat from powered equipment
- 18% radiated/conducted heat from operating equipment
- 11% electrical
- 10% hot or smoldering object

Causes:

- 86% unintentional
- 9 % intentional
- 5 % undetermined
- 0% act of nature



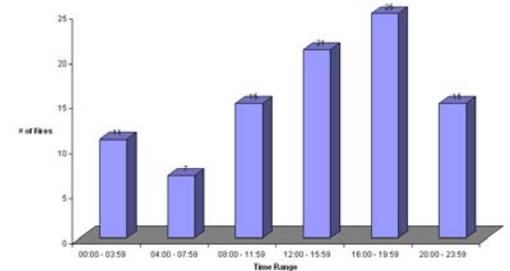
2011 Medford Residential Structure Fires-
By Property Loss



2011 Medford Residential Structure Fires-
By Cause of Ignition

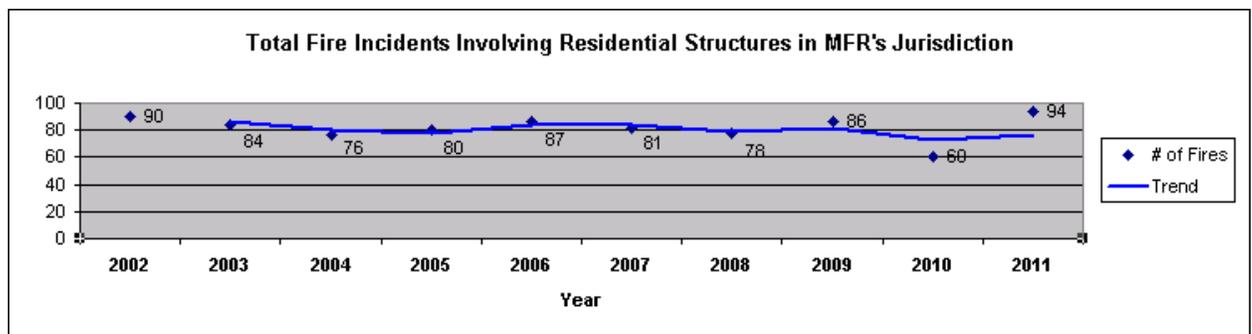
Time of Alarm:

- 11.7% between 12:00 AM and 3:59 AM
- 7.4% between 4:00 AM and 7:59 AM
- 16.0% between 8:00 AM and 11:59 AM
- 22.3% between 12:00 PM and 3:59 PM
- 26.6% between 4:00 PM and 7:59 PM
- 16.0% between 8:00 PM and 11:59 PM



2011 Medford Residential Structure Fires-
By Time of Alarm

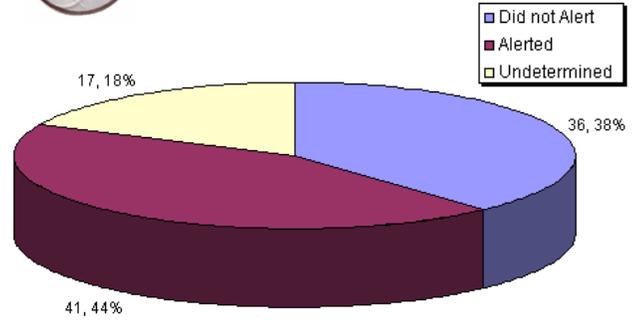
10-Year Trend:



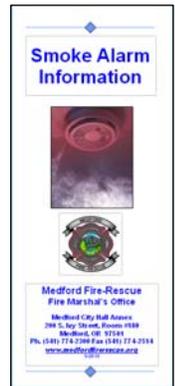
Residential Smoke alarms:

- 44% present and alerted the residents
- 38% did not alert or were not present

Although national surveys have shown that 96% of all households have at least one smoke alarm, it is troubling that smoke alarms did not alert or were not present in over a third of Medford's residential fires. One explanation for this is that, in some cases, the smoke alarms may not have been a factor in the fire (chimney/flue fires, exterior fires, etc.). While Medford's statistics in this area are not out of the ordinary, (NFPA reported that "Smoke alarms sounded in roughly half of the home fires reported to U.S. departments"), we know that having properly placed and maintained smoke alarms in the home reduces the risk of dying in a house fire by 50%. National statistics also show that smoke alarms are missing in 2/3 of fatal residential fires. Having an early warning in a house fire is essential for effective evacuation; increasing the possibility that someone may make it out alive. In 2007 Medford Fire-Rescue implemented a program where smoke alarms were checked during any incident (including medicals) occurring at a residence. We will continue to target this area.



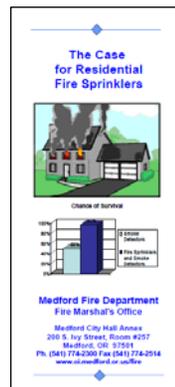
2011 Medford Residential Structure Fires- By Smoke Alarm Alert



Residential Fire Sprinkler Systems:

Medford now has approximately 400 residences equipped with fire sprinkler systems. These include single family residences, multifamily dwellings, townhomes, etc. Whereas smoke alarms are important to provide an occupant an early warning signal to evacuate the home, fire sprinklers control the fire in the earliest stage, which gives the occupant a much greater chance of survival. A residential fire sprinkler system is designed to prevent flashover and thereby provide a survivable environment. Flashover is a condition of very turbulent fire behavior when there is enough radiant energy in a compartment to simultaneously ignite everything that is combustible from floor to ceiling. Flashover is a fire condition that is unsurvivable throughout a structure, even when an occupant is remote from the area of origin.

In 2011, the FLSD conducted two separate side-by-side bedroom fire demonstrations which displayed the value of residential fire sprinkler systems. These demonstrations dramatically showed that without fire sprinklers the occupant has a very limited time period to evacuate the home before conditions become life threatening (You can view a public education video presentation that was produced from these at: <http://www.youtube.com/watch?v=ZM5zO3L76QU>). Both demonstrations achieved flashover within 5 minutes. An occupant's survival is directly related to the evacuation capability of the occupant while conditions are still tenable in the structure. Young children and the elderly are 2-4 times at risk of dying in a fire as they have reduced evacuation capabilities. Fire sprinklers control the fire while it is still small, thereby giving everyone, regardless of evacuation capability, a chance to survive. Installing both smoke alarms and a fire sprinkler system significantly increases the occupant's chance of surviving a home fire. The keys to success in promoting residential fire protection systems are educating the public in their benefit and trying to remove misconceptions and other barriers which exist that hinder their use.



Commercial Structure Fire Statistics

Number of Fires: 19

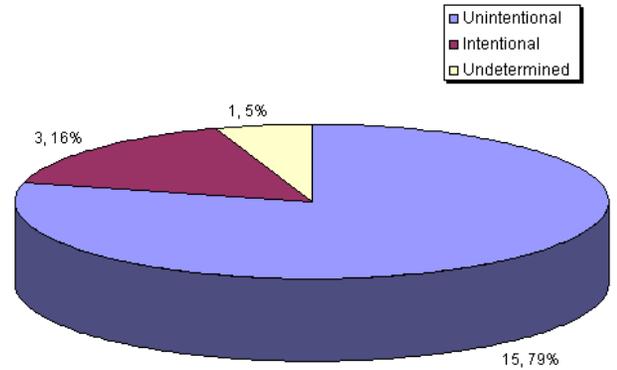
Total \$ Loss: \$87,780

Areas of Origin:

- 21% cooking areas
- 21% outside areas
- 11% assembly or sales area

Causes:

- 79% unintentional
- 16% intentional
- 5% undetermined
- 0% act of nature



2011 Medford Commercial Structure Fires-
By Cause of Ignition

Property Use

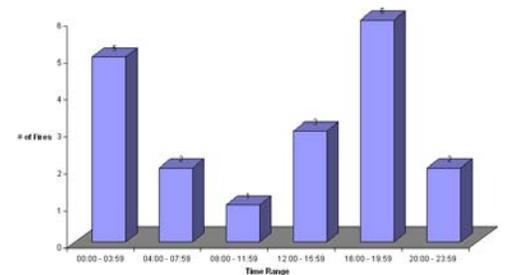
- 17% restaurants
- 11% institutional, hospital, etc.
- 11% mercantile
- 11% motor vehicle sales, services, repair

Initial Ignition Heat Sources:

- 20% radiated heat from operating equipment
- 16% electrical arcing
- 16% heat from open flame or smoking materials

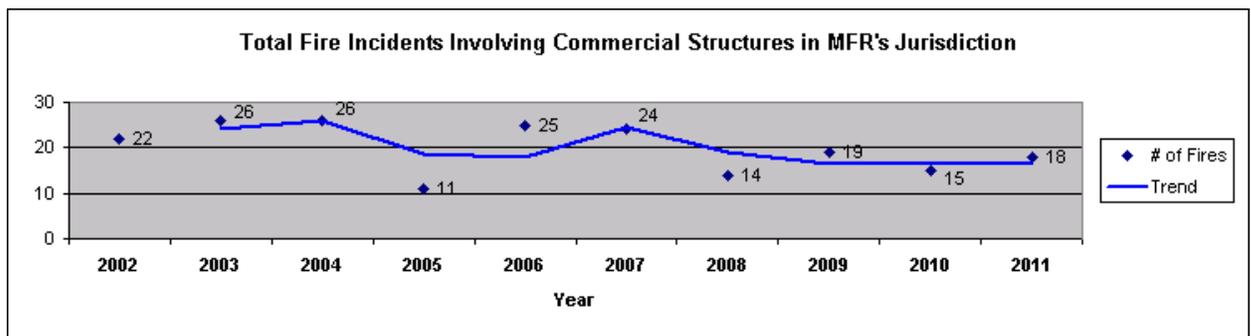
Time of Alarm:

- 26.3% between 12:00 AM and 3:59 AM
- 10.5% between 4:00 AM and 7:59 AM
- 5.3% between 8:00 AM and 11:59 AM
- 15.8% between 12:00 PM and 3:59 PM
- 31.6% between 4:00 PM and 7:59 PM
- 10.5% between 8:00 PM and 11:59 PM



2011 Medford Commercial Structure Fires-
By Time of Alarm

10-Year Trend:



Wildfires (Includes grass/vegetation)

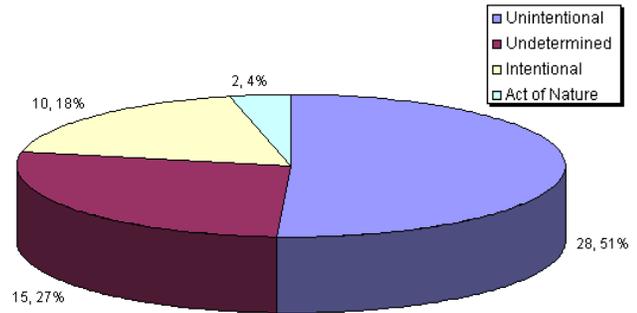
Although there were 55 wildland/vegetation fire incidents in 2011, Medford experienced very little damage.

Number of Fires: 55

Total Acres: 12

Causes:

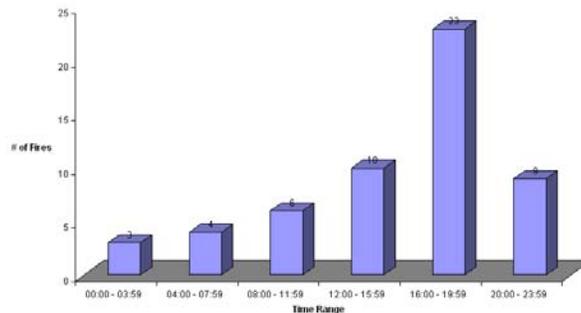
- 51% unintentional
- 18% intentional
- 4% act of nature
- 27% undetermined



2011 Medford Wildfires-
By Cause of Ignition

Time of Alarm:

- 9.5% between 12:00 AM and 3:59 AM
- 6.4% between 4:00 AM and 7:59 AM
- 17.5 between 8:00 AM and 11:59 AM
- 23.8% between 12:00 PM and 3:59 PM
- 31.7% between 4:00 PM and 7:59 PM
- 11.1% between 8:00 PM and 11:59 PM

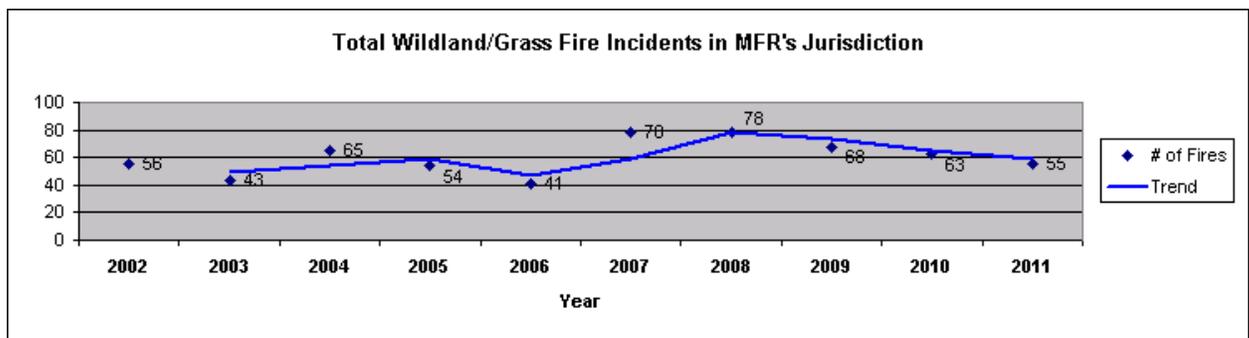


2011 Medford Wildland/Vegetation Fires-
By Time of Alarm

Medford Fire-Rescue began the Wildland-Urban Interface Home Evaluation Program in 2010. This program is a chance for homeowners living in wildfire risk areas to receive free on-site advice about how they can make their properties more resistant to wildfires. The program's goal is to ensure safe access into and out of the property, to reduce ignition hazards around the home, and to create effective defensible space.



10-Year Trend:



Juvenile Set Fires

In 2011, MFR responded to 6 intentionally set juvenile related fires. These included 2 structure fires and 4 outside wildland/grass fires. The fires caused \$2,100 in damage. In addition to these, some of the undetermined wildland/grass fires likely involved juveniles. The FLSD has personnel trained to screen juveniles after they are involved in a firesetting incident. In addition, the FLSD works with the Juvenile Department and Victims Assistance/Youth Accountability (VAYA) to ensure juvenile firesetters receive intervention counseling.

Arson Fires

Of the 277 fire incidents within MFR's jurisdiction, 53 were intentionally set fires causing \$112,150 in total losses. Medford Fire-Rescue has a close working relationship with law enforcement agencies when conducting fire investigations. In cooperation with the Medford Police Department, 48 arson fires were reported in 2011, resulting in 23 cases where suspects were charged for a total of 33 charges. The 33 charges included 10 juveniles (ages ranging from 15-17 years old) and 23 adults.

Public Education

Medford Fire-Rescue took part in 319 public education events/sessions, reaching over 21,000 people. The FLSD took part in 54 of these public education events/sessions, reaching more than 4,800 individuals. The FLSD also spoke to the Media throughout the year about fires and prevention information. Medford Fire-Rescue continues to be the lead agency in Southern Oregon Safe Kids Coalition. In addition, Medford takes an active role in several public education programs throughout the year, including:



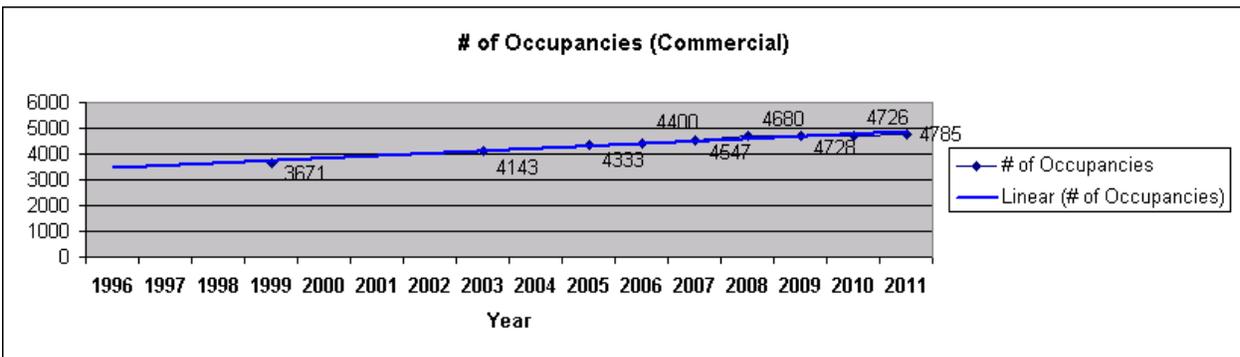
- The Hazard House program, where nearly 1,700 fourth grade students in 18 schools were taught about smoke alarms, home fire safety, and home escape planning
- The Safe Kids Fair
- Multi-cultural Fair
- Fire Prevention Week Open House
- Child Safety Seat clinics
- Adult Foster Care Provider Classes
- Juvenile Firesetter Intervention
- Wildland-Urban Interface Home Evaluations

The FLSD maintains a wealth of information on the City's website and continues to develop educational materials to serve the public. Included are a variety of MFR fire and life safety brochures.



Commercial Inspections and Enforcement

The approximate number of commercial occupancies in Medford Fire-Rescue's jurisdiction grew by 60 in 2011 to 4,785.



Our Oregon State Fire Marshal (OSFM) exemption (OAR 837-039) status requires specific occupancies to be inspected at set intervals. For all occupancies regulated by the Oregon Fire Code, we are required to inspect on a frequency deemed necessary to provide a reasonable level of fire and life safety.

Inspections are prioritized into three categories, High Risk, Moderate Risk, and Low Risk.

- High Risk – Annual Inspection Goal

Characteristics:

- Potential for high life loss (high concentrated occupant loads or significant public hazard)
- Loss would be considered a significant economic impact to the community
- May include processes or contents that are considered highly hazardous.
- May include structures with required built-in fire protection systems, or may include State of Oregon mandated annual inspections.



- Moderate Risk – Bi-Annual Inspection Goal

Characteristics:

- Potential for low life loss (low occupant loads and moderate public hazard)
- Loss would be considered a moderate economic impact to the community
- May include processes or contents that are considered moderately hazardous.

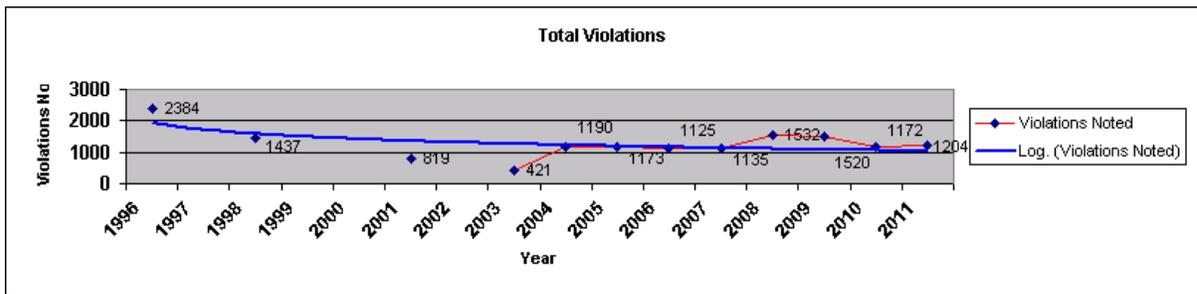


- Low Risk – Inspection Goal Every 3 Years

Characteristics:

- Potential for low life loss (low occupant loads and low public hazard)
- May include processes or contents that are considered the least hazardous
- Loss would be considered a minor economic impact to the community.

During 2011, Medford Fire-Rescue conducted 1,204 compliance inspections and 248 permitted inspections. These inspections resulted in 828 fire code violations noted during the regular business fire inspections and 304 violations noted during the permitted inspections.

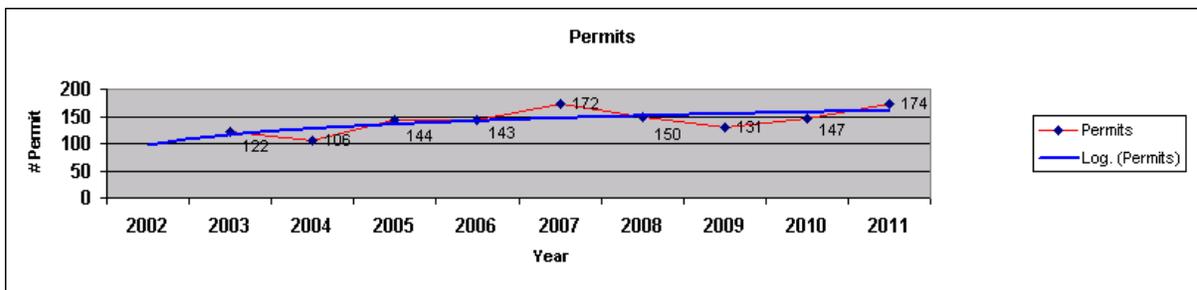


The FLSD continues to manage a Self-fire Inspection Program. The intent of this program is to educate low hazard businesses about fire code requirements, have them physically check their premises, and provide a safety check during the interim between longer inspection intervals.



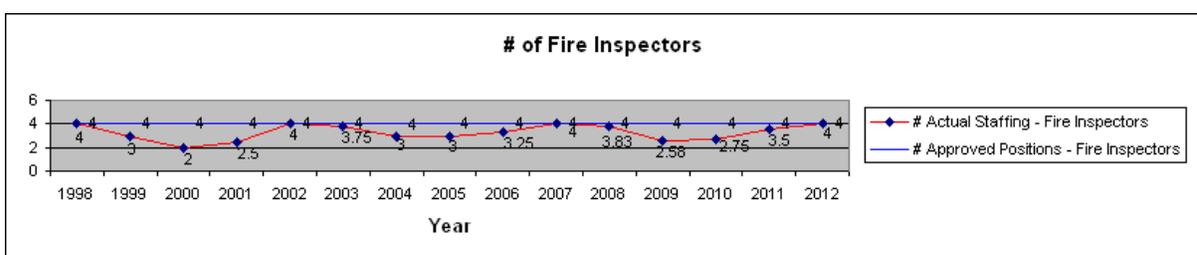
Permits and Development

The FLSD was responsible for overseeing 174 fire code operational and construction permits in 2011, of which 80 were fire protection/detection permits. A total of 177 total plan reviews were conducted during this period, including 73 fire suppression systems, 31 fire alarm systems, and 73 site development reviews. This is an important part of fire prevention, to ensure that public events are safe and buildings are constructed with the required fire and life safety essentials. Permits associated with these FLSD activities brought in \$73,298.



Staffing and Personnel

Approved staffing positions in the FLSD have remained the same since the 1970's, consisting of the Fire Marshal and four Fire Inspectors. The challenge over the years has been keeping up with increased responsibility (growth in population, growth in number of regulated occupancies, etc.) while maintaining actual adequate staffing levels. In 2011 there was a vacancy in one Fire Inspector position for five months. That position was filled in January 2012 with a temporary Fire Inspector assignment that may become permanent. Maintaining staffing levels in the FLSD is essential to accomplishing our mission.



The professional achievements and qualifications that FLSD personnel have obtained continues to be impressive. In 2011, FLSD qualifications included:

- All personnel were Oregon Fire Code Certified
- Two personnel possessed Oregon State Fire Marshal competency recognition
- Two personnel were IAAI Certified Fire Investigators (CFI)
- Three personnel were certified in Oregon as Fire Plans Examiners
- Three personnel are ICC certified as Building Plans Examiners
- One person was registered in Oregon as a Professional Engineer

FLSD personnel received 730 hours of training in 2011. Training is vital for personnel to keep up-to-date in their fields of expertise.

2012

In 2012 we will continue to work diligently to educate the public about fire and life safety issues and target occupancies for inspections based upon the hazard. Also, we will continue to take an active role in new development and construction, ensuring that new buildings have adequate access, water supply, required fire suppression and detection systems, and the required life safety systems and features in place. Additionally, we will continue to promote residential smoke alarms and fire sprinkler systems. Our goal is to protect people by being proactively involved in preventing tragedies, with the goal of making Medford one of the safest communities to reside in.

For more information about the Fire & Life Safety Division, visit our website at:

<http://www.ci.medford.or.us/SectionIndex.asp?SectionID=21>