

Marion County Fire District No. 1



STANDARDS OF COVER

2022-2025

Adopted by the Marion County Fire District No. 1 Board of Directors
May 19, 2022 Resolution #2022-08

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Table of Contents

<u>Subject</u>	<u>Page</u>
A. Mission, Vision, Values & 5 Basic Rules.....	4
B. Purpose Statement.....	5
C. Community Overview.....	6
D. Services Provided.....	7
E. Finances.....	8
F. Fire Growth & Cardiac Arrest Modeling.....	9
G. Emergency Scene Risk Profile	12
H. Community Risk Assessment.....	14
I. Staffing, Stations & Apparatus.....	18
J. Distribution & Concentration.....	30
K. Critical Tasks & Box Alarm Assignments.....	33
L. Service Level Objective.....	39
M. Summary/Conclusion.....	40
N. Abbreviations.....	41
O. Appendix.....	42

Table of Figures

<u>Subject</u>	<u>Page</u>
A. Figure 1. Time vs. Products of Combustion, Illinois Fire Sprinkler Association, 2019.....	9
B. Figure 2. Chain of Survival Campaign Graphic, Canadian Heart Association, 2017.....	10
C. Figure 3. Success-Time Cardiac Curve, www.ChronoPause.com , 2014.....	11
D. Figure 4. Probability & Consequence Risk Assessment Matrix, 2014.....	15

Our Mission

The mission of Marion County Fire District No.1 is to protect life and property, promote public safety and community awareness, and create an environment of trust and respect with our residents.

We will accomplish our mission through (1) fire suppression, (2) emergency medical services, (3) disaster management and mitigation, and (4) fire prevention and community risk prevention.

Our Vision

Our purpose for existing.

To be known by our community, respected by our peers, and united in the accomplishment of our mission.

Our Values

All members of our organization are committed to serving our communities and each other through the use of THE FIVE BASIC RULES:

RULE #1: Do What Is Right

RULE #2: Do Your Best

RULE #3: Treat Others With Dignity, Understanding, & Respect

RULE #4: Leave The Situation Better Than The Way You Found It

RULE #5: Help Other Members To Be Successful

Purpose Statement

The enclosed **Standards of Cover** (SOC) document was originally reviewed and adopted by the Marion County Fire District No. 1 (MCFD No.1) Board of Directors in August 2014; this edition is with updated information from calendar year 2021. Utilizing the Oregon State Fire Marshal's Stratification Guide, NFPA 1710 (all career provider) and NFPA 1720 (volunteer/combination provider) as template, this document is intended to help our staff and elected officials define, measure, monitor and modify (as necessary) its service delivery model. NFPA 1720 contains minimum requirements relating to the organization and deployment of fire suppression operations, emergency medical operations, and special operations to the public by volunteer and combination fire departments.

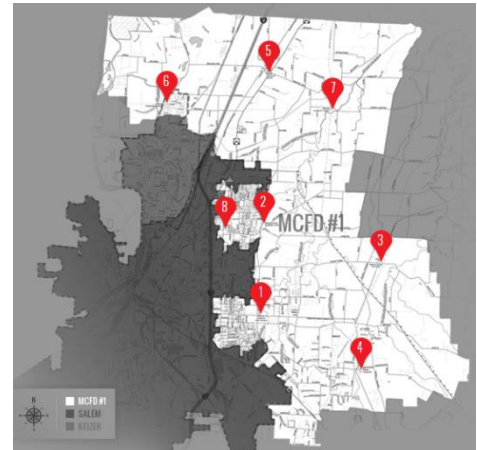
According to the Oregon State Fire Marshal, a Standards of Cover reference is a "system for analyzing resource deployment, to determine whether a department is properly deployed to meet its community's risks and expectations. Standards of Cover (SOC) is applicable to all fire departments and districts, career and volunteer, large and small. However, there is no 'one size fits all' SOC. The SOC must take into account factors unique to the community the department serves".

Just as this SOC is a "living document", the process of developing and maintaining a SOC is a dynamic and ever-moving target. While this SOC is published today with the most current and accurate data available, it is also important to note that it only represents a "snap shot" in time. Given the multitude and complexity of the many factors considered in the development of this report, it is recognized that in order for an SOC to be useful and valid, it will likely require regular updating to adequately meet the needs of MCFD No.1 and the citizens they protect.

With this SOC, MCFD No.1 intends to measure their effectiveness at providing the services listed against their adopted standard. This SOC shall also serve to provide a defensible position to guide future strategic planning as well as explain future funding requests. Further, the SOC is used to explain complexities related to adverse events (major fires, high life risk medical emergencies, etc.) and the criteria used to make response decisions. Lastly, it is our goal to see that the SOC helps provide a clear method to assess not only past and present delivery decisions, but future service delivery decisions as well.

Community Overview

Marion County Fire District No.1 (MCFD No.1) has a rich history. Like most fire districts, it started on the backs of dedicated citizens that found a need to protect their families, friends and businesses from fire. It all began as a single volunteer station (Four Corners R.F.P.D.) in 1939. That volunteer station merged with the Brooks Rural Fire District in 1968, creating Marion County Fire District No.1. Currently the fire district has a population of more than 50,000 people and covers 80 square miles.



Since that time MCFD No.1 has grown to include stations at Four Corners, Middle Grove, Pratum, Macleay, Brooks, Clear Lake, Labish Center, and the Chemeketa Fire Station. The communities protected by these eight fire stations have separate and unique target hazards including the major transportation routes of Interstate 5, Highway 22 & Highway 99E, densely populated residential areas, including multi-family apartments and retirement communities, rural residential and agricultural developments, as well as heavy commercial and industrial risk. Currently there are 15,796 structures of value within the fire district (residential-9639; farm-2542; commercial-673; apartment-162). These broad and diverse demands require an active and well trained effective force capable of managing the complexities associated with these demographics.

MCFD No.1 values the relationships with our neighboring fire agencies, law enforcement agencies, as well as Chemeketa Community College and a myriad of other government and non-government entities. Graciously, we enjoy the tremendous support of our residents and taxpayers as demonstrated through their support of concurrently funded operational levies and general obligation bonds. In return, we provide our community with exemplary customer service through safe and effective emergency response services, community and public education campaigns, active prevention programs and efficient operation of the Marion County Ambulance Service Area #4.

Services Provided



MCFD No.1 is a full-service fire and Emergency Medical Services (EMS) agency established under Oregon Revised Statute 478 as a Special District with full taxing authority. MCFD No.1 is a combination of volunteer and career organization managed by a five-person publicly elected Board of Directors that oversees the Fire Chief.

Response personnel work one of three shifts (A, B & C) and are scheduled to work a 48-hour tour, followed by 96 hours off-duty. Following the November 3rd, 2020 defeat of a local option levy (a revenue loss of 30%) it was necessary to lay off nine personnel. Per an agreement reached between the IAFF Local 2557 and the District, the fire district transitioned to three “swing companies”. Seven Firefighters (FF) and two Single Role (SR) EMT/Paramedics were laid off. Additional cuts reduced the on-duty Battalion Chiefs from 24-hour shifts to 12-hour shifts. The remainder of the shift is covered by an on-call chief officer. After a reduced local option levy passage in May of 2021, one full-time engine returned to service the second half of the year.



The organization has an administrative staff consisting of a Fire Chief, Deputy Chief, Chief Administrative Officer, Financial and Administrative Services Specialist, part-time Financial Analyst, part-time IT Project Manager, a Fire Marshal’s Division that consist of a Division Chief/Fire Marshal, a Training Division that consists of a Training Captain, and a Fleet & Facilities Division that consists of a Facilities Maintenance Technician/Engineer. These staff typically work 40 or 45-hour work weeks in their assigned areas of responsibility, except for the part-time positions, with the ability to respond and assist with emergency incident mitigation as available and needed.

Finances

MCFD No.1 currently manages a general fund budget of about \$17.74M. This is accomplished with a permanent tax rate of \$1.9045 per \$1000 of assessed property value, a five-year local option levy of \$0.59/\$1,000 and a current general obligation bond valued at \$0.30-0.33/\$1000. For 2021-2022, the District's Assessed Value (actual) was \$3,620,436,613.

MCFD No.1 provides the following primary services to the community:

Fire Suppression (including Structural, Vehicular, Agricultural, & Wildland Interface)

Hazardous Materials Mitigation (Operations Level)

Basic Life Support & Advanced Life Support First Response and Ambulance Transport

Motor Vehicle Crash & Vehicle/Machinery Extrication Responses (Technician Level)

Fire Prevention & Public Education

Fire Cause Investigations

Fire Growth & Cardiac Arrest Modeling

There are two significant types of emergencies that present with the greatest potential for loss of life within MCFD No.1; flashover in structural fires and brain death in cardiac arrest. These types of emergencies do present a reproducible timeline (Figure 1 and 4). Given the average time for these events to occur, when MCFD No.1 personnel & equipment arrive early we have the greatest potential to create a positive impact for our citizens.

In structural fire related emergencies, fire growth is scientifically predictable and follows the following growth model:

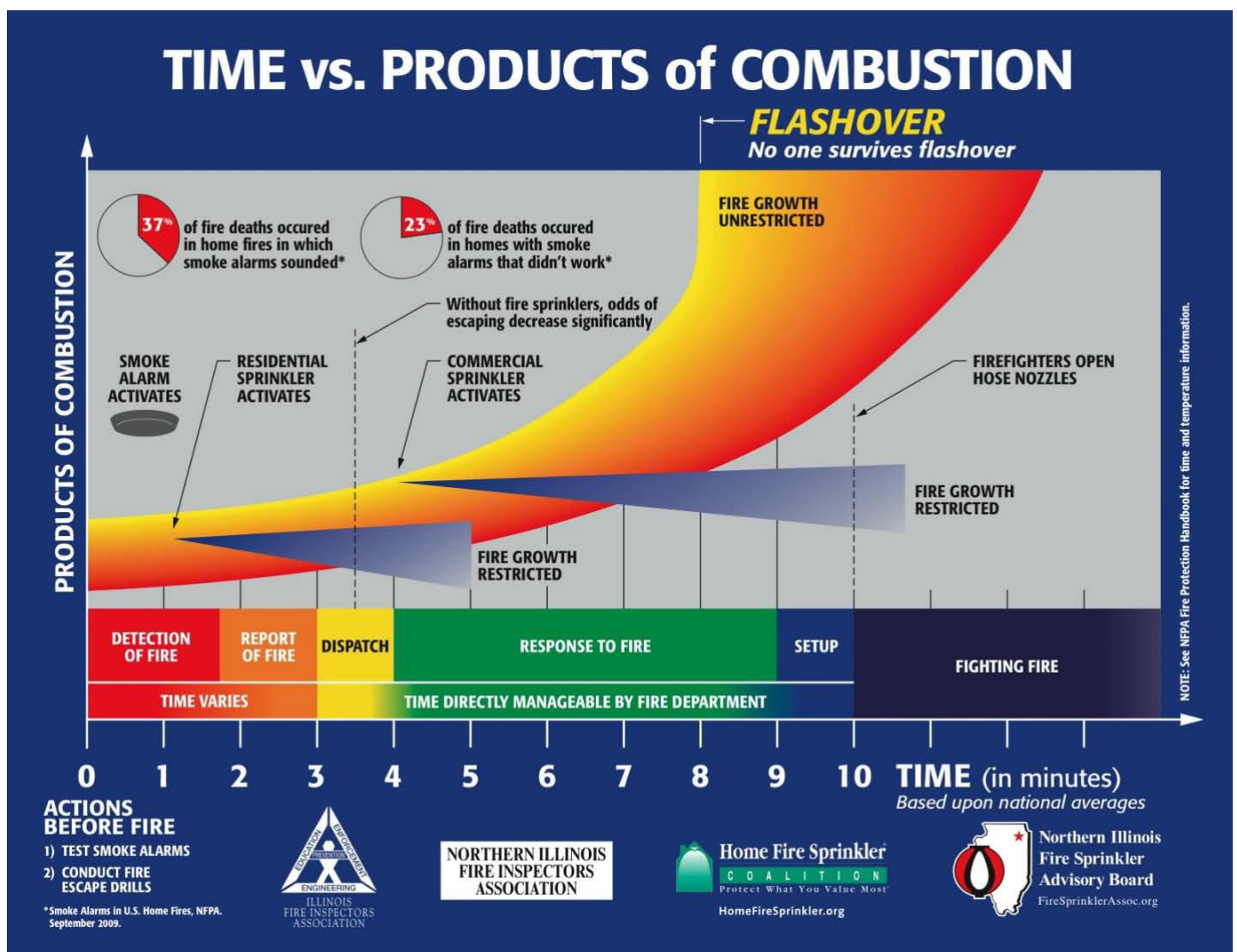


Figure 1. TIME vs. PRODUCTS OF COMBUSTION, Illinois Fire Sprinkler Association, 2010

According to established research, as fire growth continues unchecked, at approximately 8-10 minutes the fire reaches a point of Flashover. Flashover is the near-simultaneous ignition of those items in the enclosed fire environment. This volatile environment is a non-survivable environment for occupants and frequently leads to fire spread beyond the room or building of origin.

Flashover is not the only phase of risk during fire growth. Additional stages of fire growth include the 1) Incipient Stage, 2) Free-burning Stage, & 3) Smoldering Stage. Because these stages can all occur at varying times in relation to the start of the fire, a common reference point must be identified so that objectives and benchmarks can be measured under equal conditions. Of the different stages critical to life safety, MCFD No.1 has identified flashover as the most critical benchmark to prevent. Allowing a fire to exceed beyond the Flashover stage results in a sharp increase in size of the fire as well as resources needed to mitigate the fire problem.

Of the varying and vast array of medical emergencies that MCFD No.1 responds to, cardiac arrest (CA) related events are one of the most lethal and readily treatable emergencies. The human brain cannot survive without oxygen for any extended period of time. According to the American Heart Association, chances of surviving CA decreases 10% every minute a patient goes without application of CPR and an AED. However, while utilization of CPR and AED devices will “buy back” some time, the patient experiencing CA needs early Advanced Cardiac Life Support (ACLS) care and definitive cardiac care to survive. Figure 2 depicts the 5 steps being utilized in a variety of public education campaigns worldwide to communicate awareness.



Figure 2. Chain of Survival Campaign Graphic, American Heart Association

Similar to critical conditions expressed in the Flashpoint curve, patients experiencing CA face similar risk to life without early intervention. Given the decrease in survival chances every 60 seconds a patient goes without CPR and an AED, a patient in cardiac arrest has only a 50% chance of survival 5 minutes into cardiac arrest; and only 10% at 9 minutes. Figure 3 gives a graphic representation of this Success-Time CA curve.

Marion County's Public Safety Answering Point (PSAP, a.k.a. 9-1-1 center) has 100% of their telecommunications staff trained as Emergency Medical Dispatchers (EMD). This skill gives dispatchers the ability to provide life-saving CPR instructions over the phone to a 9-1-1 caller, thereby stretching the time curve out and buying more time for emergency personnel arrive.

Further, since 2014, MCFD No.1 personnel have been training and utilizing High-Performance CPR (HP-CPR) techniques that have a scientifically demonstrated reliability of improved mortality outcomes nationwide. However, to be effective, this model requires additional personnel resources on scene, in addition to EMD CPR instructions by 9-1-1 and improved response times.

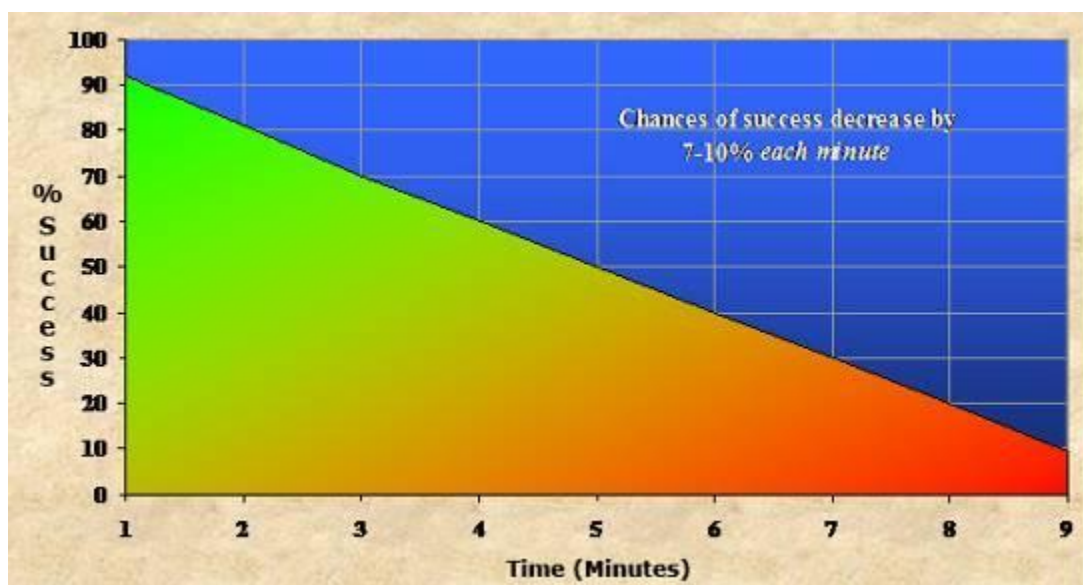


Figure 3. Success-Time Cardiac Curve, ChronoPause.com, 2014

Emergency Scene Risk Profile

When responding to an emergency incident, the incident commander must make educated decisions on if, how, when, and where to place emergency personnel on the scene that best maximizes resources on scene given the hazard presented. To accomplish this, MCFD No.1 personnel prioritize their strategies based on the following list, in order of importance:

1. **Life Safety**
2. **Property Conservation**
3. **Incident Stabilization**

When making these decisions, MCFD No.1 incident commanders use the following set of rules as their evaluation to determine what level of risk we will assume when mitigating the emergency:

- ❖ **Under a defined plan, MCFD No.1 personnel will risk a firefighter's life to save a savable life.**
- ❖ **Under a defined plan, MCFD No.1 personnel will permit only minimal risk to save savable property.**
- ❖ **Under no circumstances will MCFD No.1 personnel permit measurable risk for non-savable lives or non-savable property.**



Potential Acceptable Risk Situation

VS.



Non-Risk Situation

Community Risk Assessment

Risk assessment/frequency/severity: In order to prepare to deliver and manage emergency services, MCFD No.1 must evaluate their potential risks, estimate the frequency of those risks, and lastly consider the severity of such risk. With that information, MCFD No.1 can then determine how much and what types of resources are necessary to manage/mitigate the emergency.

MCFD No.1 has relied on target occupancy inspections, commercial occupancy pre-fire planning, and anecdotal data to determine type of risk, frequency, & severity. With this SOC however, MCFD No.1 has now begun the process of utilizing retrospective response data to further determine fire risk management strategies.

Through the process of a community risk assessment, MCFD No.1 personnel can utilize the data collected and make informed decisions on service delivery to the community. By understanding our district's level of risk, we can better anticipate the types of emergencies and the possible size of the emergencies.



Events are generally classified into one of four categories:

- ❖ Low Probability, Low Consequence
- ❖ Low Probability, High Consequence
- ❖ High Probability, Low Consequence
- ❖ High Probability, High Consequence

After classifying risk, MCFD No.1 can assign appropriate types, kinds, and quantities of resources needed to manage the problem.

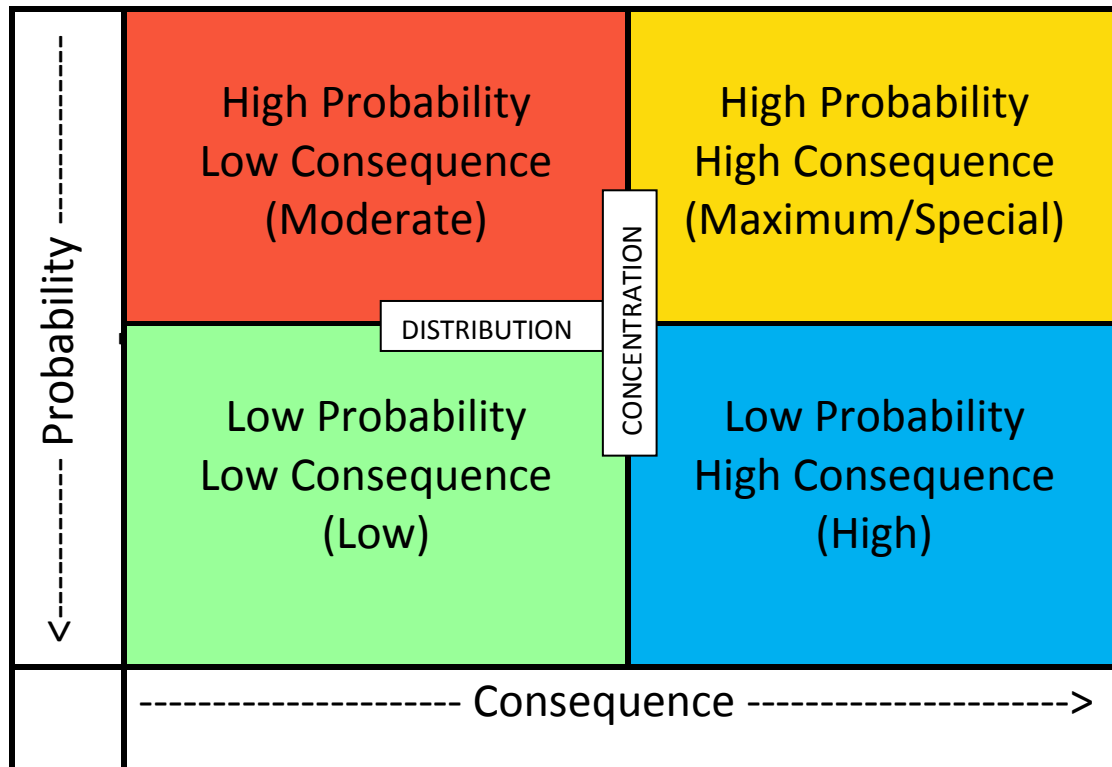


Figure 4. MCFD No.1 Probability & Consequence Risk Assessment Matrix, 2014

Maximum/Special Risk: Maximum risk events exhibit a high probability and maximum consequence. This type of risk has the greatest potential for a high level of life and property loss as well as substantial property damage, usually across the entire geographic area. Maximum risks will likely have a devastating impact on the community's ability to maintain its commercial, residential and industrial tax base. An event of this magnitude would severely impact the community ability to recover. An event of this scale would likely include a disaster declaration by the Governor and/or the President of the United States. Examples of Maximum events include flooding, earthquakes, wildfire events, etc. Examples of Special risks would include large Industrial and commercial complexes that have any of the following: large quantity or unusual type of chemical storage, structures over 25,000 square feet under one roof, or significant impairments to critical infrastructure (power, water, gas, highways, waterways, etc). Maximum Risk locations include:

Crop Productions, 3630 Brooklake Rd NE	Covanta Power, 4850 Brooklake Rd NE
Marion Recycling, 3680 Brooklake Rd NE	Nunhem's Manufacturing, 8850 59 th Ave NE
Pilot Truck Stop, 4220 Brooklake Rd NE	Chemeketa Community. College, 4000 Lancaster Dr NE

High Risk: These are occupancies generally of substantial size and/or that usually present a high risk for loss of life, loss of significant economic values to the community (major employer, etc.), or significant property damage in the event of fire. These occupancies may or may not be sprinklered and may house non-ambulatory occupants not capable of self-escape. Examples of these occupancies include: Large apartment complexes with access issues, and/or non-sprinklered and/or no fire alarm system, schools and day cares (high risk population), Elder care facilities (high risk population), Churches and open assembly areas, strip malls (common attic with no fire walls), and Big-Box occupancies.

High Risk locations include:

Antique Powerland, 3995 Brooklake Rd NE	Willamette Lutheran Home, 7693 Wheatland Rd NE
Willamette Valley Christian School, 9075 Pueblo Ave NE	Cedar Village Assisted Living, 4452 Lancaster Dr NE
Double HH Western, 4230 Silverton Rd NE	Firebird Bowling Lanes, 4303 Center St NE

Moderate Risk: This category represents the majority of the occupancies in MCFD No.1 area, including most non-sprinklered single family and smaller apartment/townhouse style complexes. They typically have low occupancy numbers and the property damage and life loss potential is significantly lower than High Risk occupancies. Examples of moderate risk occupancies may include sprinklered apartment complexes, sprinklered medium size retail stores and restaurants, typical non-sprinklered single family residences and small non-sprinklered businesses.

Moderate Risk locations include:

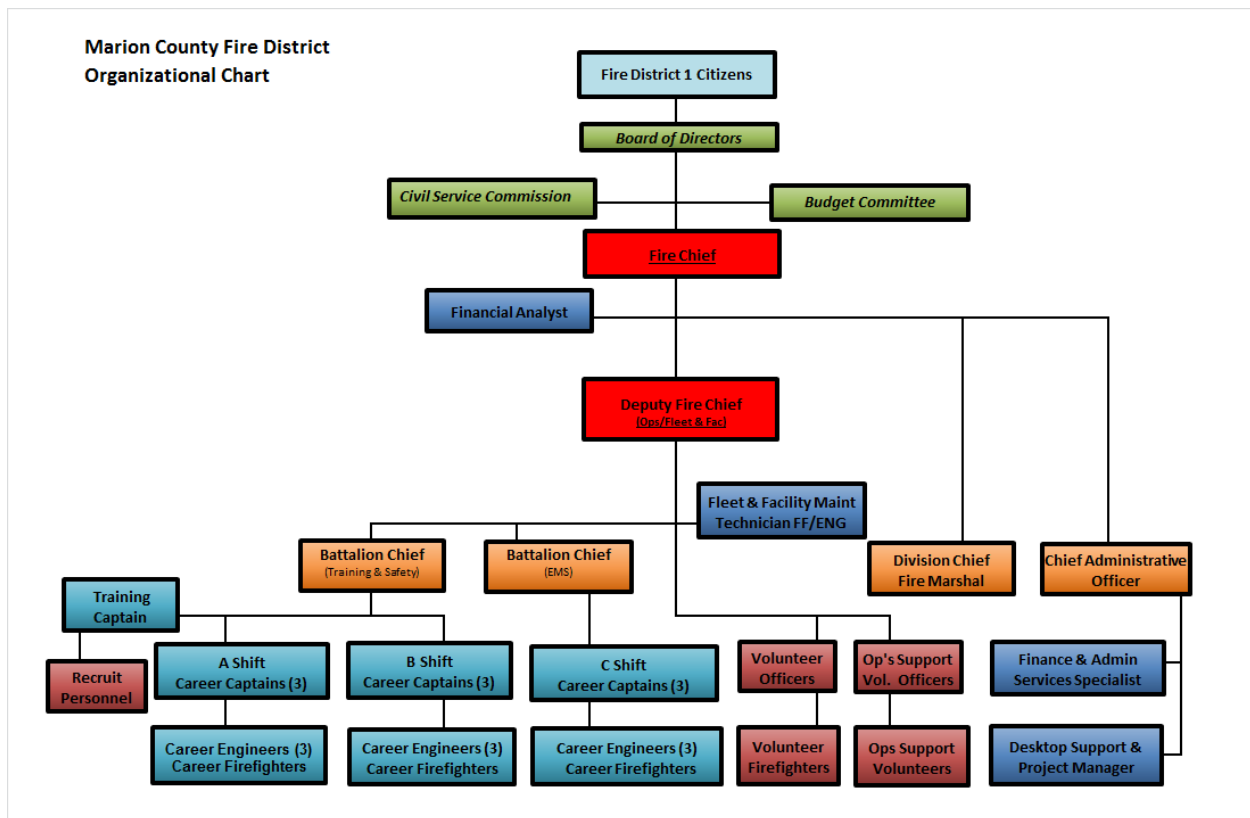
Chapparal Mobile Village, 5600 Tumbleweed Cr NE	Marion County Public Works, 5155 Silverton Rd NE
May Trucking, 4185 Brooklake Rd NE	Red Lobster, 521 Lancaster Dr NE
Hicks Striping & Curb, 3720 Brooklake Rd NE	Goodwill Industries, 3535 Lancaster Dr NE

Low Risk: These occupancies represent the least risk for fire events. They typically are relatively small in square footage, are sprinklered, and contain low levels of combustibles. Examples of low risk occupancies may include small sprinklered or non-sprinklered residential structures and sprinklered small to medium sized businesses.

Low Risk locations include:

Trailer Park Village, 4733 Portland Rd NE	Salem RV Park, 4490 Silverton Rd NE
Phoenix RV Park, 4130 Silverton Rd NE	Four Corners Trailer Trail, 4130 State St

Stations, Apparatus, & Staffing



Staffing & Personnel: Unlike a municipal service as provided by city departments, MCFD No.1 is a Special District with its own publicly elected officials. These officials, all members of the MCFD No.1 Board of Directors, make policy-level decisions that are used as the framework for MCFD No.1 Chief Officer Leadership to guide and direct emergency operations. This SOC is a marriage of policy and operations that allows for evaluation of effectiveness for a variety of components within the system performance.

MCFD No.1 is a combination organization, utilizing a mix of career and volunteer personnel to respond to and manage emergencies within the service area. Presently, MCFD No.1 is staffed 12 hours each day with a Battalion Chief and then at night by an on-call chief officer. The Battalion Chief oversees 15 career personnel (Firefighter/Paramedics and Single-Role EMT /Paramedics) and approximately 50 volunteer personnel.



Each day, Engine 315 (Station One) and Engine 725 (Station Six) are each staffed with career captain, engineer and firefighter utilizing a swing crew model, meaning the same crew must also staff the medic unit stationed there. Engine 305 (Station Two) is staffed with a career captain, engineer and firefighter, but does not swing to a medic unit.

Through a service contract with the Marion County Health Department, MCFD No.1 is the ambulance provider for Ambulance Service Area 4 (ASA-4). This area covers the entire fire district as well as adjacent areas in parts of Salem and Keizer. To provide this service, MCFD No.1 provides three ALS staffed ambulances. These ambulances are located at Station One, Station Six and Station Eight respectively.

The balance of MCFD No.1 apparatus is staffed by a committed and well-trained force of approximately 50 volunteer firefighters. To maximize the volunteer firefighter force, we have the following volunteer categories within MCFD No.1:

- Rescue Volunteer
- Resident Volunteer
- Tender Driver Volunteer
- Tour of Duty Volunteer (TOD)
- Fire & Life Safety Volunteer
- Emergency Medical Responder Volunteer
- Operations Support Services Volunteer

MCFD No.1 ADMINISTRATION OFFICES:



300 Cordon Rd NE ~ Salem ~ Oregon ~ 97317

Personnel
Fire Chief (C301)
Deputy Fire Chief (C302)
Division Chief/Fire Marshal (FM31)
Battalion Chief (BC32)
Chief Administrative Officer (Civilian x 1)
Financial & Administrative Services Specialist (Civilian x 1)
I.T. Support (Civilian x 0.5)
Financial Analyst (Civilian x 0.5)

Apparatus
Chief Staff Vehicles (x 3)
FM Staff Vehicles (x 1)
Add'l Staff Vehicles (x 2)

*Note: Positions listed are generally considered M-F, daytime hours.

MCFD No.1 MAINTENANCE FACILITY:



300 Cordon Rd NE ~ Salem ~ Oregon ~ 97317

Personnel
Facilities Maintenance Technician/Engineer (X-31)

Apparatus
Add'l Staff Vehicle (1)
Dump Truck (1)
Fork Lift (1)

*Note: Position listed is generally considered M-F, daytime hours. Facilities Maintenance Technician/Engineer may respond as needed to support emergency operations.

STATION 1 – FOUR CORNERS STATION:



300 Cordon Rd NE ~ Salem ~ Oregon ~ 97317

Personnel
Career Capt./EMT or Paramedic (x1),
Engineer/EMT or Paramedic (x1)
FF/EMT/Paramedic (x1)
Call-Back Volunteers (x0)

Apparatus
Engine 315, Type-I, 1500 gpm, 750 gallon
Engine 317, Type-I, 1500 gpm, 750 gallon
Medic 31, Type-III, ALS
Medic 30 (Reserve), Type-III, ALS
Brush 318, Type V, 150 gpm, 300 gallon
Tender 319, Type-I, 750 gpm, 3000 gallon
Medic 34 (Reserve), Type-III, ALS

*Note: E315 and M31 positions filled by career personnel are scheduled 48/96 tours using the Swing model, 365 days a year. A Captain, an Engineer and a Firefighter will staff the appropriate piece of apparatus based on the call being dispatched to. Additional volunteers are utilized on additional apparatus as dispatched and available.

STATION 2 – MIDDLE GROVE STATION:



3820 Cordon Rd NE ~ Salem ~ Oregon ~ 97305

Personnel
Career Capt./EMT or Paramedic (x1),
Engineer/EMT or Paramedic (x1)
FF/EMT/Paramedic (x1)
Call-Back Volunteers (x1)

Apparatus
Engine 305, Type-I, 1500 gpm, 750 gallon
Engine 327, Type-I, 1500 gpm, 750 gallon
Tender 329, Type-II, 750 gpm, 2500 gallon
Squad 324, personnel carrier

*Note: For the first half of 2021 personnel at station two used a swing model to respond, staffing the appropriate piece of apparatus based on the call type dispatched. After passage of the operating levy and starting in July 2021, personnel responded full-time as Engine 305.

STATION 3 – PRATUM STATION:



8885 Sunnyview Rd NE ~ Salem ~ Oregon ~ 97317

Personnel
Call-Back Volunteers (x5)

Apparatus
Engine 335, Type-I, 1500 gpm, 800 gallon
Tender 339, Type-II, 750 gpm, 2500 gallon
Squad 334, personnel carrier

*Note: Volunteers are utilized on apparatus as dispatched and available.

STATION 4 – MACLEAY STATION:



2100 84th Ave SE ~ Salem ~ Oregon ~ 97317

Personnel
Call-Back Volunteers (x0)

Apparatus
Support Units

*Note: Volunteers are utilized on apparatus as dispatched and available.

STATION 5 – BROOKS STATION:



4960 Brooklake Rd NE ~ Salem ~ Oregon ~ 97305

Personnel
Call-Back Volunteers (x11)
Captain Training Officer/EMT (TO31)

Apparatus
Engine 715, Type-I, 1500 gpm, 800 gallon
Tender 719, Type-II, 750 gpm, 2500 gallon
Brush 718, Type-V, 150 gpm, 300 gallon
Add'l Staff Vehicle (1)

*Note: Volunteers are utilized on apparatus as dispatched and available. MCFD No.1 Training Division is co-located at CCC Brooks Campus at STA5. Training Officers are issued staff cars and may respond to scene directly or respond as part of the crew from Station 5.

STATION 6 – CLEARLAKE STATION:



8005 Wheatland Rd N ~ Salem ~ Oregon ~ 97303

Personnel
Career Capt./EMT or Paramedic (x1)
Engineer/EMT or Paramedic (x1)
Float FF/EMT/Paramedic (x1)
Call-Back Volunteers (x8)

Apparatus
Engine 725, Type-I, 1500 gpm, 750 gallon
Engine 727, Type-I, 1500 gpm, 800 gallon
Medic 33, Type-III, ALS
Squad 724, personnel carrier

*Note: E725 and M33 positions filled by career personnel are scheduled 48/96 tours using the Swing model, 365 days a year. A Captain, an Engineer and a Firefighter (Volunteer or Career) will staff the appropriate piece of apparatus based on the call being dispatched to. Volunteers are utilized on apparatus as dispatched and available.

STATION 7 – LABISH CENTER STATION:



7214 Labish Center Rd NE ~ Salem ~ Oregon ~ 97305

Personnel
Operational Support Volunteers (x4)

Apparatus
R323 Incident Support Apparatus
Squad 734, personnel carrier

*Note: Volunteers are utilized on apparatus as dispatched and available.

STATION 8 – CHEMEKETA STATION:



4000 Lancaster Dr NE ~ Salem ~ Oregon ~ 97305

Personnel
FF/Paramedic (x1), (M32)
SR EMT or Paramedic (x1), (M32)

Apparatus
Medic 32, Type-III, ALS

*Note: Medic 32 positions are filled by career personnel scheduled on 48/96 tours, 365 days a year.

Distribution & Concentration

In order to determine appropriate Distribution (first due resources) and Concentration (duplicate resources), we must first identify and evaluate those time factors which must be considered in the placement of personnel and apparatus within our fire district.



Time factors: Emergency service providers must evaluate the impacts of time during the emergency response. Within Fire and Emergency Medical responses, specific time elements are critical when determining travel distances, distribution of resources, and concentration of resources throughout the district. These time elements include:

- ❖ Processing Time – Amount of time between receipt of 9-1-1 call at Public Safety Answering Point (PSAP) and when the dispatcher activates station alerting tones.
- ❖ Turnout Time – Amount of time between receipt of station alerting tones and when the first unit begins responding.
- ❖ Travel Time – Amount of time between when the first unit begins responding and when they first unit arrives on the scene of the incident.
- ❖ Reaction Time – Is defined for MCFD No.1 as = *Turnout Time + Travel Time*.
- ❖ Total Response Time – Is defined for MCFD No.1 as = *Processing Time + Turnout Time + Travel Time*.

Distribution Study: According to the Oregon State Fire Marshal's (OSFM) SOC framework, "This is the location of first-due resources, typically engines. Distribution is measured by the percentage of the jurisdiction covered by first-due units within the adopted response time benchmarks." (The "where & what" of the calculation)

MCFD No.1 is divided into eight (8) separate "first due" areas, with a fire station located in each area (Stations 1 through 8). To help understand how our apparatus distribution effects response see appendix summary, Average Structure Fire Reaction Time Matrix by First-Due. Effecting fire response in 2021 was personnel having to move their personal protective equipment between apparatus as "swing" staff before responding to a fire.

After reviewing summary data of these responses (code 111), the first unit arrived on fire within 7 minutes 14 seconds approximately 85% of the time.

The appendix additionally contains summary ambulance response data, Average Ambulance Reaction Time Matrix Arranged by Unit. Again, in 2021 personnel had to move or “swing” their personal protective equipment between apparatus before responding to all calls.

Per the response time requirements established for ASA4 by the Marion County Health Department, MCFD No.1 must arrive on scene 90% of the time within 15 minutes. After reviewing these ambulance responses, MCFD No.1 was not only meeting, but exceeding this minimum standard by arriving within the required 15 minutes over 95% of the time.

Concentration Study: According to the Oregon State Fire Marshal’s (OSFM) SOC framework, “This is the spacing of multiple resources, arranged close enough together that an initial ‘Effective Response Force’ (ERF) can be assembled on scene within enough time to most likely stop the escalation of the emergency for a given risk type. Concentration is also measured by what percentage of the jurisdiction is covered by the effective response force (first-alarm assignment).” ‘ERF’ is defined as the number of personnel needed on a first-alarm assignment to most likely stop the escalation of the emergency. (The “how many” of the calculation)

Given the number of personnel required to establish an ERF and given the types and numbers of personnel expected to respond given a pre-defined type of emergency, MCFD No.1 is able to calculate the effectiveness of our concentration efforts. However, while MCFD No.1’s career personnel manage the majority of the day-to-day emergency responses; MCFD No.1 continues to rely heavily on its volunteer responders to obtain the necessary ERF in order to manage larger incidents. With that, volunteer personnel have very busy lives including family, work, school, religious, and other such commitments that limit their availability. This requires MCFD No.1 to make conservative, reasonable, estimates on potential volunteer staffing levels at any given time.

Each first due area’s concentration evaluation is based on the ability to staff first-out apparatus, as well as the balance of a first-alarm assignment given an Initial 1st Alarm, Moderate Risk, and structural fire assignment. Such incidents may be dispatched as: HOUSE, APT, COMML, FIRES, BOMBF, EXPLOD, SMOKEs, AIREM, & NATGAS. The arrival time summary for our district ERF response to working structural fires is contained in the appendix, Average Working Fire Reaction time for ERF Arrival by First-Due, 2021.

After reviewing data of these working structure fires, an ERF was attained on average 17 minutes and 46 seconds. Though less than half the ERF responses are above this average, the majority have not met the district’s goal. Additionally, MCFD No.1 provided the ERF in the following time:

- ❖ Within 27 minutes, 00 seconds 100% of the time
- ❖ Within 21minutes, 10 seconds 73% of the time

One measure that can assist the district in determining the appropriate concentration of career staffing is comparing fire district's that are similarly configured across varying populations. Using the number of our career firefighters per 1,000 of population can be compared across the region and nationally. For example the NFPA's "Survey of Fire Departments for US Fire Experience During 2019" lists the median career firefighter in communities with populations of 50,000-99,999 as 1.29 firefighters per thousand and a high of 2.71. Fire District No.1 with a population of approximately 55,000 and only 33 career firefighters is 0.6, well below median.

An additional response time measure is an apparatus' rate of utilization. A higher utilization will impact its ability to meet established response goals. For example apparatus with a utilization rate greater than 10% means the apparatus will not likely provide a 90% on-time service goal, even if service calls are not the only reason it is unavailable.

A summary within the appendix reflects apparatus utilization, 2021 % Total Time Utilized During Alarms. District apparatus are already utilized for services above 20% annually. Utilization of apparatus was also significantly impacted by minimum staffing, requiring personnel to swing from each apparatus and putting the other out of service.

Critical Tasks & Box-Alarm Assignments

Critical Tasks: After a review of typical incidents by categories below, MCFD No.1 has determined that the Critical Tasks and Personnel listed represent the essential needs of the incident for first alarm resources. As the complexity of the incident changes, the need for resources may change with it. Further, these are only critical tasks and may not represent all tasks to be performed at the scene. It is also recognized that personnel on scene may have to perform more than one given task due to available staffing limitations.

The following Critical Tasks represent those tasks typically required of a Low Risk, non-structural fire assignment. Incidents may be dispatched as: GRASSL, FIRENL, CAR, MARINE, TREE, ALARMF, ALRMCO, ODORNS, SMOKEN, CHIM, SPILL, PUBLIC, & WIRE

CRITICAL TASK	PERSONNEL
Command / Safety	1
Pump Operator	1
Attack Line	1
Total Number of Personnel for ERF	3

The following Critical Tasks represent those tasks typically required of an Initial 1st Alarm, Low to Maximum Risk, structural fire assignment. Incidents may be dispatched as: HOUSE, APT, COMML, FIRES, BOMBF, EXPLOD, SMOKES, AIREM, & NATGAS.

CRITICAL TASK	PERSONNEL
Command / Safety / Fire Attack Group	3
Pump Operators	1
Attack Lines	2
Back-up Lines*	2
Search and Rescue / Medical Group	3
Ventilation / Support	2
RIT**	3
Total Number of Personnel for ERF	16

* Back-up Line is required to meet OSHA's 2-IN / 2-OUT Policy.

** Rapid Intervention Team (RIT) is a dedicated crew to rescue lost/trapped FF's.

The following Critical Tasks represent those tasks typically required of a Low to Maximum Risk, non-fire, single patient, vehicle crash/rescue assignment. Incidents may be dispatched as: ACC, ACCHR, TRAP, INDUST, WATER, BOAT, LAB, AOAP, & TRAIN.

CRITICAL TASK	PERSONNEL
Command / Safety	2
Pump Operator / Protection Line	1
Triage / Treatment / Extrication / Packaging	5
Transport	2
Total Number of Personnel for ERF	10

The following Critical Tasks represent those tasks typically required of a Maximum Risk, single patient, cardiac arrest **emergency** assignment. Incidents will be dispatched as: ANY PRIORITY 1 CARDIAC ARREST incident (i.e. CPR)

CRITICAL TASK	PERSONNEL
Documentation	1
Patient Care Lead	1
Patient Care Assistant (Add'l equipment, support, etc)	1
IV Access/Medication Administration	1
Airway Management/Ventilations	1
Chest Compression Role*	4
Transport	2
Total Number of Personnel for ERF	11

*** Consistent with HP-CPR protocol, switching compressors every 2 minutes.**

The following Critical Tasks represent those tasks typically required of a Moderate to Maximum Risk, single patient, medical **emergency** assignment. Incidents may be dispatched as: ANY PRIORITY 1 or 2 incident (i.e. CPR, UNCON1, BREATH2, CHEST1, SEIZE2, BURN1, STROKE2, UNKMED1, etc.)

CRITICAL TASK	PERSONNEL
Command / Safety / Documentation	1
Patient Care Lead	1
Patient Care Assistant	1
Transport	2
Total Number of Personnel for ERF	5

The following Critical Tasks represent those tasks typically required of a Low Risk, single patient, medical **transport** assignment. Incidents may be dispatched as: ANY PRIORITY 3 incident (i.e. CHEST3, BREATH3, ALREAC3, BURN3, SEIZE3, FALL3, UNKMED3, etc.)

CRITICAL TASK	PERSONNEL
Command / Safety / Patient Care Lead / Documentation	1
Patient Care Assistant / Driver for Transport	1
Total Number of Personnel for ERF	2

The following Critical Tasks represent those tasks typically required of a Low Risk, single patient, medical **evaluation** assignment. Incidents may be dispatched as: ANY PRIORITY 4 incident (i.e. CHEST4, BREATH4, ALREAC4, BURN4, SEIZE4, FALL4, UNKMED4, etc.)

CRITICAL TASK	PERSONNEL
Command / Safety / Documentation	1
Patient Care Lead & Assistants	1
Total Number of Personnel for ERF	2

The following Critical Tasks represent those tasks typically required of an Initial 1st Alarm, Low to Maximum Risk, Wildland assignment. Incidents may be dispatched as: GRASSH or FIRENH.

CRITICAL TASK	PERSONNEL
Command / Safety / Division Sup	3
Fixed Engine Pump Operator	1
Progressive Attack Lines (Fixed Fire Attack)	4
Mobile Engine Pump Operators	2
Mobile Fire Attack Lines	2
Water Supply Officer and Mobile Water	3
Structural Protection & Special Hazards	4
Total Number of Personnel for ERF	19

The following Critical Tasks represent those tasks typically required of an Initial 1st Alarm, Low to Maximum Risk, HazMat assignment. Incidents may be dispatched as: HAZMAT.

CRITICAL TASK	PERSONNEL
Command / Safety / Division Sup	3
Pump Operator	1
Attack Line	2
Isolation / Deny Entry / Perimeter (If IDLH, B/U team)*	4
Identification	2
Evacuation	2
Decontamination / Medical Evaluation / Transport	4
Total Number of Personnel for ERF	18

Box-Alarm Assignments: MCFD No.1 command staff has pre-determined the type and number of resources to be dispatched to incidents, based on type of incident. The 9-1-1 center then uses this information to dispatch the closest and most appropriate resource to the emergency scene. As the incident grows, incident commanders can then request additional “alarms” to bring a greater number of resources to the scene to help mitigate the emergency incident.

The following table represents those apparatus and personnel () typically dispatched by CAD to a Low Risk, non-structural fire assignment. Incidents may be dispatched as: GRASSL, FIRENL, CAR, MARINE, TREE, ALARMF, ALRMCO, ODORNS, SMOKEN, CHIM, SPILL, PUBLIC, & WIRE

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (2)	Brush (2)	Tender (1)	+ Chief (1)
1		1				As	
2	1	1				Needed	
3		1				In	
4		1				Unhydrnt	
5		1				Area	

The following table represents those apparatus & personnel () typically dispatched by CAD to an Initial 1st Alarm, Moderate/Significant/Maximum Risk, structural fire, assignment. Incidents may be dispatched as: HOUSE, APT, COMML, FIRES, BOMBF, EXPLOD, SMOKES, AIREM, & NATGAS.

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (2)	Brush (2)	Tender (1)	+ Chief (1)
1	1	3	1	1		As	
2		3		1		Needed	1
3		3		1		In	1
4		3		1		Unhydrnt	1
5		3		1		Area	1

The following table represents those apparatus & personnel() typically dispatched by CAD to a Low/Moderate/Maximum Risk, non-fire, single patient, vehicle crash/rescue assignment. Incidents may be dispatched as: ACC, ACCHR, TRAP, INDUST, WATER, BOAT, LAB, & TRAIN.

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (2)	Brush (2)	Tender (1)	+ Chief (1)
1	1	1	1	1			
2		1		1			
3		1		1			
4		1		1			
5		1		1			

The following table represents those apparatus & personnel() typically dispatched by CAD to a Moderate/Maximum Risk, single patient, medical **emergency** assignment. Incidents may be dispatched as: ANY PRIORITY 1 or 2 incident (i.e. CPR, UNCON1, BREATH2, CHEST1, SEIZE2, BURN1, STROKE2, UNKMED1, etc.)

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (3)	Brush (2)	Tender (2)	+ Chief (1)
1		1		1			
2		1		1			
3		1		1			
4		1		1			
5		1		1			

The following table represents those apparatus & personnel() typically dispatched by CAD to a Low Risk, single patient, medical **transport** assignment. Incidents may be dispatched as: ANY PRIORITY 3 incident (i.e. CHEST3, BREATH3, ALREAC3, BURN3, SEIZE3, FALL3, UNKMED3, etc.)

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (2)	Brush (2)	Tender (1)	+ Chief (1)
1				1			
2				1			
3				1			
4				1			
5				1			

The following table represents those apparatus & personnel() typically dispatched by CAD to a Low Risk, single patient, medical evaluation assignment. Incidents may be dispatched as: ANY PRIORITY 4 incident (i.e. CHEST4, BREATH4, ALREAC4, BURN4, SEIZE4, FALL4, UNKMED4, etc.)

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (2)	Brush (2)	Tender (1)	+ Chief (1)
1		1					
2		1					
3		1					
4		1					
5		1					

The following table represents those apparatus & personnel() typically dispatched by CAD to an Initial 1st Alarm, Moderate/Significant/Maximum Risk, Wildland fire, assignment. Incidents may be dispatched as: GRASSH or FIRENH.

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (2)	Brush (2)	Tender (1)	+ Chief (1)
1	1	3	1	1	2	2	
2		3		1	2	2	1
3		3		1	2	2	1
4		3		1	2	2	1
5		3		1	2	2	1

The following table represents those apparatus & personnel() typically dispatched by CAD to an Initial 1st Alarm, Moderate/Significant/Maximum Risk, HazMat assignment. Incidents may be dispatched as: HAZMAT.

Alarm	BC (1)	Engine (3)	Rescue (3)	Medic (2)	Brush (2)	Tender (1)	+ Chief (1)
1	1	3	1	1		As	
2		3		1		Needed	1
3		3		1		In	1
4		3		1		Unhydrnt	1
5		3		1		Area	1

2022 Service Level Objective

Goal:

Minimize the risk to citizens and the community from fire, injury, death, and property damage associated with fire, medical, and other emergency situations. For all incidents within the fire district, MCFD No.1 will arrive in a timely manner with sufficient resources to mitigate the emergency incident. Within NFPA 1720 are response-time goals intended to reflect the reality of volunteer response. Our 2022-2025 goal is to not only meet the Standards listed in NFPA 1720 but improve on the standard.

Objective:

Turnout Time is the amount of time between receipt of station alerting tones and when the first unit begins responding. During 2021 the average turnout time for working structural fire incidents was 1 minute and 20 seconds and the average turnout time for medical emergency incidents was 1 minute and 24 seconds.

For working fires and priority incidents during 2022-2025, on average the first unit shall arrive with a reaction time of 7 minutes and 30 seconds 90% of the time. The remaining balance of the effective response force, as listed in the corresponding critical task section, shall arrive within a reaction time of 10 minutes and 00 seconds. The time versus products of combustion figure on page 8 shows that uninterrupted fire growth results in flashover within 8 minutes resulting in an un-survivable atmosphere and significant destruction of property.

For emergency medical incidents & vehicle crash/rescue incidents, the first medic unit shall arrive with a reaction time of 7 minutes and 00 seconds, 90% of the time. This will improve the existing externally imposed reaction time requirement as required by the Marion County Health Department ASA 4 agreement. As explained on page 10 and demonstrated in figure 4 on page 11, for every minute someone is in cardiac arrest their chance of survival greatly diminishes to the point that after 9 minutes their chance of survival is only about 10%.

Strategies

To meet our goal we will monitor internal controls and data in order to make meaningful adjustments. Additionally, with fewer crews swinging to a different apparatus crews will meet our turnout and reaction times. By reducing the average reaction time we also improve response times to our community. Quarterly our personnel will be briefed on the progress towards meeting this goal.

Summary/Conclusion

MCFD No.1 is proud of the excellent emergency services provided to the citizens and communities within our service area. This service is delivered through a careful balance of fiscal responsibility, human resource management, capital resource maintenance, executive planning, operational preparedness and personnel training.

Our dedicated and committed volunteer and career firefighting personnel are some of the most well-trained professionals in the nation. They demonstrate their skill and proficiency daily, as they respond to manage some of the most difficult situations imaginable.

However, well-trained personnel and even the best service delivery imaginable isn't necessarily an indicator of future success without analyzed objective, qualitative, and quantitative data. With data we can answer the critical questions of what, where, when, why, how and who. With those answers we can better position our people, stations, & apparatus to more efficiently meet the needs of our citizens and communities.

This Standard of Cover (SOC) document is intended to give a specific and measurable analysis of our capability to staff and respond to the incidents that our public expects and demands. The SOC is also intended to give our elected officials and command staff a defensible explanation of our current response standards and be utilized to drive future staffing model decisions, as well as serve as a foundational document to support the MCFD No.1 Strategic Plan.

As mentioned in the introduction, this SOC is only able to give readers a "snap shot" in time as we look back over the last year at our performance. At that, it is essential to remember that many varying factors impact this study. In order for this SOC to be effective, it must be updated regularly.

Lastly, MCFD No.1 extends its appreciation to the citizens and communities we protect for their constant and unwavering support of their fire district. We are honored to provide such quality service with transparency, integrity, and accountability in our decisions and actions.



Abbreviations

ACC:	911 center dispatch code for a “vehicle crash” response
ACCHR:	911 center dispatch code for a “vehicle crash – hit & run” response
AIREM:	911 center dispatch code for an “aircraft incident” response
ALARMF:	911 center dispatch code for an “automatic fire alarm” response
ALRMCO:	911 center dispatch code for a “carbon monoxide alarm” response
AOAP:	911 center dispatch code for an “assist other agency – police” response
APT:	911 center dispatch code for an “apartment fire” response
ASA:	State of Oregon abbreviation for “Ambulance Service Area”
BC:	fire service abbreviation for “Battalion Chief”
B/U:	SOC abbreviation for “back-up team”
BOAT:	911 center dispatch code for a “boating crash incident” response
BOMBF:	911 center dispatch code for a “bombing event with fire” response
CAR:	911 center dispatch code for a “car fire” response
CPR:	911 center dispatch code for a “CPR” response
CHIM:	911 center dispatch code for a “chimney fire” response
COMML:	911 center dispatch code for a “commercial fire” response
ERF:	SOC & fire service abbreviation for “effective response force”
EXPLOD:	911 center dispatch code for an “explosion with fire” response
FIRENL:	911 center dispatch code for a “fire, non-structure, low risk” response
FIRES:	911 center dispatch code for an “unknown type structure fire”
GRASSL:	911 center dispatch code for a “grass fire – low risk” response
HOUSE:	911 center dispatch code for a “house fire” response
IDLH:	OSHA abbreviation for “immediately dangerous to life & health” atmosphere
INDUST:	911 center dispatch code for an “industrial incident” response
LAB:	911 center dispatch code for a “methamphetamine lab” response
MARINE:	911 center dispatch code for a “boat fire” response
NATGAS:	911 center dispatch code for a “natural gas leak” response
ODORNS:	911 center dispatch code for an “odor investigation – non-smoke” response
OSHA:	abbreviation for “Occupational Safety & Health Administration”
PSAP:	abbreviation for “Public Safety Answering Point” (also known as 9-1-1 center)
PUBLIC:	911 center dispatch code for a “general public service” response
QRT:	fire service abbreviation for “Quick Response Team” vehicle
SOC:	fire service abbreviation for “Standards of Cover”
SMOKEN:	911 center dispatch code for a “smoke investigation – non structural” response
SMOKES:	911 center dispatch code for a “smoke in a structure” response
SPILL:	911 center dispatch code for a “small spill clean-up” response
TRAIN:	911 center dispatch code for a “train derailment” response
TRAP:	911 center dispatch code for a “vehicle crash with entrapment” response
TREE:	911 center dispatch code for a “tree fire” response
WATER:	911 center dispatch code for a “water rescue” incident
WIRE:	911 center dispatch code for an “electrical wire down”

APPENDIX

Average Structure Fire Reaction Time Matrix by First-Due, 2021

FIRST-DUE (STATION)	RESPONSES (2021)*	AVERAGE TURNOUT TIME (MM:SS)**	AVERAGE TRAVEL TIME (MM:SS)**	AVERAGE REACTION TIME (MM:SS)**
1	9	01:22	02:28	03:59
2/8	8	01:26	03:43	04:56
3	1	01:41	04:38	06:19
4	0	-	-	-
5	7	01:18	04:53	06:11
6	0	-	-	-
7	1	00:07	09:47	09:54

Totals	26	01:20	04:04	05:01
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Station 1	Station 2	Station 3	Station 4
0:03:19	0:05:30	0:06:21	0:09:54
0:02:35	0:04:51	0:08:54	
0:08:26	0:04:12	0:00:18	
0:00:56	0:00:07	0:07:14	
0:03:54	0:03:05	0:07:07	
0:00:00	0:09:00	0:06:36	
0:06:18	0:05:48	0:06:47	
0:02:07	0:07:06		
0:04:15	0:04:47		
	0:04:52	Total Average	
	0:06:19	0:05:01	

*represents 2021 structural fires (code 111) in first-due area listed

**represents time for the first unit to arrive on-scene in first-due area listed

Average Ambulance Reaction Time Matrix Arranged by Unit, 2021

MEDIC UNIT EVALUATED	TOTAL RESPONSES (2021)	AVERAGE TURNOUT TIME (MM:SS)	AVERAGE TRAVEL TIME (MM:SS)	AVERAGE REACTION TIME (MM:SS)
MEDIC 31	3042	01:30	06:22	07:52
MEDIC 32	3020	01:31	06:55	08:26
MEDIC 33	1232	01:12	08:35	09:47

Totals	7294	01:24	07:18	8:42
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Average Working Fire Reaction time for ERF Arrival by First-Due, 2021

FIRST-DUE (STATION)	RESPONSES (2020)*	AVERAGE ERF ARRIVAL (MM:SS)
1	3	21:01
2/8	6	15:08
3	0	-
4	0	-
5	2	20:46
6	0	-
7	0	-

Totals	11	17:46
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0:23:22

0:14:50

0:24:52

0:14:51

0:14:05

0:21:10

0:10:37

0:17:59

0:12:09

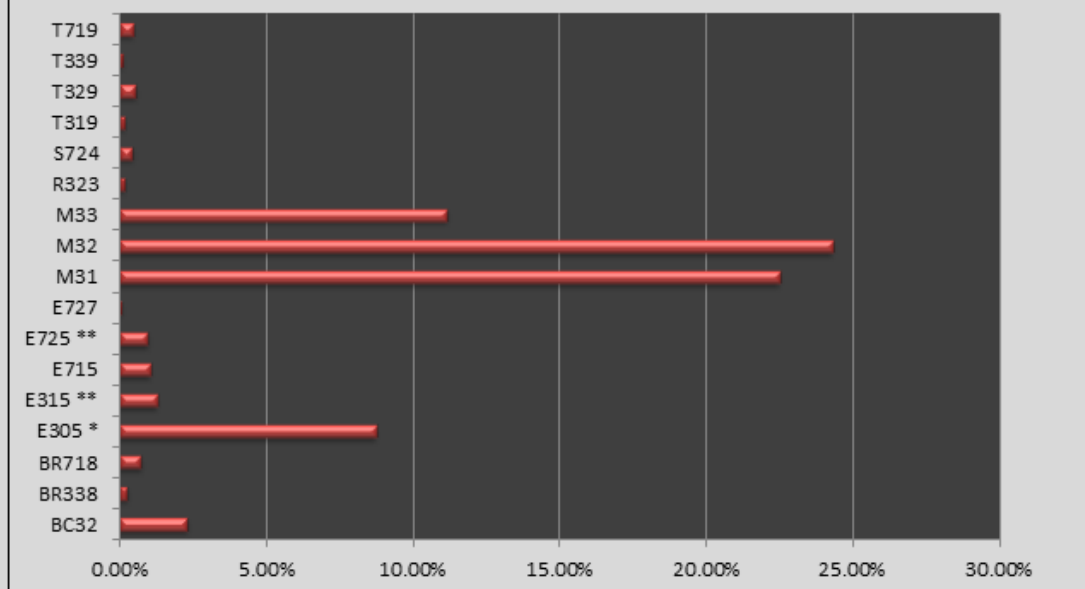
0:14:32

0:27:00

ERF Average 0:17:46

*represents 2021 working structural fire responses in first-due area listed

2021 % TOTAL TIME UTILIZED DURING ALARMS



Apparatus

% of TOTAL TIME

TOAL CALL TIME (HH:MM:SS)

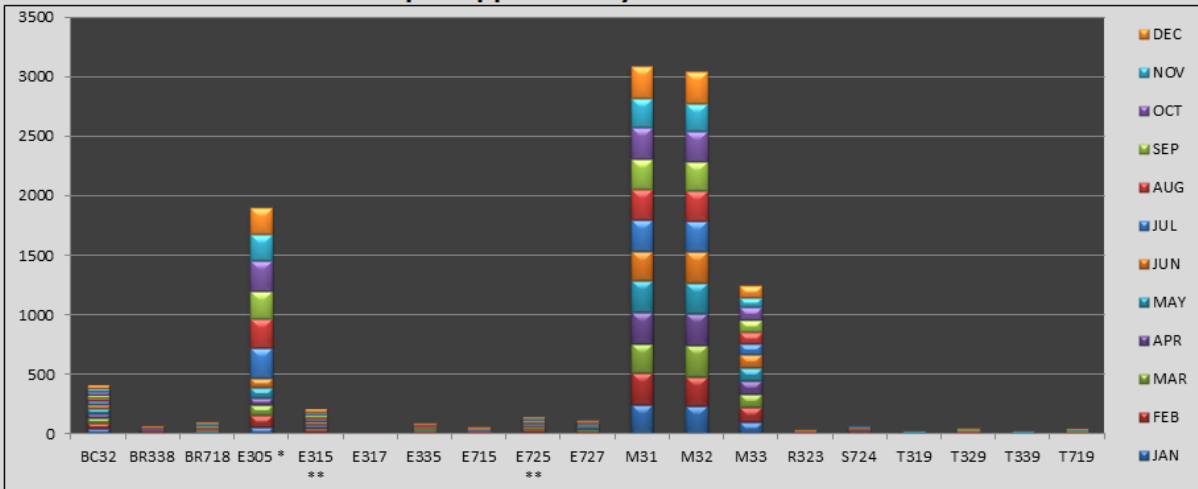
BC32	2.28%	199:58:58
BR338	0.24%	21:10:41
BR718	0.71%	62:08:39
E305 *	8.73%	765:04:56
E315 **	1.28%	111:58:19
E715	1.03%	90:39:27
E725 **	0.95%	82:52:33
E727	0.06%	5:33:04
M31	22.49%	1969:44:42
M32	24.29%	2128:07:36
M33	11.16%	977:35:34
R323	0.16%	13:43:34
S724	0.43%	37:28:04
T319	0.17%	14:36:44
T329	0.53%	46:43:02
T339	0.10%	8:44:57
T719	0.46%	40:23:29

* E305 utilized as Swing Unit for 1/2 calendar year

** E315 & E725 utilized as Swing Unit for calendar year

Data Source - ERS Form 738

Incidents per Apparatus by Month for 2021



* E305 utilized as Swing Unit for 1/2 calendar year

** E315 & E725 utilized as Swing Unit for calendar year

Data Source - ERS Form 28