Fargo Fire Department

Community Risk Assessment/Standards of Cover 2022

Introduction

As a community grows and changes, a fire department interested in providing the best service must grow and change as well. Adaptations to new and changing problems, technologies, and population needs must be made in addition to maintaining current levels of service throughout the department. As accredited, continually improving fire departments across the world change and adapt with their communities, the accreditation process through the Center for Public Safety Excellence must change and adapt as well. The Fargo Fire Department has been continually accredited since 2010, and is currently working toward the 10th edition model for the next accreditation cycle, which will be in 2025.

The accreditation model includes three main documents that must be completed by fire department personnel, validated by a peer assessor team, and upheld by the Commission of Fire Accreditation International:

- A Community Risk Assessment/Standards of Cover document that describes the community, includes a risk assessment, and reports deployment and response goals and current performance;
- A Strategic Plan that sets goals for the next 3-5 years;
- A Self-Assessment Manual that includes the performance indicators a department writes that describe the current status, appraises current performance, and puts forth a plan to improve.

The following document is the Community Risk Assessment/Standards of Cover, commonly referred to as the SOC. The SOC for 2022 has been prepared with an updated risk assessment which allowed the response time charts to be updated as well. The remainder of the document has also been updated to present the most current information available.

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Executive Summary

This document represents the Community Risk Assessment/Standards of Cover (SOC) for the Fargo Fire Department (FFD). It serves the primary service area, which is comprised of the corporate city limits of Fargo, North Dakota. The FFD was first accredited through the Commission on Fire Accreditation International (CFAI) in August 2010. The information provided herein is the direct result of the continuing self-assessment and accreditation process for the FFD.

A risk assessment for the community has been compiled using information provided by the U.S. Census Bureau, GIS data provided by the City of Fargo IS department, and data gathered by the FFD through its own permitting, code enforcement processes, and records management system. This information consists of population densities, employment statistics, available infrastructure, building types, fixed fire suppression systems, and the availability and response capabilities of fire department assets. The assembled data is then used to classify incidents into low, moderate, and high-risk categories based on their potential impact on the City of Fargo's ability to operate and continue to provide necessary services to the community. The geographic area of the city is then divided into 10 planning zones to further assess risk on a smaller scale and assist in the current and future placement of fire department assets. Target hazards are also included to allow for the pre-planning of all properties that may have an elevated level of risk.

Response data for the Fargo Fire Department is reported by planning zone, incident type, and on a department wide basis. This information is used to assess the current and trailing 5 year baseline performance of fire department assets. The FFD has chosen to use the standards set by the National Fire Protection Association (NFPA 1710) as a guideline for assessing its own performance and setting benchmark goals and objectives.

An assessment of current performance is included for the purposes of self-examination and to ensure that the needs and expectations of the community are being met. Future plans and methodologies are included, where necessary, to both identify the processes set forth by the department to correct deficiencies and maintain practices which have proven successful in providing the level of service necessary to meet the department's mission: *to reduce the rate of emergencies through public education and code enforcement; protect lives and property from*

fire and other emergencies; and respond to emergencies in a professional and courteous manner.

The purpose of this document is to serve as the Fargo Fire Department's guide in directing future strategies, the current deployment of assets and providing the appropriate levels of training and public education necessary to provide a high level response service for emergency medical services, fire suppression, hazardous materials, technical rescue, water and ice rescue, hazard prevention, education, and code enforcement. It is respectfully submitted by the Fargo Fire Department for review by the citizens it serves and their duly elected representatives.

Section 1: Documentation of Area Characteristics

A Brief Glimpse into Fargo's Early History

Fargo's founding dates back to 1871, when the first settlers staked out homestead claims at the point where the Northern Pacific Railroad would cross the Red River. Railroads played a major role in the development of Fargo. In fact, the city was named for William G. Fargo, a director of the Northern Pacific Railroad, and co-founder of Wells Fargo Express Company.

Initially, Fargo was a rough and rowdy frontier town with its fair share of bordellos and saloons. In 1876, Fargo's population was only 600, but the city grew rapidly as more and more settlers arrived, drawn by the promise of cheap, fertile farmland in the Red River Valley. By 1892, Fargo had grown to a city of more than 8,000 inhabitants; the tents and shanties of earlier days had been replaced by mainly wood-frame buildings

On June 7, 1893, disaster struck the growing city. A fire began on Front Street (now called Main Avenue) and fanned by strong winds from the south, consumed most of the downtown area. By the time it was over, more than 31 blocks were reduced to piles of rubble. Although the fire must have been a stunning blow to the city, Fargo’s citizens resolved to rebuild; in less than a year, 246 new buildings had been constructed. The new structures were designed by many fine regional architects; the post-fire city became more attractive and substantial, and many of these buildings survive today.

Geographic Characteristics of the Service Area

Fargo is the largest city in the state of North Dakota and the county seat of Cass County. The U.S. Census Bureau estimated the July 1, 2021 population of Fargo at 126,748 residents and the 219th largest city in the United States. The city limits are the boundaries for the Fargo Fire Department’s primary response area and encompass an area of 49.7 square miles. According to the Greater FM Development Corporation, the estimated metropolitan population in 2021 was approximately 252,136. The metropolitan population includes Fargo along with the neighboring cities of West Fargo in North Dakota and Moorhead and Dilworth across the Red River in Minnesota. Together they form the Fargo-Moorhead, ND-MN Metropolitan Statistical Area. The City of Fargo is the crossroads and economic center of a large portion of eastern North Dakota and a portion of northwestern Minnesota. Fargo is a retail, manufacturing, healthcare,

and educational hub for the region. Fargo is home to North Dakota State University, with a 2021 fall enrollment of 12,461 students. A map of the City of Fargo can be found below.

Topography

Fargo sits on the western bank of the Red River of the North in a flat region known as the Red River Valley. Sediments deposited from once Glacial Lake Agassiz made the land around Fargo some of the richest in the world for agricultural uses. The elevation in and around Fargo changes only a few feet throughout the entire city. Due to its location on the plains, wind is a near constant in Fargo, with an average wind speed throughout the year of over 12 mph.

Climate

Due to its location in the Great Plains and its distance from both mountains and oceans, Fargo has an extreme continental climate. Table 1 shows the annual average temperature and precipitation for the area.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Avg high °F	18	24	36	56	69	77	82	81	71	56	37	22
Avg low temperature °F	0	6	19	33	45	55	60	57	47	35	20	6
Precip inches	0.70	0.64	1.30	1.36	2.81	3.90	2.79	2.56	2.57	2.15	1.00	0.83

Table 1. Average Temperature and Precipitation

While the table above illustrates the averages for temperature and precipitation, it does not represent the extremes. During winter, primarily the months of January and February, it is common to have temperatures from -10°F to -30°F with a record low temperature of -39°F on February 1, 1996. In summer months, primarily July and August, temperatures are often above 90°F with a record high of 106°F on July 6, 1988. Because of the extremely flat terrain, large amounts of precipitation have a significant impact. Snowfall in Fargo averages 49.3 inches per year. However, in the winter of 1996-1997, Fargo received 117 inches of snow. Hot, humid summers can produce severe thunderstorms delivering several inches of rain in a short amount of time.

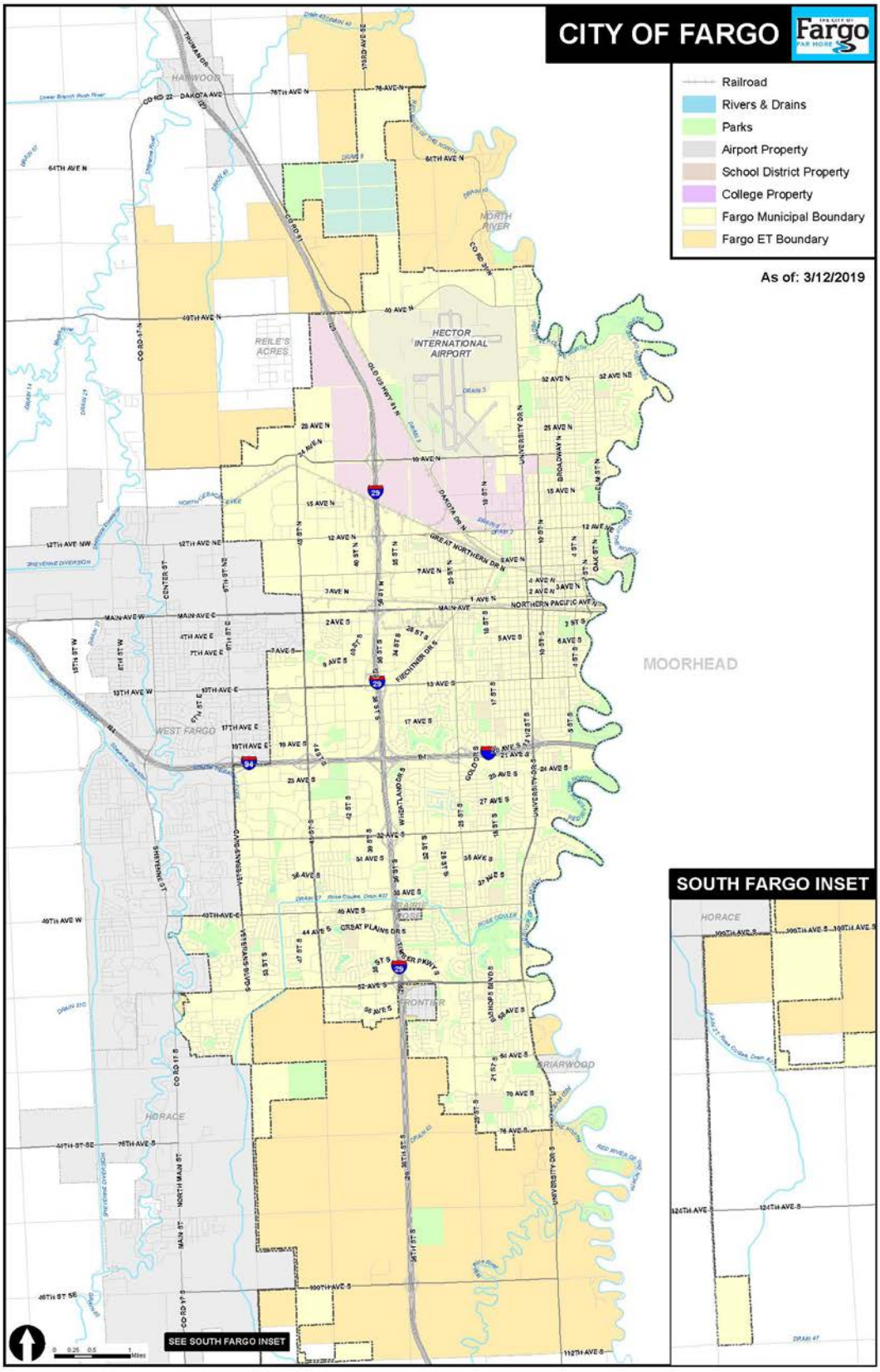


Figure 1. City of Fargo

Climatic Impact on the Fire Department

While the FFD must be prepared for the wide variances in temperature, the predominant climatic impact on the FFD service delivery is associated with winter conditions. Precautions such as annual checks of all fire hydrants are taken which helps to identify any hydrants that need service. For any hydrants in need of repair, the deficiencies are annually corrected. This includes pumping out hydrant barrels, which have been found not to drain, prior to freezing temperatures arriving. The Fargo Water Department also adds an anti-freeze solution to these hydrants to ensure they remain available for use through the winter. These procedures ensures frozen hydrants are not encountered during an emergency. Apparatus are purchased with enclosed and heated pump compartments to safeguard against pump freeze-up. Fire ground operations are adapted to cope with the frigid temperatures. Hose lines are kept flowing with water to avoid freeze up and ice grippers are distributed for firefighting boots to prevent slips and falls. During periods of extended, extreme cold weather, alternative vehicles such as pickups are used to respond to incidents such as EMS and fire alarms. The effects of the winter conditions upon the FFD's service delivery are to be expected in North Dakota. Since the formation of the department in 1875, severe changes in weather conditions have been planned for, and adapted to successfully. An increase in response time associated with winter driving conditions is typically the most significant consequence.

Census, Population, and Area

The information in Table 2 below represents the most recent demographic data available from the U.S. Census Bureau for the City of Fargo. While the information indicates that white is the predominant race within the City of Fargo, not all ethnic backgrounds are represented; refugees are not included. From 1990 to 2003, almost 5,000 refugees from 40 countries resettled in Fargo with one in three coming from Bosnia. During the 1990's, Fargo's immigrant population more than doubled accounting for 12 percent of the City's total population growth. As the city grows, Fargo's diverse populations continue to grow as well.

Subject (2021 estimate)	Estimate	Percentage
Total Population	126,748	100.0%
Male	62,270	50.4%
Female	61,280	49.6%
Median Age	31.4	
18 years and over	98,910	80.1%
65 years and over	15,843	12.8%
Race (2020 estimate)		
White	102,702	83.1%
Black or African American	9,690	7.8%
American Indian and Alaska Native	1,461	1.2%
Asian	5,144	4.2%
Hispanic or Latino	3,933	3.2%
English spoken at home		90.1%
Households (2020 estimate)		
Total Households	55,478	
Average Household Size	2.14	
Average Family Size	2.91	
Median Household Income	$57,520	
Median Gross Rent	$821	
Owner Occupied Housing Units		44.4%
Renter Occupied Housing Units		55.6%
Bachelor's Degree or Higher		40.9%

Table 2. Demographics for the primary service area

According to the U.S. Census bureau, the population of the City of Fargo has risen from 61,383 in 1980 to 126,748 in 2021. This represents an increase in population of 106%. See Figure 2.

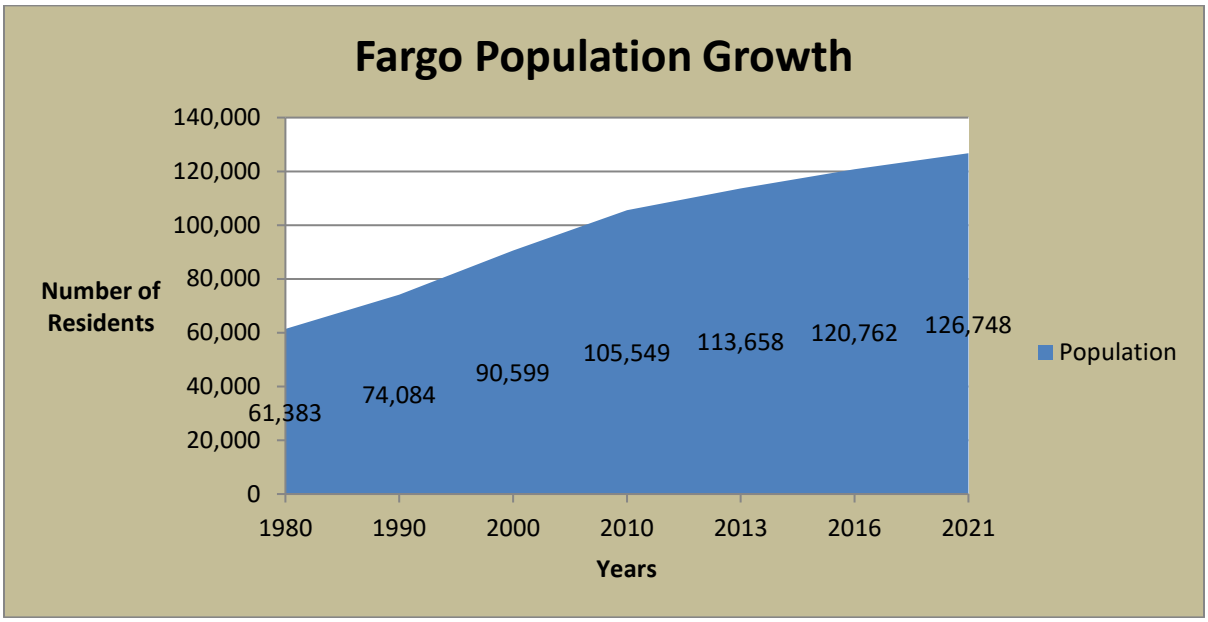


Figure 2. City of Fargo Population Growth

The geographic size of the city grew from 26.71 sq. miles in 1980 to 49.82 sq. miles in the year 2018. This is an increase of 87%. See Figure 3.

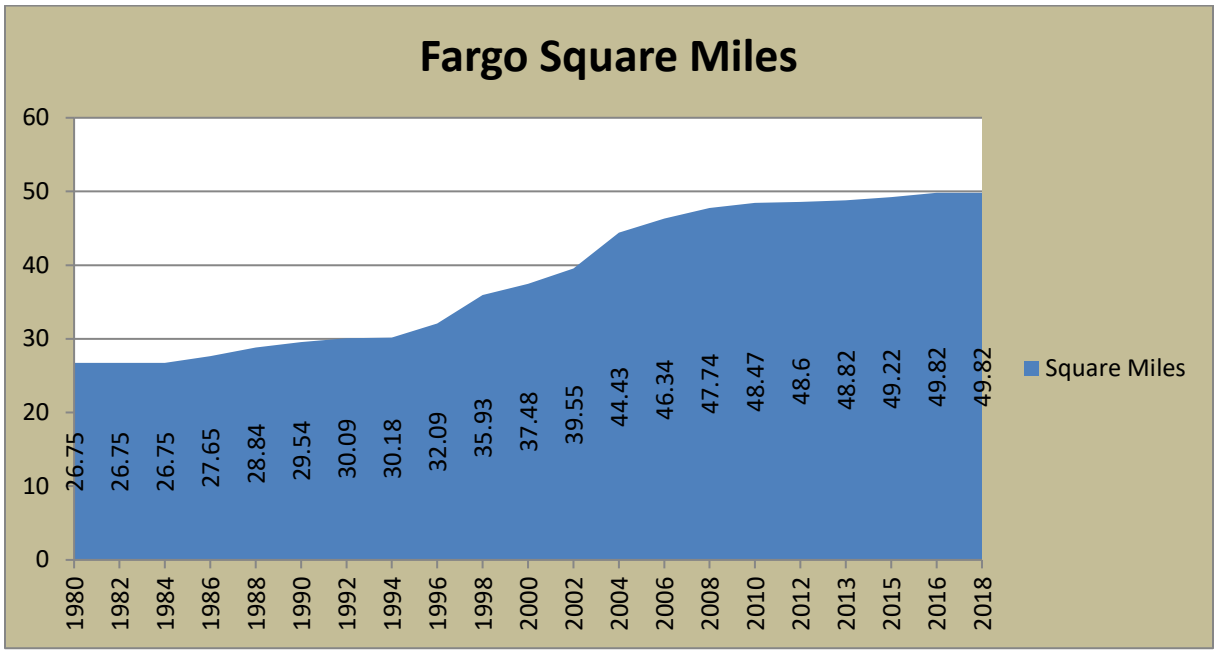


Figure 3. City of Fargo Growth in Square Miles

In 1980, fire suppression, fire prevention, and support divisions totaled 85 personnel. Total staffing of the fire department in 2021 is 125 personnel; an increase of 40 personnel in 41 years.

Three stations, three engine companies, and one truck company have been added since 1980. The increase in responding vehicles came with a 47% increase in staffing.

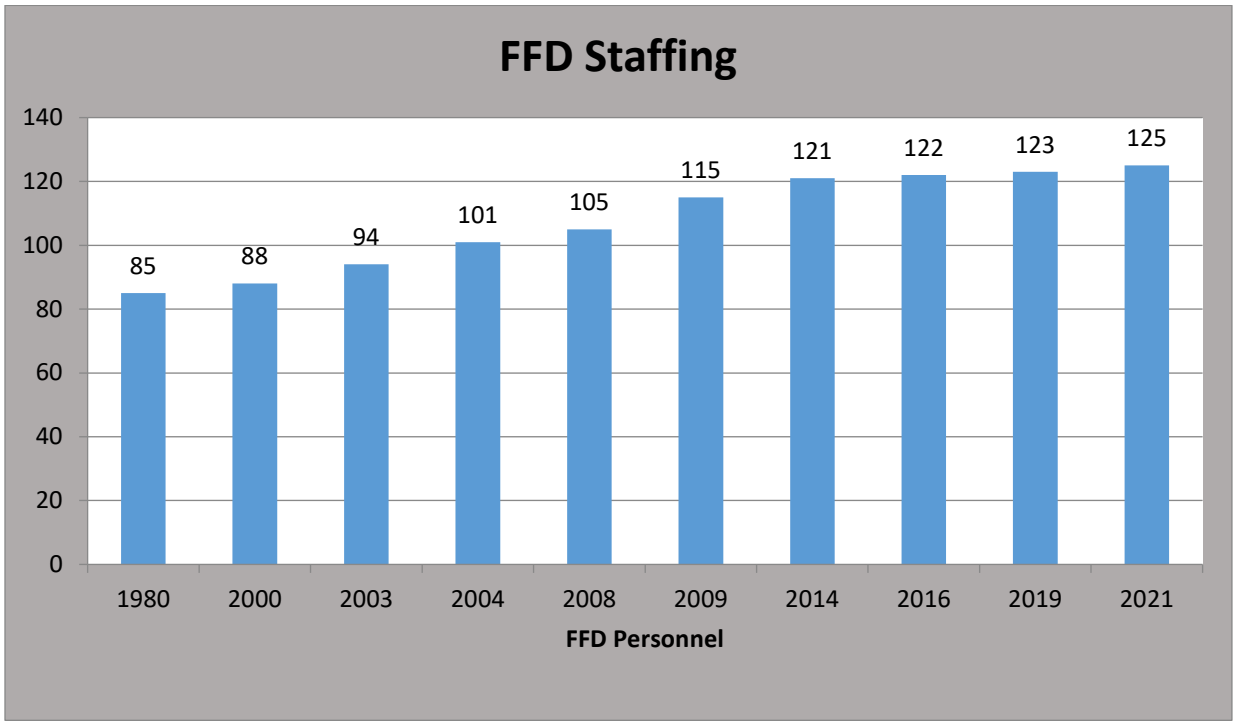


Figure 4. FFD Staffing since 1980

Figure 5 shows the comparison for growth of the city in area, population, and FFD staffing.

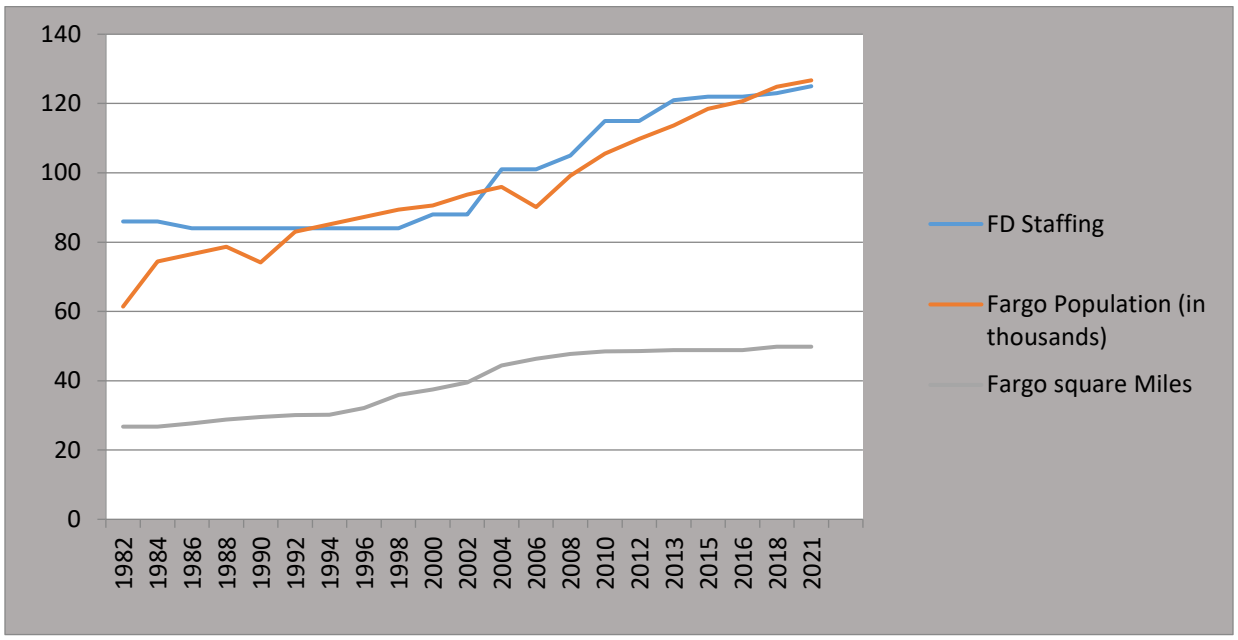


Figure 5. Growth Comparison

The above graph represents the percentage of increase. This graph makes it apparent that the department has been more successful at meeting the needs of the community since the presentation of the 2001 strategic plan to the City Commission.

Service Areas

The primary service area of the Fargo Fire Department as established by Chapter 9 of the City of Fargo Municipal Code are the corporate limits of the City of Fargo. These corporate limits are further divided into 10 planning zones (see Figure 6 below). Although these planning zones have fixed geographical boundaries and are used to determine the location of fire stations and staged apparatus; the department uses automatic vehicle location (AVL) software to determine the nearest available resources. The first due apparatus and appropriate effective response force (ERF) apparatus are assigned accordingly at the time of call.

The FFD has secondary service areas established via memorandums of understanding (MOU) with surrounding communities to provide emergency services, upon request, in varying capacities. These secondary service locations include the geographical area encompassing the southeast portion of the State of North Dakota, municipalities located in northeastern North Dakota, central North Dakota, southeast South Dakota and the corporate city limits of Moorhead, MN (See Figures 7 & 8 below).

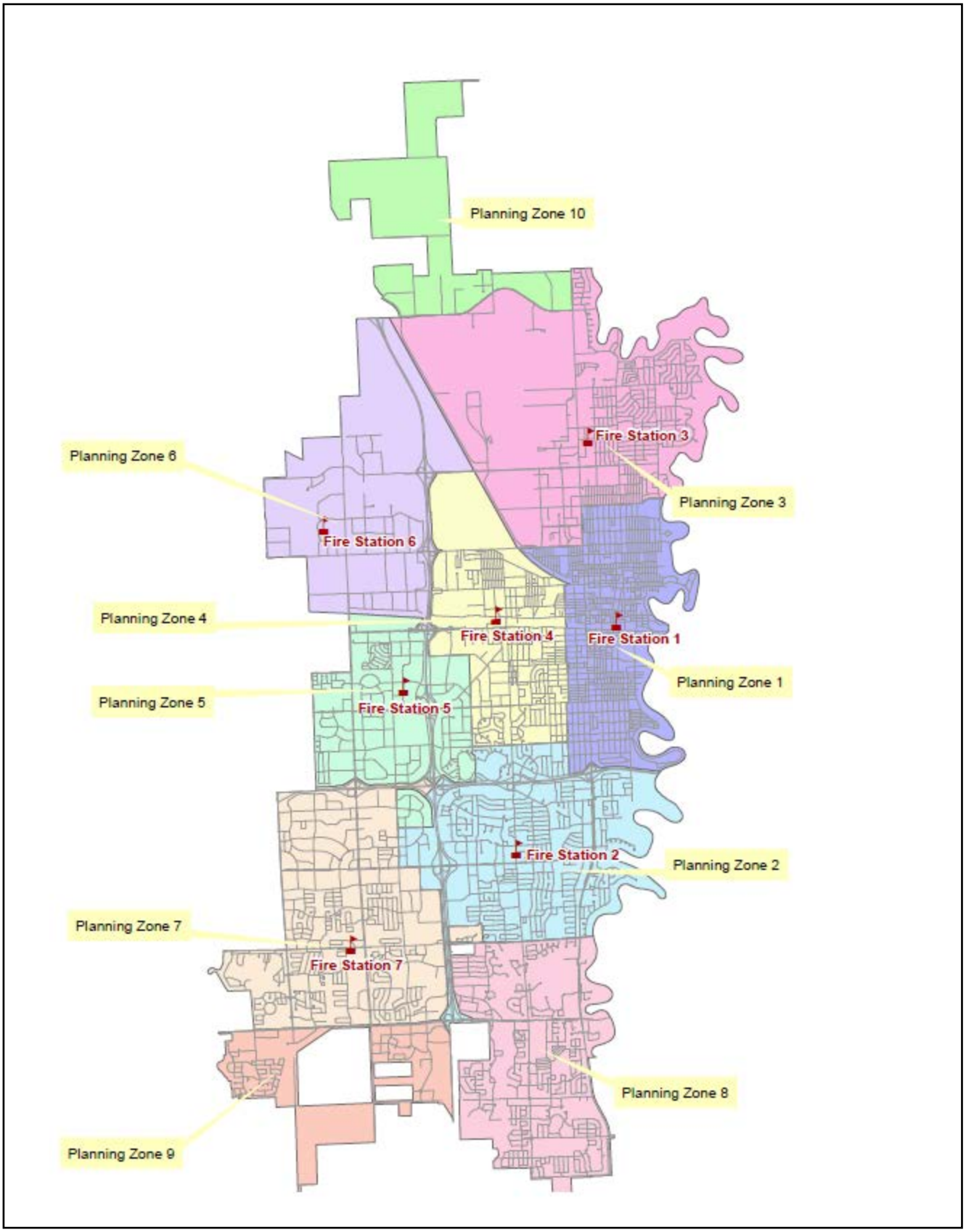


Figure 6. FFD Planning Zones

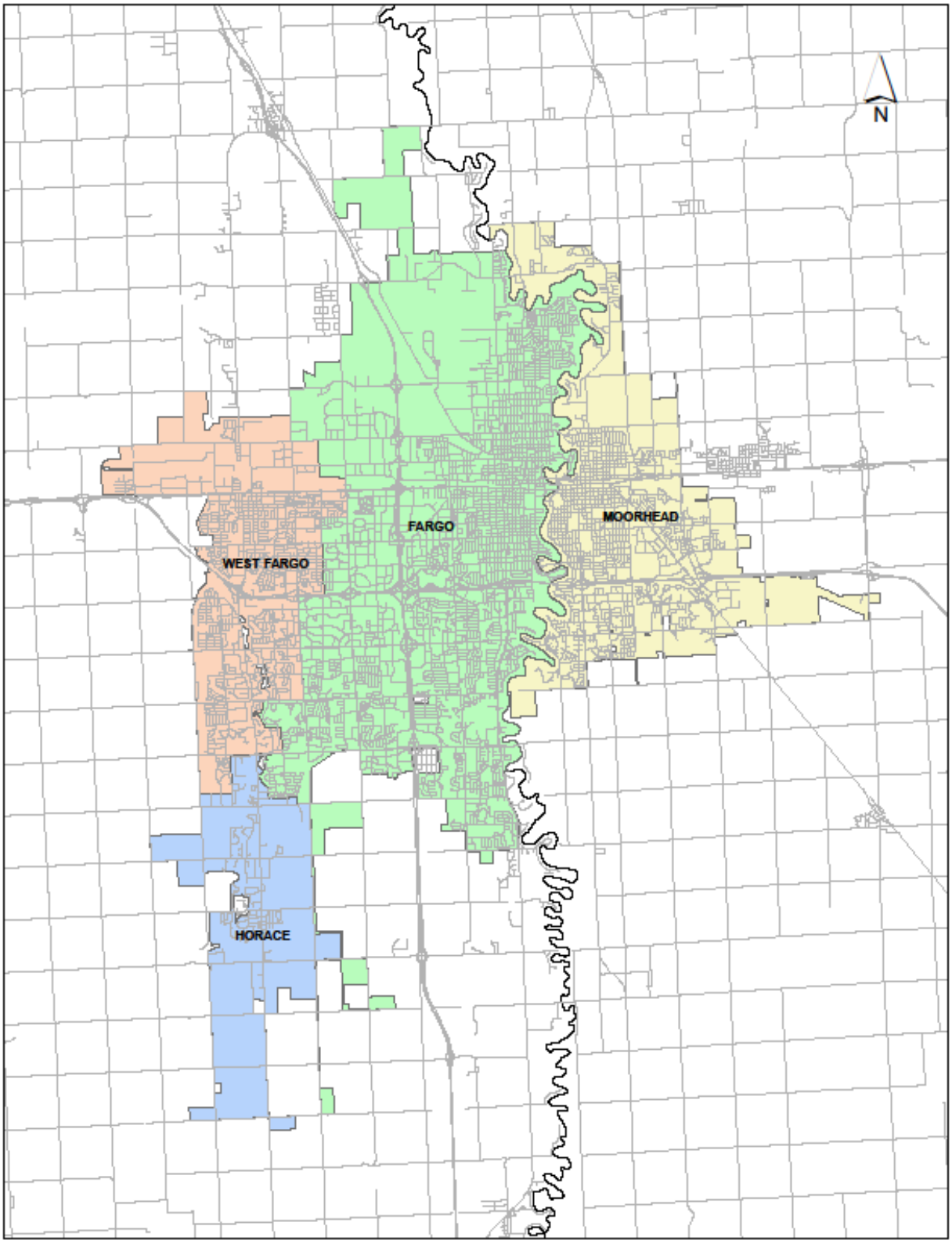


Figure 7. Primary Mutual Aid Response Areas

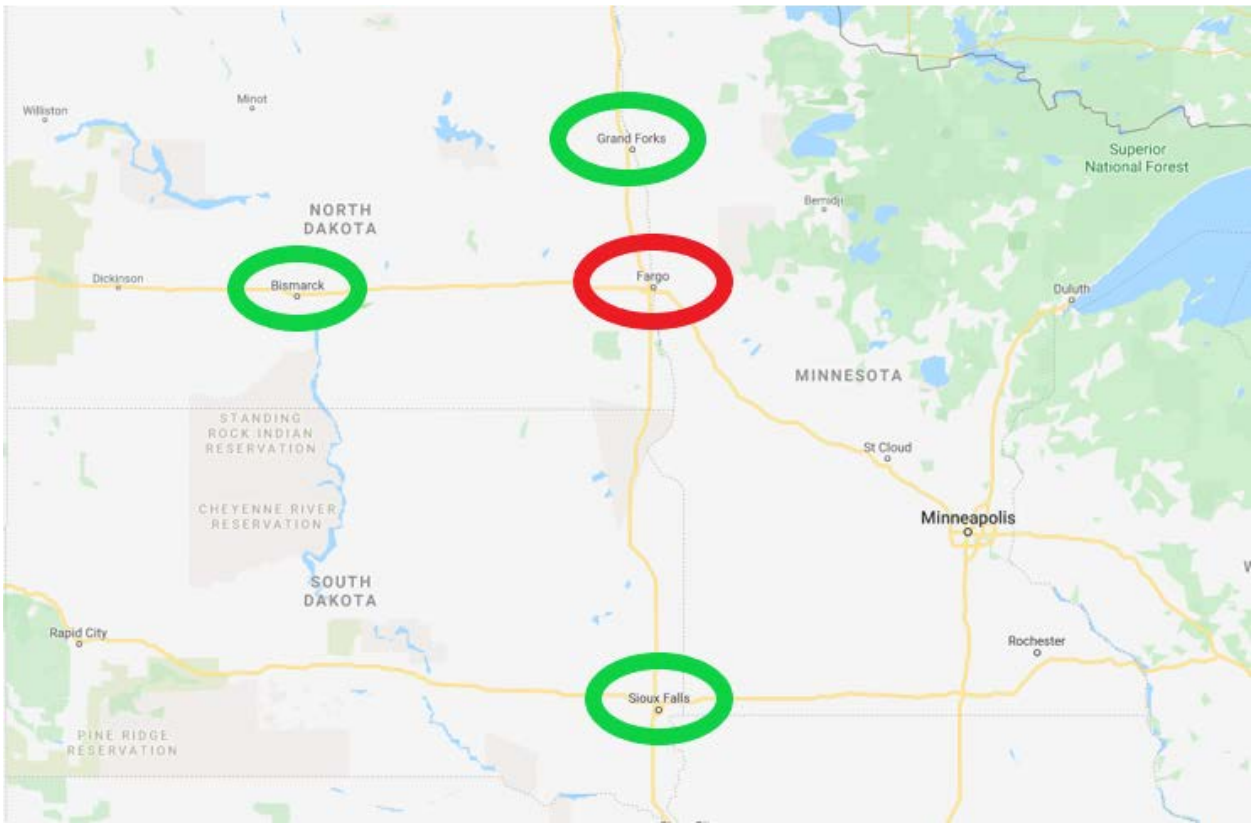


Figure 8. Map showing Grand Forks, Bismarck, & Sioux Falls

MOU's for all-hazard response

1. Moorhead, MN Fire Department
2. Cass County ND Fire Rescue
3. Grand Forks, ND Fire Department
4. Bismarck, ND Fire Department
5. Horace Rural Fire Protection District
6. Sioux Falls, SD Fire Department
7. West Fargo, ND Fire Department

MOU for Emergency Medical Services

1. Sanford Ambulance

MOU for Hazardous Materials Services

1. State of North Dakota
2. BNSF – Foam Trailer

MOU for aircraft emergencies

1. Hector International Airport

MOU for Technical Rescue Services

1. State of North Dakota

Planning Zones

The FFD uses its traditional first due engine company response zones as its primary planning zones (PZ). (Figure 6 is a map depicting these ten zones.) These zones are used to determine the location of fixed assets and apparatus placement to facilitate the most efficient travel times and distances within the available infrastructure. Planning zones 8, 9, and 10 have been established for planning purposes to support future growth and expansion of the city. Emergency services to these zones are currently delivered from FFD assets located in PZ 2, PZ 7, and PZ 3 respectively. Of the three, PZ 8 is currently experiencing the largest amount of growth and economic activity with correspondingly increasing demands for services. A new Fire Station 8 that will cover PZ 8 has been approved and funded by the city commission and an architect has started on the project. This station will be located in the area of 64th Ave S and 33rd St S with a completion goal date of the first quarter of 2024. PZ 9 and 10 remain more rural in nature and there is no current time frame on placing fixed assets in those areas. These 10 planning zones are further broken down into 38 quadrants (polygons) (See Figure 9 below).

These 10 planning zones and 38 quadrants have been used for many years to determine the first due apparatus and the effective response force (ERF) for any given area within the primary service area. The FFD currently uses AVL software to determine first due apparatus and the ERF for primary service areas. Due to the number of years that the static zones have been used, they have become institutional knowledge within the organization. For this reason, coupled with the fact that our historical data sets were developed from within these zones, the FFD has chosen these static areas as the planning zones for the organization. Due to the fact that PZ 8, PZ 9, and PZ 10 do not currently house any fixed FFD assets, quadrant data for those areas are collated into the response data for Station 7, Station 2, and Station 3. At such a time when permanent fire stations have been placed into these planning zones, quadrants will be realigned with their appropriate first due apparatus and tracked accordingly.

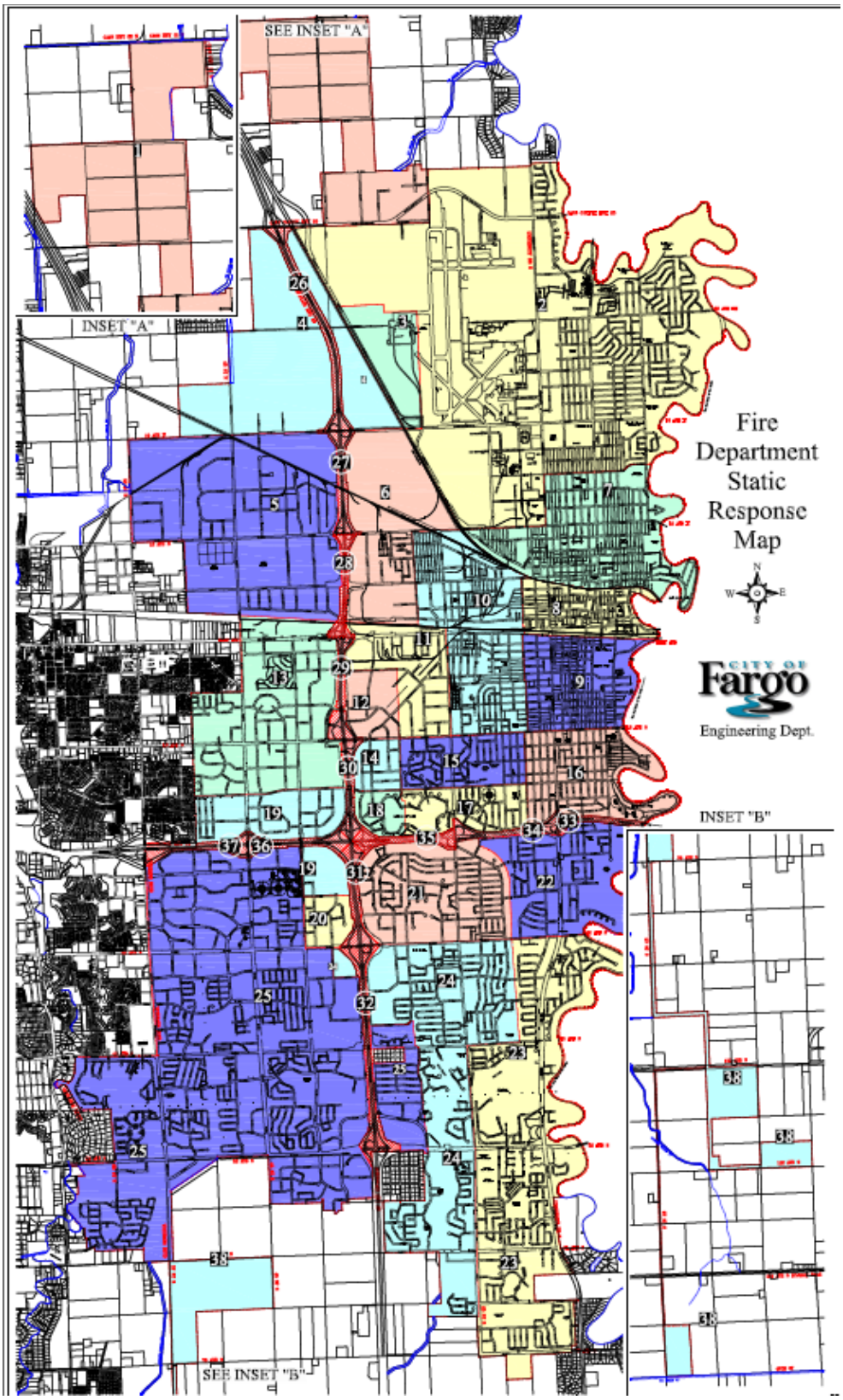


Figure 9. Quadrant Polygon Map

Section 2: Programs and Services

The Fargo Fire Department (FFD) is an "all-hazards" prevention and response service. Prevention and community risk reduction efforts are accomplished through public education, code enforcement, and advocacy. Response services provided by the FFD include various aspects of emergency response including: fire suppression, emergency medical technician service (non-transporting), wildland firefighting, hazardous materials, technical rescue, water and ice rescue, and drone operations.

Staffing, Apparatus, and Stations:

Current staffing for the FFD is 125 personnel of which 108 are in fire suppression, 7 are in fire prevention, 3 are in training, and the remainder are administrative positions. The suppression division is further divided into three rotating 24 hour shifts of 36 personnel to provide continuous protection to the City of Fargo. The current minimum daily staffing per shift is 29 with seven stations in operation. Current first line apparatus and staffing includes:

- Seven engine companies with a minimum of three personnel each, one of which is a rescue pumper with additional equipment and air filling capability. These units are equipped with 1250 gpm pumps and carry between 500-1000 gallons of water.
- Two aerial trucks: Truck 1 is equipped with a 103' aerial ladder with a nozzle, a 500-gallon water tank, and a 1500 gpm pump and equipment to deal with auto extrication and other rescues. Truck 2 is equipped with a 100' ladder with a platform, 250 gallon water tank, 1250 gpm pump and equipment to deal with auto extrication and other rescues.
- Two command units, each staffed by a battalion chief.
- One heavy rescue trailer with tow vehicle. When needed, this unit is cross-staffed with on duty personnel.
- One hazardous materials vehicle. When needed, this vehicle is cross-staffed with on duty personnel.
- Two zodiac inflatable rescue boats and one aluminum, flat bottom boat with recovery and ice rescue equipment. The aluminum boat has a jet powered outboard and a side scanning sonar.
- One fire investigation vehicle staffed by an on call deputy fire marshal.
- Two grass fire units, each with a 200 gallon water tank, 10 gallon foam tank, 20 HP pump, and a 150 foot ¾" booster reel.

Reserve apparatus includes:

- Three engines.
- One 103' aerial truck with platform, 250 gallon water tank, 1250 gpm pump.
- One rescue truck.

Table 3 shows the location of fixed assets along with assigned apparatus, equipment and staffing throughout the primary service area.

Fixed Asset	Location	PZ	Resources	Staffing
Station 1	637 NP Ave	1	Engine Co. 801	≥ 3
			Battalion 1 (Command Officer)	1
			1 Aluminum Rescue Boat	cross staffed
			One Fire Investigation vehicle	1
			Support Staff	6
			Fire Prevention Bureau	6
Station 2	3020 25th St S	2	Engine Co. 802	≥ 3
			One Zodiac	cross staffed
Station 3	1101 25th Ave N	3	Engine Co. 803	≥ 3
			One Zodiac	cross staffed
			Ice Rescue Equipment	cross staffed
Station 4	2701 1st Ave N	4	Engine Co. 804 (Rescue Pumper)	≥ 3
			Truck 1	≥ 3
			Heavy Rescue Trailer w/ Tow Vehicle (truck 4)	cross staffed
			Type VI Brush Patrol	cross staffed
			Drone	cross staffed
			Fire Training Captain's Office	1
			EMS Training Captain's Office	1
Station 5	930 40th St S	5	Engine Co. 805	≥ 3
			One Reserve Engine	0
Station 6	4630 15 Ave N	6	Engine Co. 806	≥ 3
			One Reserve Engine	0
			Truck 3 (Reserve aerial)	0
			Regional TRT Trailer and Tow Vehicle	cross staffed
			Salvage Trailer	cross staffed
			City of Fargo Emergency Manager (BC)	1
Station 7	3957 Village Ln.	7	Engine Co. 807	≥ 3
			Battalion 2 (Command Officer)	1
			Truck 2	≥ 3
			Regional Hazmat Response Unit	cross staffed
			Type VI Brush Patrol	cross staffed

Table 3. Fixed asset location and staffing

Fire Suppression:

The FFD uses a tiered approach to fire suppression based on the type, volume, and severity of the incident. Smaller fires such as those involving passenger vehicles, small out buildings, grass fires or refuse are mitigated with a single engine response. Each engine is fully equipped and staffed to manage these types of incidents without additional resources or assistance.

Larger incidents and/or structure fires are assigned a first alarm assignment. This assignment has shown through experience to be sufficient to manage the majority of structure fires in the FFD's primary service area. In the rare event that an incident necessitates a larger response, such as in a large commercial building, multi-family dwelling, or high-rise, the incident commander has the authority to initiate multiple alarms or call for specific resources as deemed necessary. The alarm assignments follow and are found in Standard Operating Guideline (SOG) 214:

1st Alarm:

- 4 engine companies
- 1 truck company
- 1 battalion chief
- 1 Advanced Life Support (ALS) ambulance unit (Sanford Ambulance)

2nd Alarm – 1st alarm assignment plus:

- 1 additional FFD engine company
- Notify the other on duty battalion chief
- Notify the chief & division chiefs
- 1 additional ALS ambulance unit (Sanford Ambulance)
- Salvation Army and Red Cross
- Fargo Police Department shift supervisor

3rd Alarm – 1st and 2nd alarm plus:

- 1 additional FFD engine company
- 1 additional FFD truck company
- 1 mutual aid engine company from Moorhead or West Fargo depending on location.
- Call back the oncoming shift
- Notify and request off duty battalion chiefs and training division personnel to respond
- Dispatch the RRVUAS drone

4th Alarm – 1st, 2nd, and 3rd alarm plus:

- Remaining uncommitted FFD front line apparatus
- Call back all remaining fire suppression and training division personnel

5th Alarm – 1st, 2nd, 3rd and 4th alarm plus:

- Request specific mutual aid resources from West Fargo or Moorhead.

Structure fires

The FFD responds to approximately 10 fires per month that includes any fire that is within a building or involving the structure itself. These fires include events such as cooking fires, room and contents, or fully involved structures. Structure fires require personnel to utilize a number of strategies and tactics to accomplish incident objectives. Knowledge, skills, and abilities utilized might include use of the incident command structure, search and rescue, water supply, hose stream application, ventilation, and communications.

There is not a typical time of day, week, or year that fires take place in Fargo. Even though the winter months bring about increased use of heating appliances, the correlation between the number of structure fires and time of year is not consistent. The two leading causes of fires in Fargo include cooking and improper disposal of smoking materials. All fires in Fargo are investigated at either the company officer, shift investigator, or fire prevention investigator level.

Other fires

The FFD responds to an additional 10-15 fires per month that are not in or involving a structure. These fires include vehicle fires, rubbish fires, and other outside fires that do not fall within the vegetation fires category below. These fires are generally handled by a single company, but occasionally do require a larger response. Although these incidents may seem “easier” or “more routine” than structure fires, there are additional hazards present that make any fire scene hazardous, including traffic, unknown materials present, or flammable liquids.

Wildland fires

The FFD does not respond to a significant number of wildland fires; therefore, the property loss and time committed to such fires is low. Wildland fires do not pose a large risk in Fargo. However, the potential for wildland fires turning into an urban interface threat exists under the proper conditions, so planning is done to improve the department’s preparedness.

The City of Fargo is threatened most by wildland fires during the dry months when there is no snow cover and the vegetation has not become green after winter or has cured as fall approaches,

which is typically April and May and then again in July through September. However, the city has experienced wildland fires in every month, except for February in the last five years.
The topography in Fargo does not contribute to wildland fire spread because any elevation changes are so minor that it does not contribute to preheating or slope aspect heating. Strong winds spreading fire and fire embers would be the main threat of wildland fire spread in the WUI. Fargo is most susceptible to a WUI fire during extreme weather events in the spring and fall when the ISI and FWI indices are high, very high, or extreme in places where the grasses act as ladder fuels; there is a red flag warning indicating high winds and low relative humidity; the continuity of the fuels is sufficient to carry fire to exposed buildings; and, the fuels, particularly larger fuels such as shrubs, brush, and trees, are within 30 feet of buildings.

Emergency Medical Services:

All fire suppression personnel are trained and certified to the level of emergency medical technician (EMT) with advanced skills. Fire suppression personnel receive advanced skill training in airway management (use of advanced airways) and pharmacology (for the treatment of heart and endocrine issues as well as opioid overdose). Each front line apparatus is fully equipped and staffed to respond to medical emergencies at the EMT level. Each company is equipped and trained to perform auto extrication with complex extrication equipment placed on Truck 1, Truck 2, and 804. The FFD does not transport patients or provide ALS services as both of these are provided by Sanford Ambulance in the region.
All front line fire apparatus now carry three sets of ballistic gear including a vest with rifle rated plates and helmets. Each ballistic vest includes a med pack with items including tourniquets, trauma dressings, and marking materials. This PPE is used during incidents that involve weapons or violence where the scene may not be 100% safe or secured by law enforcement, but medical needs are present that can be addressed by FFD personnel.

Fire Prevention:

The City of Fargo has adopted the International Fire Code (IFC) for the purposes of maintaining structures and permitting. The current version of the IFC 2021 code has been adopted by the COF and will be in place by the end of 2022. The fire prevention bureau (FPB) is staffed with six

deputy fire marshals, one battalion chief/assistant fire marshal, and the fire marshal who is a division chief and oversees the FPB. These deputy fire marshals are certified through the International Code Council and the International Association of Arson Investigators. The FPB manages citywide permit inspections, plan reviews, and oversight on new construction. Fire suppression crews also conduct company level fire prevention inspections and are responsible for maintaining code enforcement throughout the remainder of the city. Throughout the primary service area, the FFD inspects every commercial business every year and apartment buildings every other year.

Public Education/Community Risk Reduction:

The FPB conducts annual public education events through Fargo Public and Private Schools with the department's "Learn Not to Burn" program. Students are visited by the FPB each fall for fire and hazard prevention education. Follow up visits are conducted each spring by fire suppression personnel to reinforce an annual message and assess the knowledge retention of students. The FFD training division conducts similar events throughout the year at local businesses and non-profit organizations. The FFD maintains a public access defibrillator program to improve access to automated external defibrillators (AED) throughout the community. The department provides instruction in cardiopulmonary resuscitation (CPR) and AED training to the community. The FFD maintains a written community risk reduction plan to identify various common or significant risks to the community (See Appendix A). Each area of emphasis is outlined with a stated goal, an assessment of required resources and actions, and includes a method of evaluating its effectiveness.

Hazardous Materials Response:

The FFD maintains a 30-member hazardous material response team that trains to the technician level to respond to incidents involving hazardous materials. This team also responds into the greater southeast portion of North Dakota through an MOU with the State of ND. Equipment is placed and maintained at Fire Stations 5 and 7 for the purposes of responding to these events.

Technical Rescue:

The FFD maintains a 30-member technical rescue team (TRT) that is trained to respond to incidents involving structural collapse, trench rescue, confined space, and high angle rescue.

This team also responds into the greater southeast portion of North Dakota through an MOU with the state of North Dakota. Equipment is stored and maintained at Fire Stations 4 and 6 for the purposes of responding to these events.

Water/Ice Rescue:

The FFD maintains a water rescue team staffed with personnel from Fire Stations 1, 2, and 3. All fire suppression personnel receive training to assist with surface water and ice rescue activities. Fire stations that border the Red River (Stations 1, 2 and 3) are equipped with rescue boats and safety equipment sufficient to perform extended operations. Each FFD apparatus is equipped with sufficient water rescue equipment to perform an individual rescue with single engine company resources and staffing.

Drone Operations:

The FFD participates in the Red River Valley Unmanned Aircraft Systems (RRVUAS) consortium along with four other local fire and law enforcement agencies. The FFD provides seven pilots which includes two personnel from each shift and the fire training captain that serves as chief pilot for the program. This allows for 24/7 coverage by on duty pilots to respond to calls for service for the drone from any agency. All FFD personnel receive training to act as a visual observer to assist the pilot during operations. The RRVUAS has one drone that is housed at Fargo Fire Station 4 that includes video and thermal imaging capabilities. The FFD also owns several smaller drones that are used for training purposes.

Section 3: All-Hazard Risk Assessment and Response Strategies

Methodology

The FFD uses a risk assessment methodology that:

- Ensures department personnel and community partners understand the process
- Serves a valid purpose
- Allows for the updating of information in a timely manner
- Provides a process that allows collected data to be analyzed and easily understood by all department personnel.

Incident type and infrastructure type are both used to assess risk, although they are measured and examined differently.

Risks are categorized by incident type using the Three-Axis Risk Categorization Process shown in the figure below that was adopted from the Quality Improvement for the Fire and Emergency Services (QIFES) manual published by the Center for Public Safety Excellence (CPSE). The three areas used to determine the classification of risk include probability, consequence, and impact. These three areas each receive a numerical score that is then entered into a formula which provides a risk score. For ease of comparison, these scores are grouped as low, moderate, or high risk classifications.

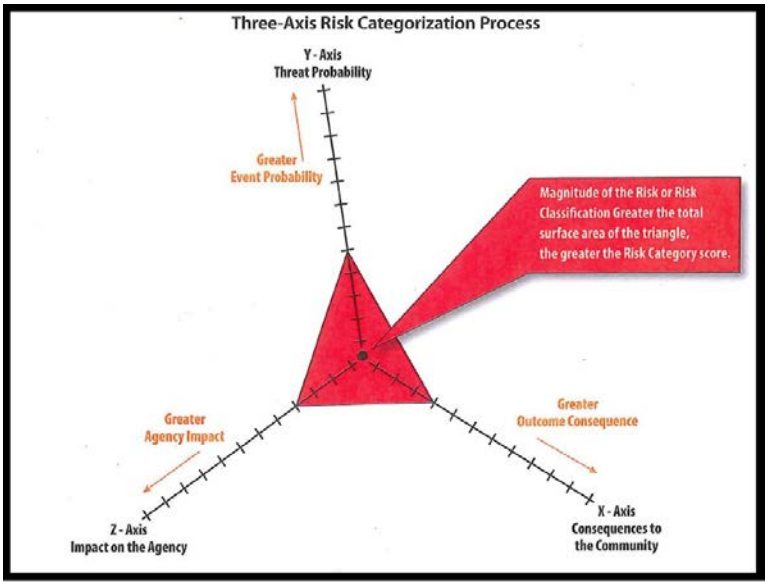


Figure 10. Three Axis Risk Categorization model

The Three-Axis Risk model uses a score for each area, which, when entered into an equation that is a modified Heron's Formula, provides a risk score. By entering the risk data into this formula, "an objective mathematical calculation of the triangle surface area creates a risk category score based upon pre-qualified jurisdictional parameters set for risk category ranges" (CPSE, pp. 26-7).

- Probability scores are derived from past department responses.
- Consequence scores are derived from the effect/severity on individuals and community partners.
- Impact scores are derived from the effect on department resources.

The table below lists the scores used for each area of risk.

Probability
2 = Rarely/Annually/Quarterly
4 = Monthly
6 = Weekly
8 = Daily
Consequence
2 = Individual/Confined to object
4 = Multiple people/Confined to room, floor
6 = Multiple people/Confined to building
8 = City/Community/Beyond building of origin
Impact
2 = 1 apparatus
4 = 2-3 apparatus
6 = 4-5 apparatus
8 = 6 or more apparatus

Table 4

Risk Score	Risk Classification
0-20	Low
21-30	Moderate
30 +	High

Table 5

Incident types were grouped into five main categories including fire, emergency medical services (EMS), natural vegetation fire, technical rescue (TRT), and hazardous materials (HazMat).

Fire	Probability	Consequence	Impact	Risk Score	Risk Classification
111 Structure fire					
Confined to object of origin	6	2	6	28.14249	Moderate
Confined to room of origin	4	4	6	26.53300	Moderate
Confined to floor of origin	2	4	8	25.92296	Moderate
Confined to building of origin	4	6	8	44.18144	High
Beyond building of origin	2	8	8	48.00000	High
112 Fire in structure, not bldg	2	2	4	8.48528	Low
113 Cooking fire	4	4	6	26.53300	Moderate
118 Trash/rubbish in structure	2	2	6	12.32883	Low
131 Vehicle fire	6	2	2	12.32883	Low
132 Road freight	2	2	4	8.48528	Low
138 Off road vehicle	2	2	2	4.89898	Low
151 Outside rubbish	2	2	2	4.89898	Low
154 Dumpster fire	4	2	2	8.48528	Low
162 Outside equipment	2	2	2	4.89898	Low
71x/73x/74x Alarm	8	2	2	16.24808	Low

Table 6

EMS	Probability	Consequence	Impact	Risk Score	Risk Classification
311 Medical Assist	8	2	2	16.24807681	Low
321 EMS call	8	2	2	16.24807681	Low
322 MVA w/injuries	6	4	4	26.53299832	Moderate
323 MV/Pedestrian accident	4	6	4	26.53299832	Moderate
324 MVA w/no injuries	6	2	4	19.79898987	Low
Mass-casualty incident	2	6	8	36.76955262	High

Table 7

Natural Vegetation fire	Probability	Consequence	Impact	Risk Score	Risk Classification
140 Natural vegetation fire, other	2	2	2	4.89898	Low
141 Forest, woods or wildland fire	2	6	8	36.76955	High
142 Brush or brush-and-grass mixture	4	4	6	26.53300	Moderate
143 Grass fire	4	4	6	26.53300	Moderate

Table 8

Technical Rescue	Probability	Consequence	Impact	Risk Score	Risk Classification
340/41/42/43 Search for person	2	2	4	8.485281374	Low
351 Extrication from building	4	4	8	33.9411255	High
352 Extrication from vehicle	6	2	6	28.14249456	Moderate
353 Removal of victim from elevator	6	2	2	12.32882801	Low
354 Trench rescue	2	6	8	36.76955262	High
355 Confined space rescue	2	6	8	36.76955262	High
356 High angle rescue	2	6	8	36.76955262	High
357 Extrication from machinery	2	6	6	28.14249456	Moderate
361/363 Water rescue	4	4	6	26.53299832	Moderate
362 Ice rescue	2	4	8	25.92296279	Moderate

Table 9

HazMat	Probability	Consequence	Impact	Risk Score	Risk Classification
411 Gasoline or other flamm liquid spill				0	
small	4	4	6	26.53299832	Moderate
large	4	4	6	26.53299832	Moderate
412 Gas leak	6	2	6	28.14249456	Moderate
413 Oil or other comb liquid spill				0	
small	4	6	6	34.98571137	High
large	2	6	8	36.76955262	High
422 Chemical spill or leak	4	6	6	34.98571137	High
424 CO incident	6	2	2	12.32882801	Low
43x Radioactive condition	2	6	8	36.76955262	High
451 Biological hazard	2	6	6	28.14249456	Moderate

Table 10

Target Hazards

In addition to assessing risk by incident type, infrastructure was identified and listed by type and planning zone. This provided an overall assessment within the City of Fargo of infrastructure and occupancies that may offer additional risks beyond those normally associated with a structure fire or emergency involving the property. This infrastructure is divided into occupancy classifications and other types of infrastructure. These occupancies and infrastructure are often referred to as critical infrastructure or target hazards. Factors examined and taken into account that may increase risk include:

- Occupancy type
- Life safety
- Fire sprinklers
- Additional hazards present
- Economic loss potential

By placing these target hazards into a list format identified by planning zone, suppression personnel can review the occupancies located in their area and plan for incidents at these locations. The lists below can be adjusted as department personnel deem necessary.

Nursing home/Assisted living facilities		
Name	**Address**	**Planning Zone**
SMP Health-St. Catherine North (Rosewood)	1351 Broadway	1
Bethany Retirement Living	201 University Dr S	1
The Meadows on University	1315 University Dr S	1
Elim Senior Living Community	3540 University Dr S	2
Villa Maria	3102 University Dr S	2
Ecumen Evergreens of Fargo	1401 W Gateway Cir S	5
Bethany Retirement Living on 42nd	4255 30th Ave S	7
Edgewood Fargo	4420 37th Ave S	7
Eventide Fargo	3225 51st St S	7
Fargo Mapleview	4552 36th Ave S	7
Good Samaritan Society	4502 37th Ave S	7
Riverview Place	5300 12th St S	8

Table 11

Senior Living Facilities/Apartments		
Name	**Address**	**Planning Zone**
Cooper House Apartments	414 11th St N	1
Twin Towers	1110 3rd Ave N	1
University Dr Manor	1201 2nd Ave N	1
Prairiewood Meadows	137 Prairiewood Dr S	2/5
Park Place Apartments	2701 32nd Ave S	2
Village Apartments	2801 23rd Ave S	2
New Horizons	2525 Broadway N	3
Trollwood Village	3100 Broadway N	3

Table 12

Hospitals / Healthcare facilities		
Name	**Address**	**Planning Zone**
Family Health Care	301 NP Ave	1
Sanford - North campus	801 Broadway N	1
Sanford - South University	1720 University Dr S	1
Essentia	3000 32nd Ave S	2
Sanford - Southpointe	2400 32nd Ave S	2
University Medical Center (Urgent Med)	2829 University Dr S	2
Fargo VA Healthcare Center	2101 Elm St N	3
Sanford Health	2601 Broadway N	3
Fargo Cass Public Health	1240 25th St S	4
MEDPark Medical Center	4450 31st Ave S	7
PAM Health Rehabilitation Hospital	4671 38th St S	7
Sanford - Main campus	5225 23rd Ave S	7

Table 13

Schools		
Name	**Address**	**Planning Zone**
Agassiz/Fargo Adult Learning Center (Dakota HS)	1305 9th Ave S	1
Ben Franklin Middle School	1420 8th St N	1
Clara Barton Elementary	1417 6th St S	1
Grace Lutheran School	1025 14th Ave S	1
Hawthorne Elementary	555 8th Ave S	1
Holy Spirit Elementary	1441 8th St N	1
Horace Mann Elementary	1025 3rd St N	1
Lincoln Elementary	2120 9th St S	1
Nativity Elementary School	1825 11th St S	1
Oak Grove High	124 N Terrace N	1
Roosevelt Elementary	1026 10th St N	1
Discovery Middle School	1717 40th Ave S	2
Eagles Elementary	3502 S University Dr	2
Ed Clapp Elementary	3131 28th St SW	2
Oak Grove Elementary	2720 32nd Ave S	2
Longfellow Elementary	20 29th Ave NE	3
McKinley Elementary	2930 8th St N	3
North High	801 17th Ave N	3
Washington Elementary	1725 Broadway N	3
Carl Ben Eielson Middle School	1604 13th Ave S	4
Jefferson Elementary	1701 4th Ave S	4
Lewis & Clark Elementary	1729 16th St S	4
Madison Elementary	1040 29th St N	4
South High	1840 15th Ave S	4
Willow Park Elementary	4901 15th Ave S	5
Independence Elementary	3700 54th St S	7
Kennedy Elementary	4401 42nd St S	7
Osgood Elementary	5550 44th Ave S	7
Bennett Elementary	2000 58th Ave S	8
Centennial Elementary	4201 25th St S	8
Davies High	7150 25th St S	8
Shanley High School	5600 25th St S	8
Sacred Heart Middle School	5600 25th St S	8
Deer Creek Elementary	6400 54th Ave S	9

Table 14

Critical Infrastructure		
Name	**Address**	**Planning Zone**
Fargo City Hall	225 4th St N	1
Fire Station 1	637 NP Ave	1
Red River Regional Dispatch Center	300 NP Ave	1
Water Treatment plant	435 14th Ave S	1
Fire Station 2	3020 25th St S	2
Fire Station 3	1101 25th St N	3
Hector International Airport	2801 32nd Ave N	3
Water Reclamation	3400Broadway N	3
Cass County Jail	450 34th St S	4
Fargo Police Department	105 25th St N	4
Fargo Public Works	402 23rd St N	4
Fire Station 4	2701 1st Ave N	4
Fire Station 5	930 40th St S	5
Fire Station 6	4630 15th Ave N	6
Fire Station 7	3957 Village Lane S	7

Table 15

Commercial		
Name	**Address**	**Planning Zone**
A T & T	409 1st Ave N	1
Hawkins Water Treatment Group	2001 Great Northern Dr	4
Tecton Products	4401 15th Ave N	6
Aldevron	4055 41st Ave S	8

Table 16

Non-Fire Risks

Transportation:

Like most commercial centers, Fargo is a transportation center. The city is at the crossroads of two interstate highways, has an international airport, and two major rail lines. Commercial passengers are served through five major airlines as well as Amtrak and Jefferson Bus Lines. As a transportation center, there is risk from mass casualty incidents as well as a significant risk from hazardous materials transportation.

The two rail lines are major arteries that carry up to 100 trains per day. A wide variety of products are carried on these trains, but several trains per day carry various hazardous chemicals, many associated with agriculture such as anhydrous ammonia. There are also several trains a day carrying ethanol and Bakken crude oil from the western part of the state, which has the potential to be a serious concern. These trains cross through planning zones 1, 3, 4, 5 and 6.

Interstate 94 (I-94) runs east and west through the city. It crosses the Red River on the border of planning zone PZ 1 and PZ 2. The bridge over the river has historically been the site of many vehicle crashes but currently has a de-icing system installed which has reduced crashes on the bridge. Interstate 29 (I-29) runs north and south through the city. Both interstates have large numbers of over the road trucks carrying hazardous materials and other freight that pass through the city daily.

Hector International Airport and the North Dakota Air National Guard Base (NDANG) are each located in the city within PZ 3. The airport and NDANG are adjacent to one another and share the same runways. The NDANG does not currently have a flight mission or a full time fire department, so the Fargo Fire Department has taken over the primary fire protection for structures on the base. The FFD provides response to the Hector International Airport terminal buildings and other privately owned facilities and structures located on or near airport property. The Hector Airport Authority established its own crash/rescue fire department in October of 2014 that is staffed 24 hours a day, 7 days a week and provides aircraft rescue and firefighting (ARFF) protection for the air field. The FFD assists the Hector Airport FD with emergencies on the airfield through a memorandum of understanding (MOU).

Pipelines:

Several pipeline corridors run through the city. These carry refined petroleum products such as gasoline, fuel oil, jet fuel, natural gas, and ethanol. The petroleum pipelines run through PZ 2, 5 and 6 and cross the Red River in PZ 2. One corridor carries a six inch and a ten-inch pipeline. The other right of way has one ten-inch pipeline. A natural gas pipeline crosses into Fargo from Moorhead in PZ 3. An ethanol pipeline runs through PZ's 6 and 3.

Terrorist Threats:

A number of potential targets have been identified within the city. Fargo, on a national level, is not considered a likely terrorist target but as a regional center with gatherings of large number of people, it does have some risk. The Federal Court House has been the site of a number of high profile cases in the past few decades. The FargoDome and Scheels Arena, both multi-use assembly and sporting arenas, regularly see large crowds of people. West Acres Shopping Center is a regional shopping destination. North Dakota State University has received protests over their handling of animals. There is a clinic located in downtown Fargo that provides services to terminate pregnancy, which has been the target of violence and protests. Though none of these are major concerns on a national level, they are the most likely terrorist targets within the City of Fargo and, as such, have some associated risk.

Rivers & Lakes:

Because of the flat terrain, there is an annual threat of flooding. The Red River of the North provides the entire eastern border of the City of Fargo. The Red River is unique in the fact that it flows north into the ice and colder temperatures. The city is located between two other rivers that join with the Red. The Wild Rice River joins the Red River approximately one mile south of Fargo and the Sheyenne River joins the Red River approximately four miles north of the city. The Wild Rice is a much smaller river, but during the spring it carries almost as much water as the Red. In addition, when the Sheyenne River exceeds 22 feet it breaks out and spills into the Wild Rice River increasing the level of flooding in Fargo. Ice jams on any of these three rivers has a significant impact on the severity of flooding. During normal river conditions, the rescue potential is low risk, but significant flooding is considered high risk in the fact that there is the potential for large scale rescues in the event of a levee breach. Various levels of evacuation &

contingency plans have been developed for such an event. Flooding is also considered high risk because of the potential to cause significant damage to property and to the economy. (The most recent significant floods are described under Natural Disasters.)

The Red River has some recreational traffic including fishing, boating, and kayaking near three man-made dams within city limits. These were changed from low head dams which created an extreme drowning potential to areas of rip rap which make the area safer, but still hold some risk of water accidents. During the winter, unstable ice conditions pose a risk. The river is the major source of water for both Fargo and Moorhead, therefore, is vulnerable to a chemical spill with potential consequences beyond normal environmental concerns. A hazardous materials spill in the Red River could be a serious incident that could demand considerable resources for a substantial amount of time. The river borders planning zones 1, 2, 3, and 8.

Located within the city are several small man-made lakes and water containment areas. The lakes are located within residential areas and pose typical water related risks. The lakes are primarily for cosmetic purposes. Small, non-motorized watercraft can be used but there is very little recreational activity. While there is always the possibility of an accident, to date there have been very few calls for service related to the lakes. During severe thunderstorms and spring flooding, water containment areas and drainage canals are often at full capacity. When this occurs, there is a corresponding increase in calls for service to these areas. Typically, they involve motorized vehicles. The bulk of these lakes and containment areas are located within planning zones 2, 7, and 8.

Hazardous Materials:

Hazardous materials incidents are categorized according to two levels of risk by the FFD. Low risk is for non-life threatening, less than five gallon spill incidents handled by one apparatus. Special risk incidents include chemical releases, natural gas leaks, or incidents requiring activation of the hazardous materials team to mitigate.

Along with the risk from hazardous chemicals as a transportation center, there are many sites in the city that have sizeable amounts of hazardous chemicals stored and used on site. The department inspects all commercial buildings and tracks the amount of hazardous materials

stored in all buildings. The department includes this information in the database available on MDC's in each apparatus. One means of locating businesses that use or store chemicals is through The Superfund Amendments and Reauthorization Act (SARA), which requires all businesses to report to state and local officials substantial quantities of hazardous chemicals stored on the premises. Figure 16 is a map showing the businesses that have SARA reportable quantities of chemicals. The majority of these are in planning zones 1, 4, and 6. With data and experience from fire inspections, the department knows that the major areas of concern for hazardous materials use and storage are in PZ 4 and PZ 6. These areas have the most concern because of the manufacturing and storage facilities that populate the industrial park areas located in these two planning zones. Fargo does not have any large chemical manufacturing. The map in Figure 16 also identifies the locations of pipelines, railroads, and interstate highways in relation to planning zones.

Natural Disasters:

Potential natural disaster risks primarily include springtime flooding, summer thunderstorms, tornadoes, and winter blizzards and snowstorms. During recent years, the Red River of the North has passed into flood stage at least once per year. During most years, flooding is minor. However, about every decade the city experiences a major flood event. The Red River flood of 1997 had been the most severe flood of the river since 1826. On April 17th 1997, the Red River crested in Fargo at 39.5 feet which is 22 feet above flood stage; at that time the second highest crest in recorded history. While there were some properties lost to flooding, dike-building efforts were able to prevent the water from flooding into a majority of the city. On March 28, 2009 the Red River crested at 40.8 feet, making it the highest recorded flood in Fargo's history. This was considered a level one disaster bringing in many federal and state resources. Because of the outpouring of volunteers and the efforts of all the agencies involved, temporary levees and dikes were built to the 43-foot level resulting in flood damage to the city being held to a minimum. Since 1997 significant efforts have been made to lessen the effects of severe flooding within the city. However, as a result of this flooding FEMA has adjusted the flood plain elevations for this region, which has forced a significant number of property owners within the city to purchase flood insurance. Because of this recurring threat and additional financial burden placed on property owners, the top priority for city leaders is obtaining permanent flood

protection. A flood diversion project has been developed and approved by congressional authority however; legislative and legal hurdles still exist between neighboring communities and states.

Severe thunderstorms and tornados are potential disaster risks during warm weather months. Most thunderstorm activity occurs in June, July, and August with August being the most active month. Fargo averages 35 thunderstorms per year. Tornados are an ever present threat associated with thunderstorms. Fargo suffered severe loss of life and property damage when struck by an F5 tornado on June 20, 1957. Tragically, 10 people lost their lives due to the tornado.

The city is known for its long, cold, snowy winters and blizzard conditions. Heavy snow accumulation has caused roofs to collapse. During blizzards and heavy snow events, snow blocked streets can make travel with fire trucks difficult. Double digit sub-zero winter temperatures require precautions to maintain an effective water supply. Apparatus and fire ground operations are adapted to help deal with the frigid temperatures. The FFD has a good working relationship with the Public Works Department during winter events. Plow crews respond quickly at when requested to open blocked streets.

Economic Risks:

The FFD considers the protection of the economy a primary strategy in planning for fire protection. One means of assessing risk to the economy is an assessment of jobs. Table 5 contains the ten largest employers in the City of Fargo according to the Fargo Moorhead West Fargo Chamber of Commerce.

	City of Fargo's Largest Employers	**FTE***
1	Sanford Fargo Medical Center	9349
2	North Dakota State University	4156
3	Essentia Health	2690
4	Fargo Public School District No. One	1860
5	Noridian Healthcare Solutions	1511
6	US Bank	1213
7	Fargo VA Health Care System	1186
8	Microsoft	1024
9	Integrity Windows and Doors	1000
10	Blue Cross Blue Shield of North Dakora	948
	*FTE=Full-time employee equivalents	

Table 17. City of Fargo's Largest Employers

The Fargo Moorhead Metropolitan Council of Governments (Metro COG) assembles census data for each specific area of the city to determine traffic patterns for the metropolitan area. It breaks the information into small parcels that make it easy to assign specific information to specific areas, such as planning zones. The census data provides the number and type of jobs for each particular area.

Description of Loss and Injury

Fire Loss:

Table 6 shows the total fire related dollar loss from 2017 to 2021. Higher than normal loss incidents include: in 2020, a nursing home facility that was a total loss of over $2,000,000 and two large apartment buildings that totaled nearly $1,500,000; in 2021 a commercial strip mall sustained $1,250,000 in loss and an apartment building at $360,000.

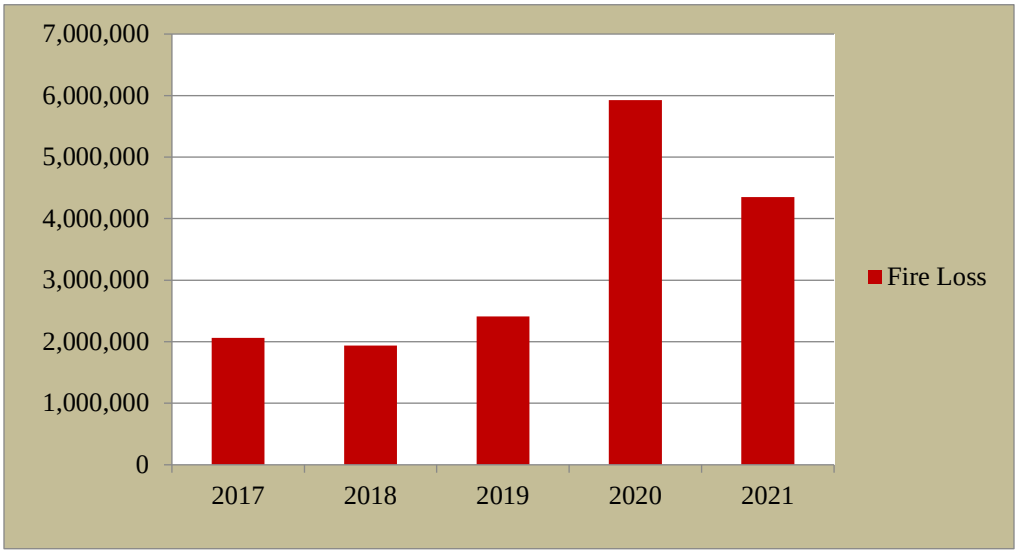


Table 18. Total Fire Loss in Dollars

Fire Related Civilian Deaths and Injuries:

In the NFPA report *Fire Loss in the United States During 2013*, from 2008 to 2013, communities with a population of 50,000 to 99,999 averaged 0.72 fire deaths per 100,000 people nationally and 0.80 fire deaths per 100,000 people in the Midwest region. Fargo's average during the same time is .67. The NFPA report shows civilian injuries were 5.67 nationally and 5.47 in the Midwest region per 100,000 people. Fargo's average during the same time period is 4.5.

Death and injury rates are difficult to trend due to the low occurrence of death and injury from fire in Fargo. One catastrophic fire could change trends dramatically. Fire injuries are also difficult to compare due to civilians not reporting injuries when the fire department is not called

or when they seek treatment on their own. Table 7 is a chart showing civilian deaths and injuries from 2017 to 2021.

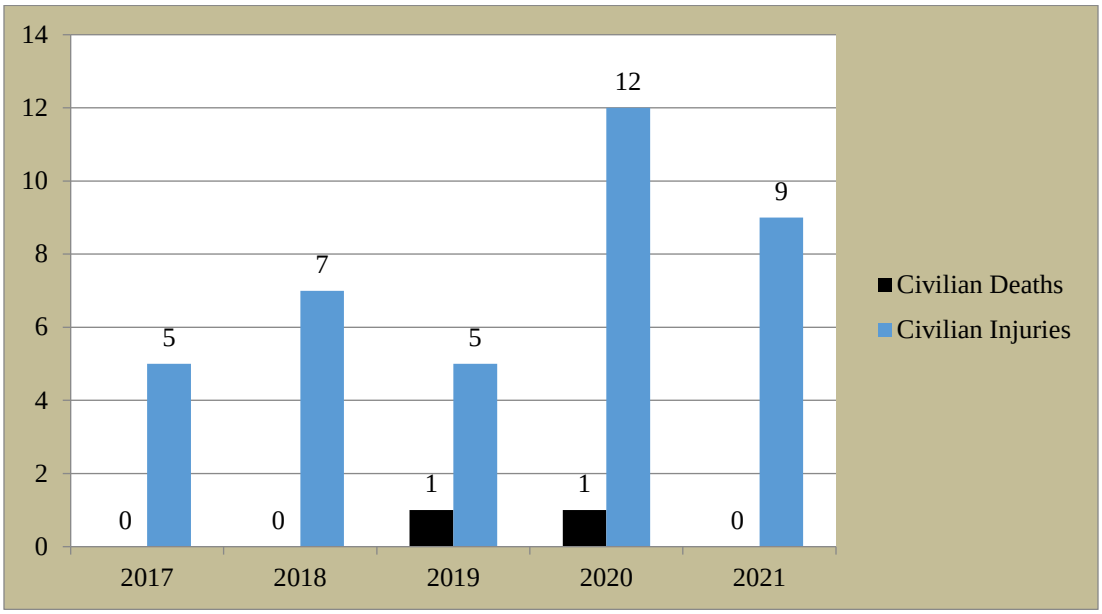


Table 19. Civilian Deaths and Injuries 2017-2021

It has been demonstrated that socioeconomic factors affect the demand for fire department services. Fire deaths in the biggest cities are roughly 50% higher than in small cities, but fire deaths in rural communities with populations less than 5,000 are more than 100% higher. The peak rates in very small and very large communities are concurrent with high poverty rates in these two types of communities.

Firefighter Injuries:

Table X represents the number of reported firefighter injuries in the FFD from 2017 to 2021. The number of firefighter injuries has increased in recent years mostly because of a change in reporting procedures. The City of Fargo began to more rigorously enforce Worker's Compensation requirements in the last few years. These requirements set the expectation that firefighters report any injury, whether or not the individual seeks medical attention. In the past, this was not emphasized and many small injuries did not get reported when the individuals did not seek medical attention. More reports of small injuries can result in the potential for changes that improve safety.

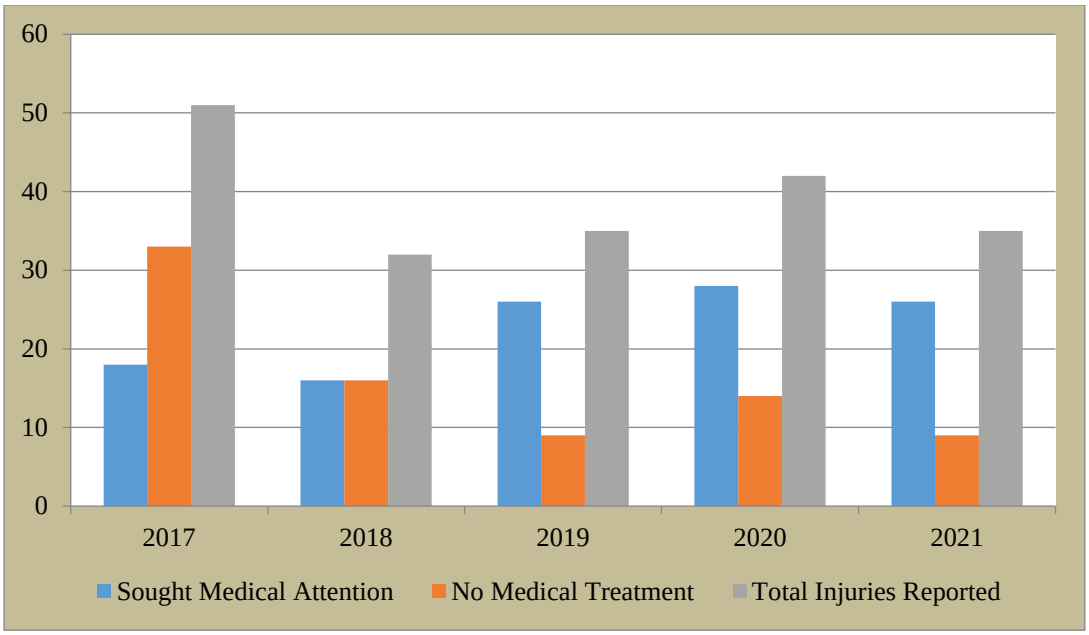
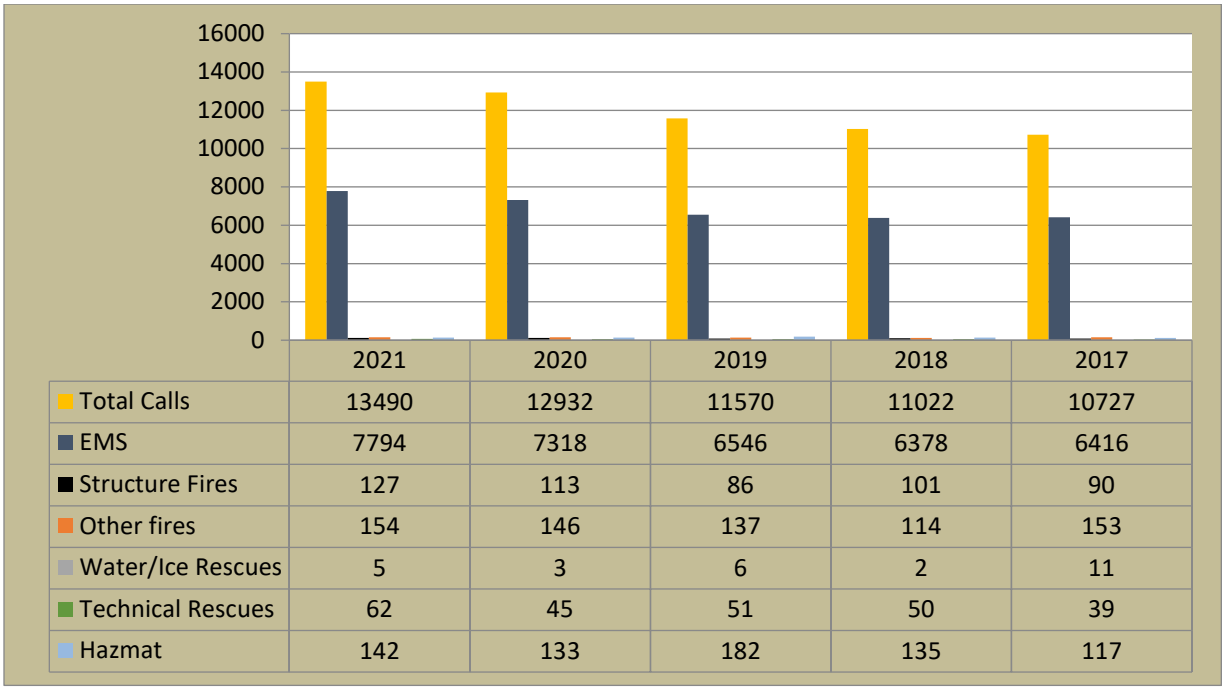


Table 20. Firefighter Injuries, 2017-2021

Demand for Service

Total Calls for Service:

Combined with the level of risk, an analysis of demand for service is important to assess the need for fire suppression resources. First, an overview of the number and types of incidents in the entire jurisdiction is useful to see the general demands on the fire protection system. Table X shows the number and type of calls per year.



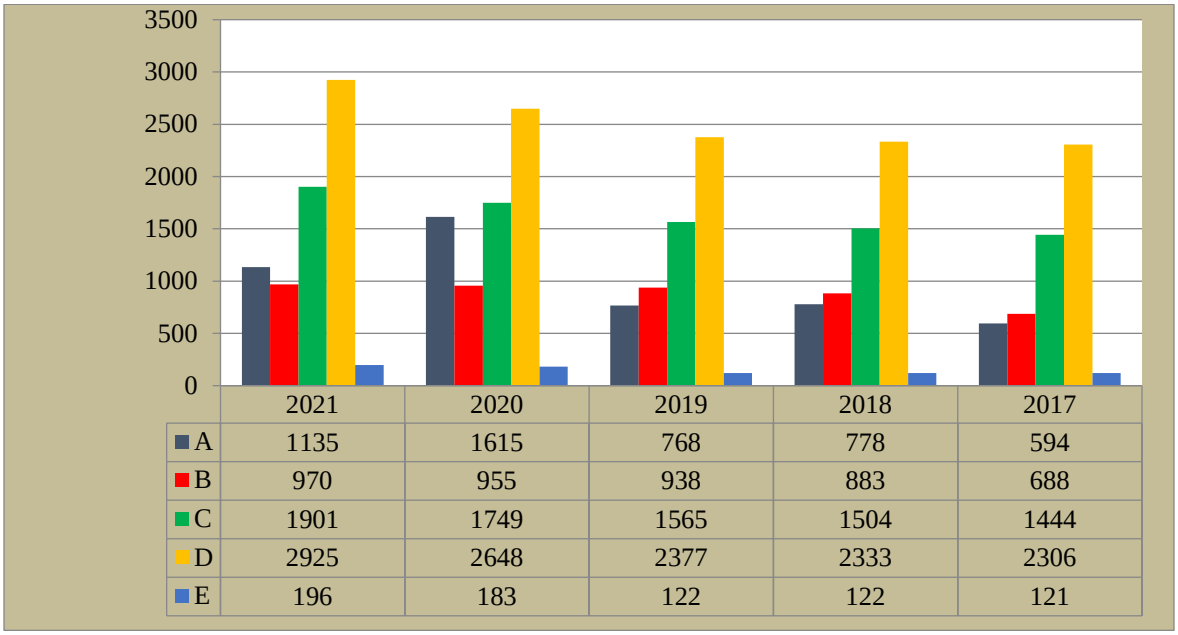
	2021	2020	2019	2018	2017
Total Calls	13490	12932	11570	11022	10727
EMS	7794	7318	6546	6378	6416
Structure Fires	127	113	86	101	90
Other fires	154	146	137	114	153
Water/Ice Rescues	5	3	6	2	11
Technical Rescues	62	45	51	50	39
Hazmat	142	133	182	135	117

Table 21. Total Calls for Service 2017 - 2021

Calls for Emergency Medical Services:

Medical calls are prioritized using the ProQA Dispatch System, which provides an emergency medical dispatch (EMD) code to each call on a scale of increasing severity from A-E. Through 2012, the FFD responded to medical calls coded either D or E. It had been determined that restricting FFD responses to calls with a heightened level of risk would increase unit reliability and focus resources where they would have a significant positive impact on patient outcomes. In 2012, in an effort to decrease call processing times, the FFD began responding to all calls coded C, D or E. In March of 2015, in a further attempt to reduce call processing times, the FFD began responding to medical calls for service based on chief complaint. The ProQA process is then

continued by dispatchers and if an EMD code of A or B results prior to the unit's arrival, the company officer is instructed to make a determination based on their assessment of the available information. The unit will either continue or cancel dependent on whether or not the company officer believes a positive impact on patient outcomes can be achieved. These efforts have increased run volume significantly. Although these efforts have decreased call handling times to a certain degree, reducing call processing times continues to be an ongoing challenge. The Red River Regional Dispatch Center (RRRDC) dispatches for numerous agencies in two counties in two states and is not under direct control of the City of Fargo. FFD staff continue to work with the RRRDC to find ways to bring processing times in line with national standards. Table X shows EMS calls by EMD code. Not listed are code "G" - ProQA aborted by dispatchers, "O" - which is lower than "A" in severity, or calls that were not assigned a code.



	2021	2020	2019	2018	2017
A	1135	1615	768	778	594
B	970	955	938	883	688
C	1901	1749	1565	1504	1444
D	2925	2648	2377	2333	2306
E	196	183	122	122	121

Table 22. Calls for Medical Dispatch Code A-E 2017 - 2021

Calls by Occupancy Type:

In order to identify trends, the FFD assesses where calls for service occur. Table X is a breakdown of total calls for service by occupancy type for 2021. Table X shows all fires.

Total Calls by Occupancy Type 2021	EMS	Fire	Other
429 Multifamily dwellings	3307	86	2313
419 1 or 2 family dwelling	1377	55	843
963 Street or road in commercial area	559	9	395
962 Residential street, road or residential driveway	192	11	176
965 Vehicle parking area	122	26	69
311 24-hour care Nursing homes, 4 or more persons	128	0	103
599 Business office	65	1	124
449 Hotel/motel, commercial	291	8	145
161 Restaurant or cafeteria	137	9	82
331 Hospital - medical or psychiatric	125	5	77
961 Highway or divided highway	66	10	46
460 Dormitory type residence, other	17	1	26
960 Street, other	6	0	1
241 Adult education center, college classroom	11	1	36
700 Manufacturing, processing	33	11	43
322 Alcohol or substance abuse recovery center	177	0	48
131 Church, mosque, synagogue, temple, chapel	22	0	9
162 Bar or nightclub	80	0	26
340 Clinics, doctor's offices, hemodialysis centers	21	0	10
123 Stadium, arena	12	0	18
173 Bus station	49	0	17
891 Warehouse	10	1	44
581 Department or discount store	89	1	39
571 Service station, gas station	107	2	66
519 Food and beverage sales, grocery store	72	0	40
322 Alcohol or substance abuse recovery center	177	0	48

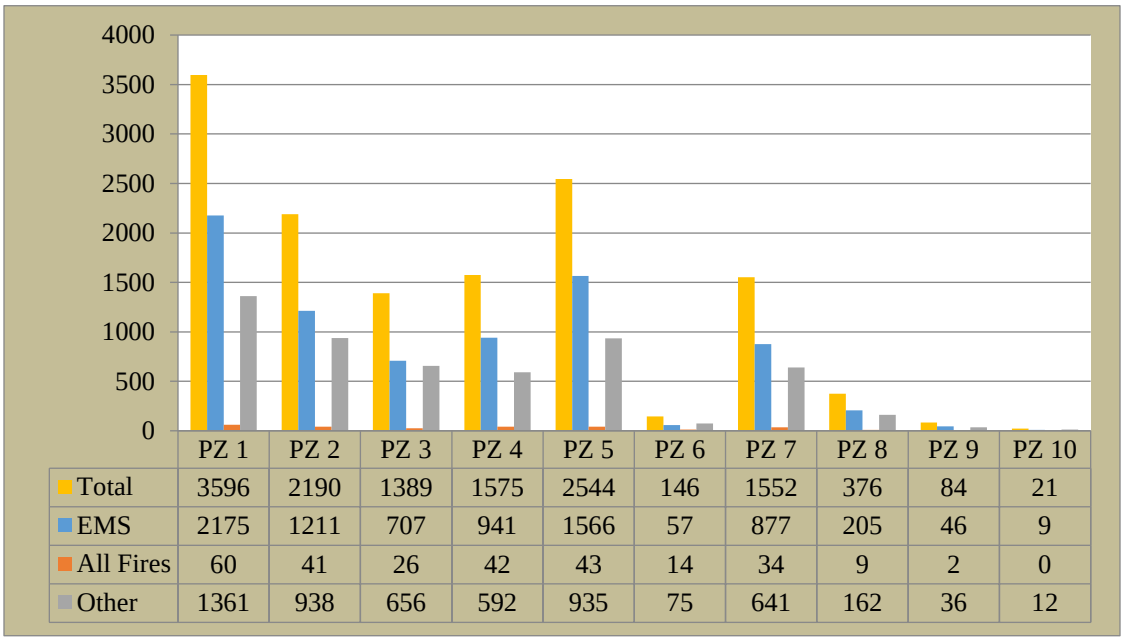
Table 23 Total Calls by Occupancy Type 2021

2021 Structure Fires	Total	% of total fires
419 1 or 2 family dwelling	40	31%
429 Multifamily dwellings	55	43%
881/882 Parking garage, (detached residential garage)	3	2%
161 Restaurant or cafeteria	6	5%
449 Hotel/motel, commercial	4	3%
322 Alcohol or substance abuse recovery center	0	0
321 Developmental disability facility	0	0
500's Business office	5	4%
162 Bar or nightclub	0	0
241 Adult Education center	0	0
816 Grain elevator/silo	0	0
891 Warehouse	0	0
926 Outbuilding	1	1%
459 Residential board & care	0	0
Other	13	10%
Total	127	100%

Table 24. 2021 Structure Fires 2021

Calls by Planning Zone:

A more thorough look at the individual planning zones allows for a better appraisal of demand for service. Incident data for the last five years has been added to the summary for each planning zone. For the ease of comparison, only 2021 data was used in the following graphs to demonstrate the demand in the planning zones. Table XX shows the total number of incidents along with the number of medical calls, the number of fires, and the number of other calls for each planning zone.



	PZ 1	PZ 2	PZ 3	PZ 4	PZ 5	PZ 6	PZ 7	PZ 8	PZ 9	PZ 10
Total	3596	2190	1389	1575	2544	146	1552	376	84	21
EMS	2175	1211	707	941	1566	57	877	205	46	9
All Fires	60	41	26	42	43	14	34	9	2	0
Other	1361	938	656	592	935	75	641	162	36	12

Table 25. 2021 Calls by Planning Zone

From the chart, it can be seen that PZ 1 has the greatest number of calls for service. PZ 2 and 5 have similar numbers of incidents with PZ 3, 4, and 7 all close to similar numbers. PZ 6, 8, and 9 have relatively low numbers of incidents. Most of the planning zones have a similar ratio of medical to non-medical calls for service that range between 50% and 60% with variations from year to year. The exception is PZ 6 where the ratios are consistently lower due to the fact that PZ 6 is mostly industrial with a low population density. PZ 8, 9, and 10 are used for tracking purposes only and do not currently have fire stations. They are covered by Stations 2, 7, and 3, respectively.

Summary of Risks by Planning Zone

The following pages summarize risk assessments by planning zone.

Planning Zone 1:

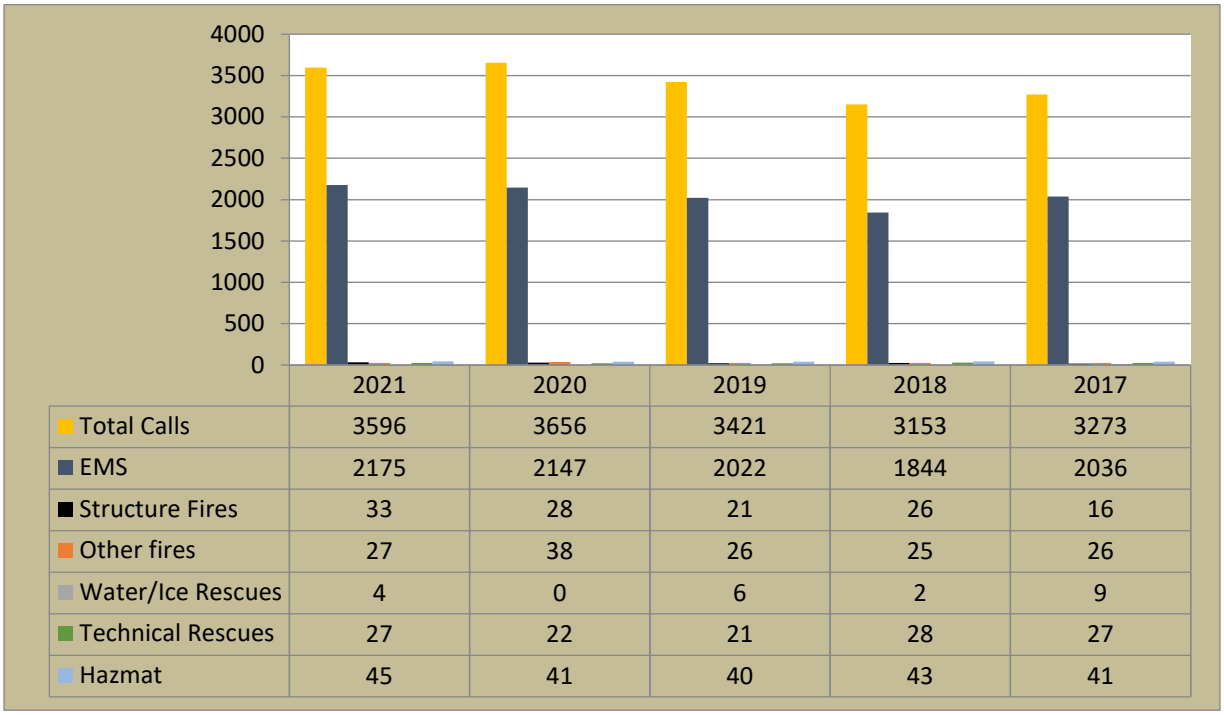
Risk Factors

- Covers 4.25 square miles.
- Current population density of 5,613 people per square mile.
- Contains 87.43 road miles.
- Two railroads pass through the zone.
- Borders I-94 on the south
- Red River of the North travels the length of the east border.
- Highest number of incidents of all types of any planning zone.

Risk Diminishing Factors

No peripheral areas with significant delay in secondary and tertiary responses.

Table 14 shows historical data on all calls for service for the primary service area residing inside Planning Zone 1.



	2021	2020	2019	2018	2017
Total Calls	3596	3656	3421	3153	3273
EMS	2175	2147	2022	1844	2036
Structure Fires	33	28	21	26	16
Other fires	27	38	26	25	26
Water/Ice Rescues	4	0	6	2	9
Technical Rescues	27	22	21	28	27
Hazmat	45	41	40	43	41

Table 26. PZ 1 Calls for Service

2021 % of Incidents	
EMS	**60 %**
Structure fires	**0.9 %**
All fires	**1.7 %**

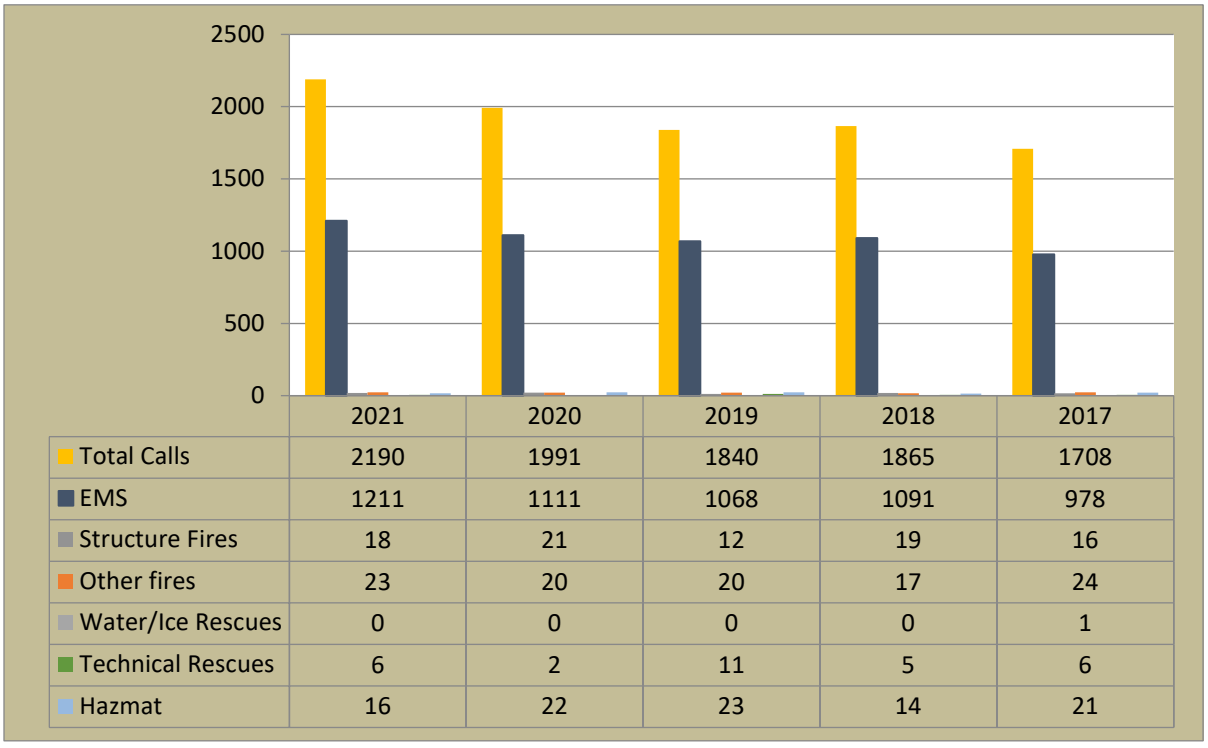
Planning Zone 2:

Risk Factors

- Covers 5.96 square miles.
- Current population density of 3,764 people per square mile.
- Contains 97.28 road miles.
- Three petroleum pipelines cross the Red River and traverse the rest of the zone.
- Borders I-94 and I-29.
- Red River travels the length of the east border.
- Third highest number of incidents of all planning zones.
- Peripheral areas with potential delay in secondary and tertiary responses, especially to the south.

Risk Diminishing Factors

- Low number of manufacturing jobs.
- Low number of buildings with reportable amounts of hazardous materials.



	2021	2020	2019	2018	2017
Total Calls	2190	1991	1840	1865	1708
EMS	1211	1111	1068	1091	978
Structure Fires	18	21	12	19	16
Other fires	23	20	20	17	24
Water/Ice Rescues	0	0	0	0	1
Technical Rescues	6	2	11	5	6
Hazmat	16	22	23	14	21

Table 27. PZ 2 Calls for Service

2021 % of Incidents	
EMS	**55 %**
Structure fires	**0.8 %**
All fires	**1.9 %**

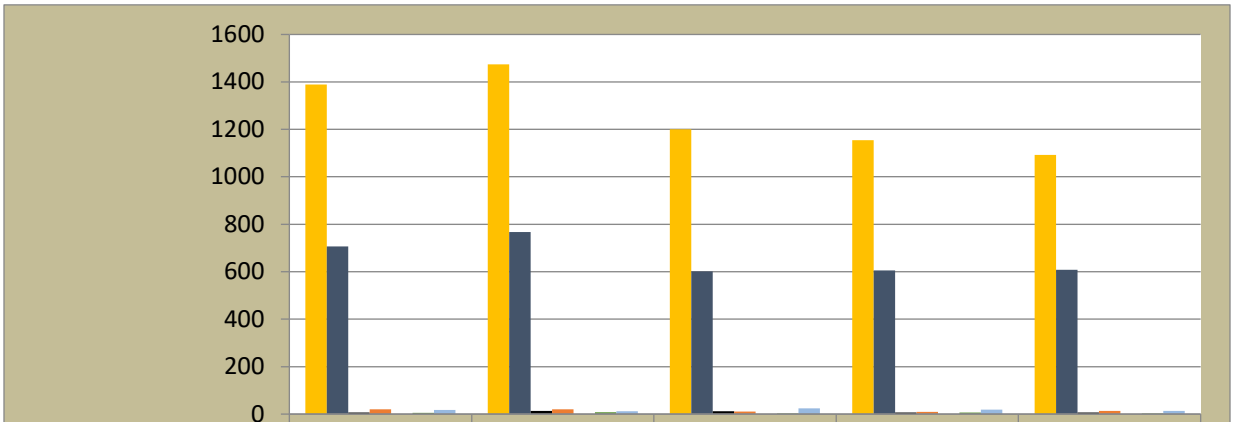
Planning Zone 3:

Risks Factors

- Covers 11.40 square miles. Core area approximately 4.31 square miles.
- Population density in its core area of 3,322 people per square mile. This excludes the airport property and sewage lagoons in the calculation.
- Contains 91.4 road miles.
- NDSU campus with significant number of people, high risk buildings, and hazardous chemicals. Substantial portion of NDSU campus at edge of or beyond 1.5 mile travel distance.
- Airport with ARFF provided by Hector FD, structural protection through the FFD.
- One railroad borders this zone.
- Red River travels the length on the east side.
- Number of incidents is substantial.
- Peripheral areas to the north with potential delay in secondary and tertiary responses.

Risk Diminishing Factors

Low number of manufacturing jobs



	2021	2020	2019	2018	2017
Total Calls	1389	1474	1200	1154	1092
EMS	707	767	601	606	608
Structure Fires	6	13	12	6	6
Other fires	20	20	11	9	14
Water/Ice Rescues	0	0	0	0	0
Technical Rescues	5	8	3	6	3
Hazmat	18	12	24	19	14

Table 28. PZ 3 Calls for Service

2021 % of Incidents	
EMS	**51 %**
Structure fires	**0.4 %**
All fires	**1.9 %**

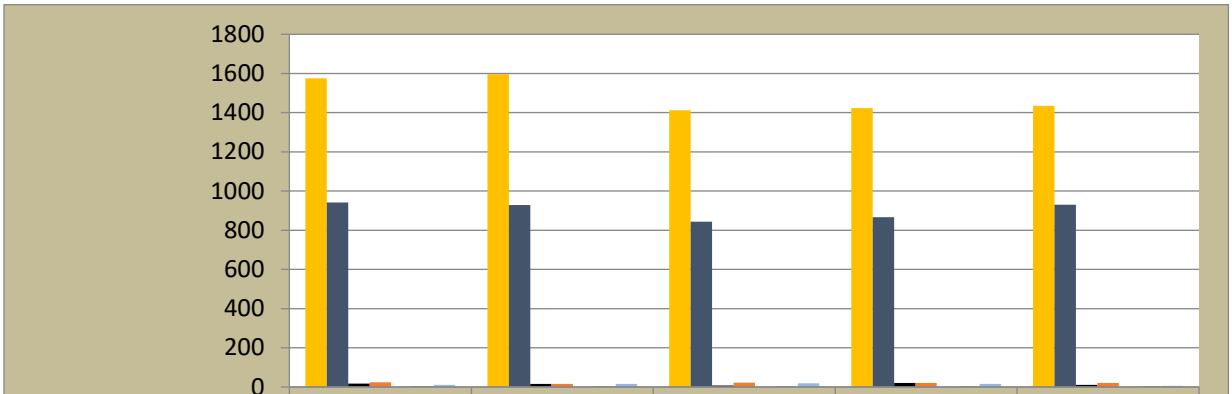
Planning Zone 4:

Risks Factors

- Covers 4.54 square miles.
- Current population density of 1,966 people per square mile.
- Contains 73.05 road miles.
- Two railroads pass through the zone with one switching yard.
- Highest number of manufacturing jobs.
- Substantial number of incidents.

Risk Diminishing Factors

- No peripheral areas with significant expectations of delay in secondary and tertiary responses.



	2021	2020	2019	2018	2017
Total Calls	1575	1596	1412	1424	1435
EMS	941	929	844	866	930
Structure Fires	18	16	7	20	11
Other fires	24	16	22	20	21
Water/Ice Rescues	0	0	0	0	0
Technical Rescues	4	3	2	1	1
Hazmat	11	15	19	16	6

Table 29. PZ 4 Calls for Service

2021 % of Incidents	
EMS	**60 %**
Structure fires	**1.1 %**
All fires	**2.7 %**

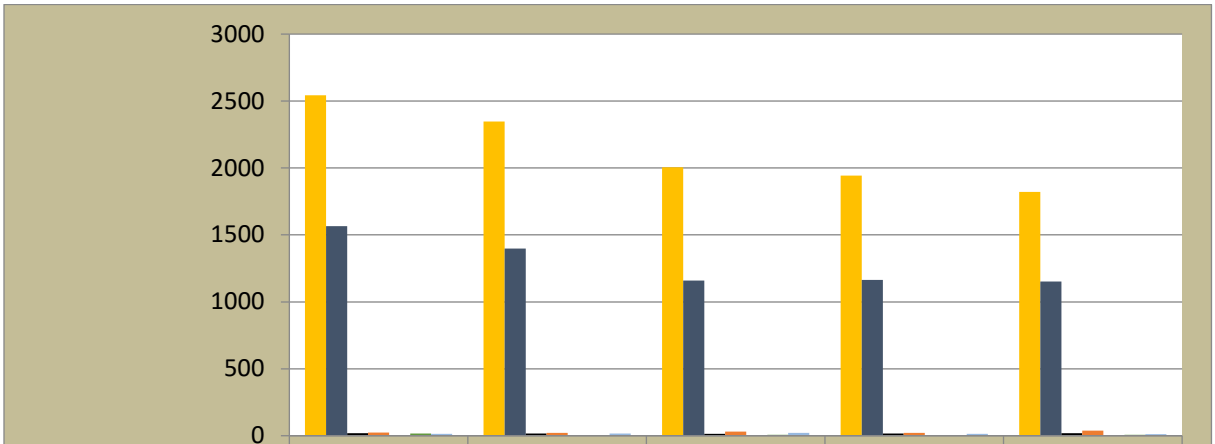
Planning Zone 5:

Risk Factors

- Covers 3.93 square miles.
- Current population density of 4,112 people per square mile.
- Contains 64.34 road miles.
- One pipeline passes through the zone.
- One railroad passes through the zone.
- I-29 and I-94 both pass through this zone.
- Second highest number of incidents.

Risk Diminishing Factors

- Limited peripheral areas with significant expectations of delay in secondary and tertiary responses.



	2021	2020	2019	2018	2017
Total Calls	2544	2347	2006	1942	1821
EMS	1566	1397	1159	1165	1153
Structure Fires	19	17	15	17	18
Other fires	24	22	30	21	38
Water/Ice Rescues	0	0	0	0	0
Technical Rescues	16	4	8	2	6
Hazmat	13	16	22	15	12

Table 30. PZ 5 Calls for Service

2021 % of Incidents	
EMS	**62 %**
Structure fires	**0.7 %**
All fires	**1.7 %**

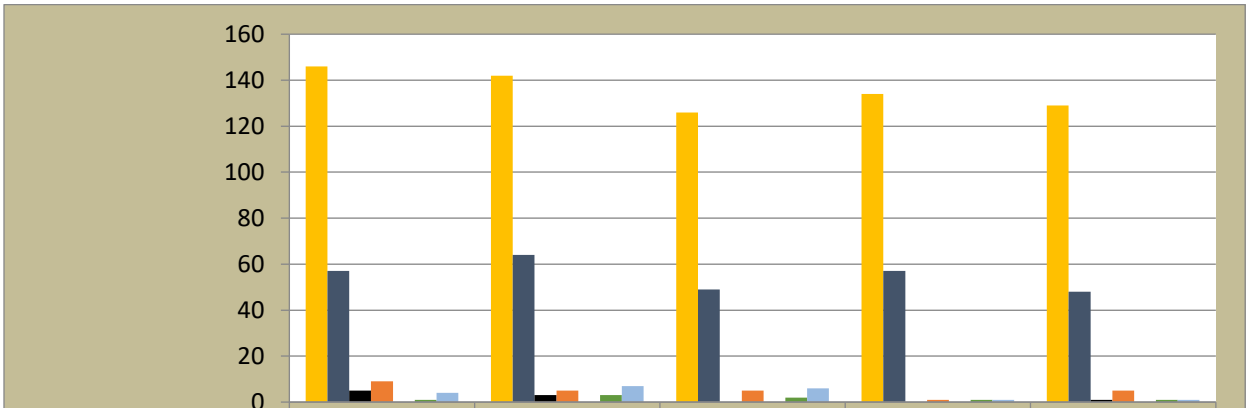
Planning Zone 6:

Risk Factors

- Covers 5.76 square miles.
- Contains 37.75 road miles.
- One pipeline passes through the zone.
- One railroad passes through the zone.
- I-29 passes through this zone.
- High number of manufacturing jobs.

Risk Diminishing Factors

- Current population density that is negligible.
- 9 single family houses.
- Low overall demand for service.
- Low population base decreases demand for medical assists.



	2021	2020	2019	2018	2017
Total Calls	146	142	126	134	129
EMS	57	64	49	57	48
Structure Fires	5	3	0	0	1
Other fires	9	5	5	1	5
Water/Ice Rescues	0	0	0	0	0
Technical Rescues	1	3	2	1	1
Hazmat	4	7	6	1	1

Table 31. PZ 6 Calls for Service

2021 % of Incidents	
EMS	**39 %**
Structure fires	**3.4 %**
All fires	**9.6 %**

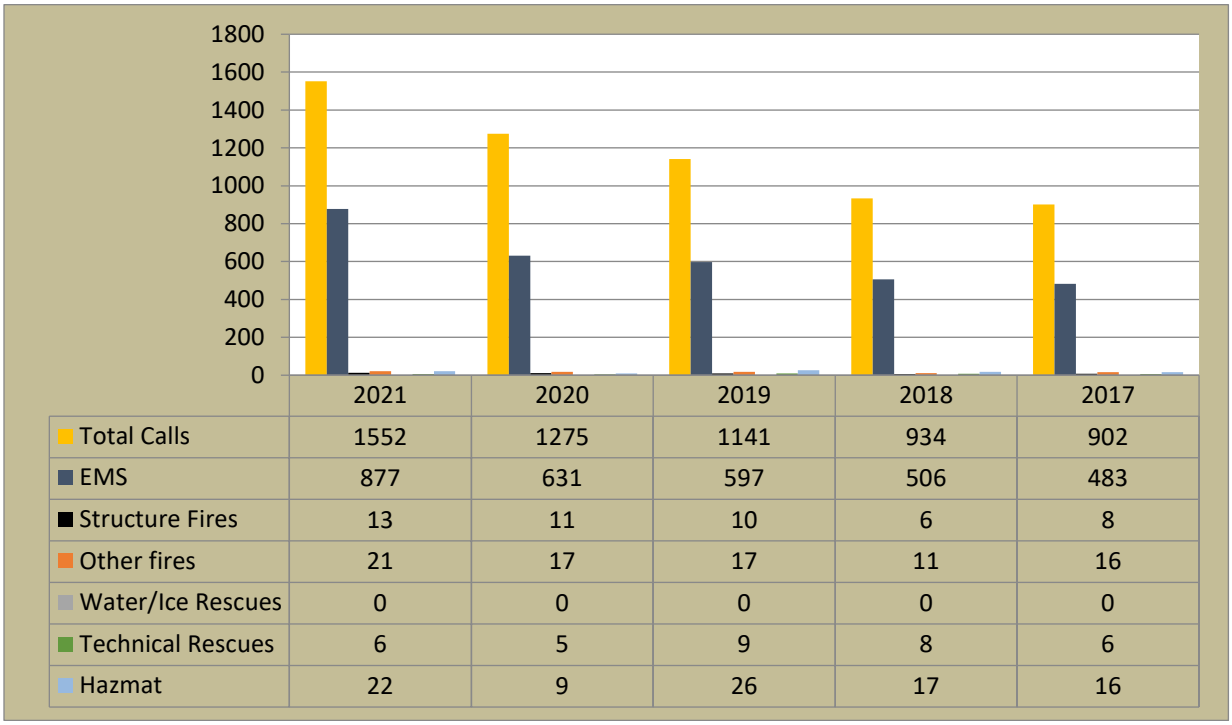
Planning Zone 7:

Risk Factors

- Covers 6.20 square miles.
- Current population density of 2,035 people per square mile.
- Contains 91.66 road miles.
- Peripheral areas with potential delay in secondary and tertiary responses.
- One pipeline passes through the zone.
- I-29 and I-94 border the zone.
- Growing number of incidents.

Risk Diminishing Factors

- Predominately newer construction.



	2021	2020	2019	2018	2017
Total Calls	1552	1275	1141	934	902
EMS	877	631	597	506	483
Structure Fires	13	11	10	6	8
Other fires	21	17	17	11	16
Water/Ice Rescues	0	0	0	0	0
Technical Rescues	6	5	9	8	6
Hazmat	22	9	26	17	16

Table 32. PZ 7 Calls for Service

2021 % of Incidents	
EMS	**57 %**
Structure fires	**0.8 %**
All fires	**2.2 %**

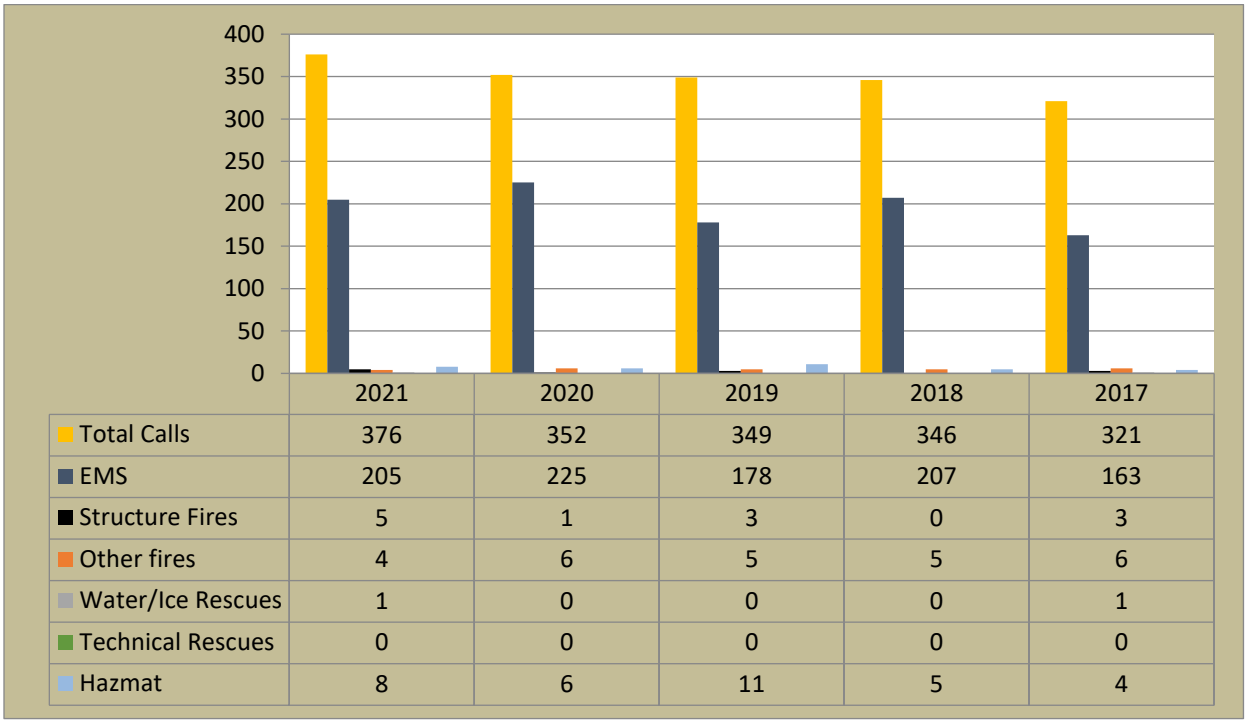
Planning Zone 8:

Risk Factors

- Covers 4.70 square miles.
- Current population density of 2,399 people per square mile and growing.
- Contains 70.13 road miles.
- Potential for delay in primary response.
- Peripheral areas with potential delay in secondary and tertiary responses.
- Red River travels the length on the east side.
- I-29 borders this zone.
- No fire station – covered by Stations 2 & 7. This will be the next area to have a fire station built.

Risk Diminishing Factors

- Predominately newer construction.
- Low, but growing demand for service.



	2021	2020	2019	2018	2017
Total Calls	376	352	349	346	321
EMS	205	225	178	207	163
Structure Fires	5	1	3	0	3
Other fires	4	6	5	5	6
Water/Ice Rescues	1	0	0	0	1
Technical Rescues	0	0	0	0	0
Hazmat	8	6	11	5	4

Table 33. PZ 8 Calls for Service

2021 % of Incidents	
EMS	**55 %**
Structure fires	**1.3 %**
All fires	**2.4 %**

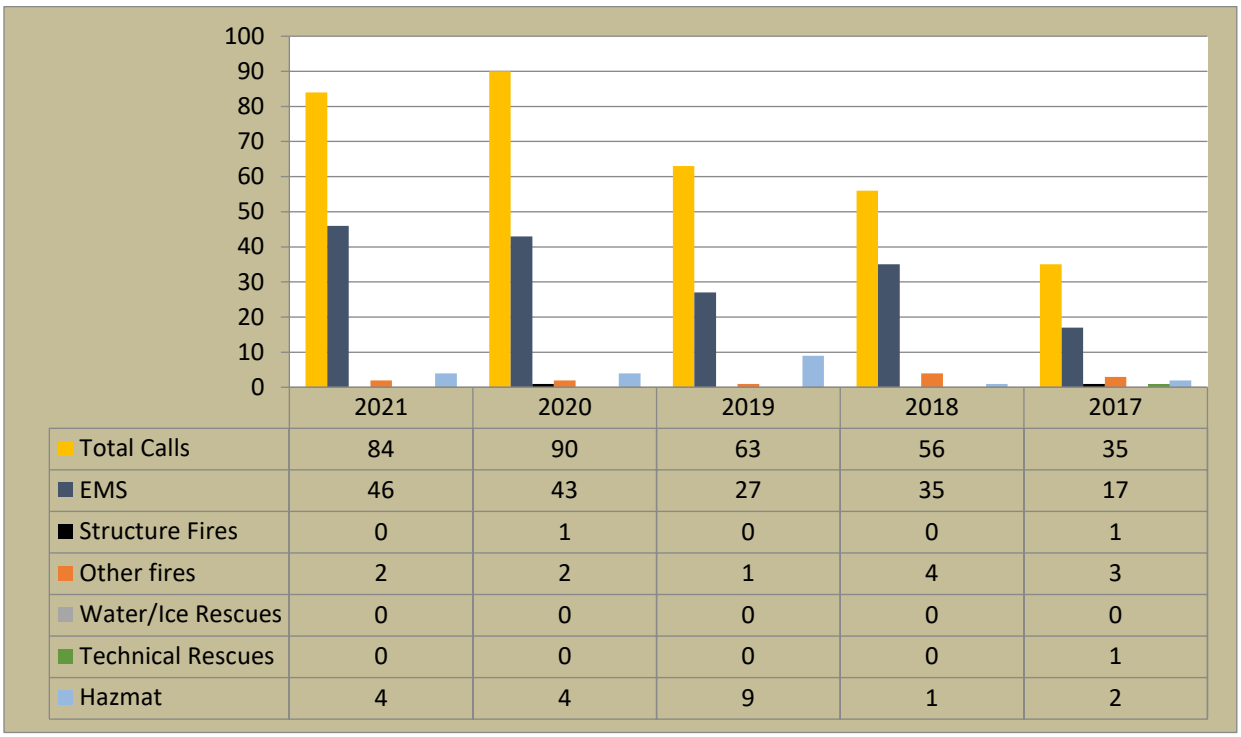
Planning Zone 9:

Risk Factors

- Covers 2.7 square miles.
- Current population density at 2061 people per square mile.
- Contains 37.75 road miles.
- Potential for delay in primary response.
- Peripheral areas with potential delay in secondary and tertiary responses.
- Bordered by PZ 7 on the north, I-29 on the east, and Horace on the west.
- No fire station – covered primarily by Station 7. This area had an automatic aid agreement with West Fargo Fire due to road construction in 2019.

Risk Diminishing Factors

- Will be new construction.
- Currently has a very low demand for service.



	2021	2020	2019	2018	2017
Total Calls	84	90	63	56	35
EMS	46	43	27	35	17
Structure Fires	0	1	0	0	1
Other fires	2	2	1	4	3
Water/Ice Rescues	0	0	0	0	0
Technical Rescues	0	0	0	0	1
Hazmat	4	4	9	1	2

Table 34. PZ 9 Calls for Service

2021 % of Incidents	
EMS	**55 %**
Structure fires	**0 %**
All fires	**2.4 %**

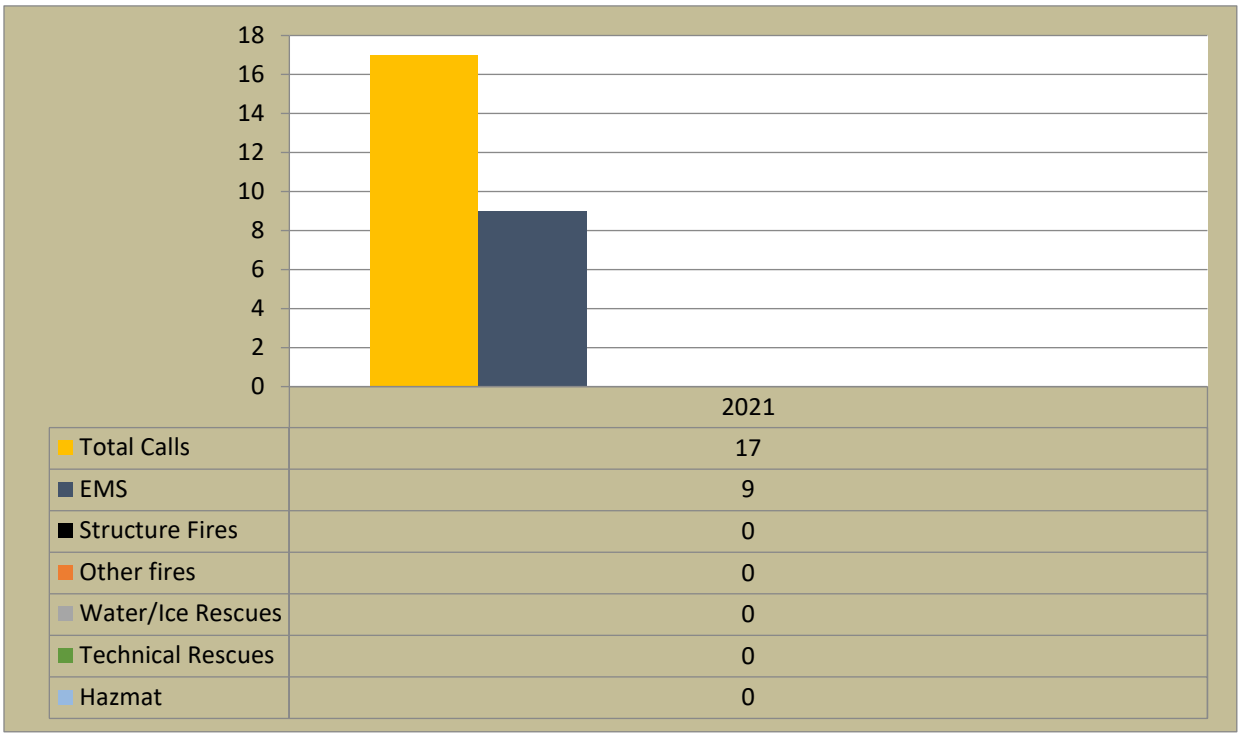
Planning Zone 10:

Risk Factors

- Covers xx square miles.
- Current population density at xx people per square mile.
- Contains xx road miles.
- Potential for delay in primary response.
- Peripheral areas with potential delay in secondary and tertiary responses.
- Bordered by PZ 3 on the south and east, PZ 6 on the west.
- No fire station – covered primarily by Station 3.
- Very large warehouses located here (Amazon)

Risk Diminishing Factors

- Industrial
- Currently has a very low demand for service.



	2021
Total Calls	17
EMS	9
Structure Fires	0
Other fires	0
Water/Ice Rescues	0
Technical Rescues	0
Hazmat	0

Table 35. PZ 9 Calls for Service

2021 % of Incidents	
EMS	**53 %**
Structure fires	**0 %**
All fires	**0 %**

Development and Growth within the Planning Zones

The City of Fargo's 2007 growth plan addresses the future development of the city. One item the plan focuses on that has a positive impact on providing fire protection is reducing urban sprawl which results from leapfrog development. Urban sprawl is described as a disorderly pattern of development on the fringes of an urban area. Urban sprawl results in an uneconomical pattern of extended urban services (Heamavihio, 2007). Reducing this type of development would allow for a more efficient fire protection system.

While the growth plan contains plotted areas to the north of the city, the majority of the growth is to the south of the city. On the north side of the city, several factors deter growth such as the airport and sewage lagoons. The city is limited in growth to the west due to the cities of West Fargo and Horace and on the east because of the Red River and state of Minnesota. During the 1980's and early 1990's, the majority of southerly growth occurred between the Red River and I-29. During the spring flood of 1997, river and overland flooding made this area vulnerable. Since that time, the city has been encouraging development west of I-29. An examination of building permits shows the majority of construction has been west of I-29 and a lesser amount of construction on the east of I-29.

Section 4: Deployment and Performance

Fire Stations Coverage Area

Identifying the total number of high risk buildings throughout the city can aid in identifying the overall level of risk in each planning zone. This does not, however, identify weaknesses in the fire protection system. One means of evaluating the level of protection throughout the City of Fargo is to use the Insurance Services Office (ISO) standard of a 1.5 mile travel distance for engine companies and a 2.5 mile travel distances for truck companies. This 1.5 mile travel distance for engine companies provides a good means of determining efficient station location and is the standard used by the FFD. For the most recent ISO rating of 1 for the City of Fargo, dated in 2018, a deployment analysis was used rather than the travel distance maps. The deployment analysis earned 8.81 points out of a possible 10. The ISO travel distance numbers are still used to evaluate station locations. Figure 17 shows the 1.5 mile coverage distance from each station. By comparing Figure 17 with Figure 10 (map of high risk buildings), areas of concern can be identified.

Areas of concern exist between the Station 1 and Station 2 primary response areas and in the south and southwest portions of the city. A less obvious area of concern is the North Dakota State University campus. NDSU is in Station 3's primary response area, but half of the NDSU campus lies outside the 1.5 mile travel distance. The area between Station 1 and Station 2 along South University Drive is also outside the 1.5 mile travel distance for any station. This area has a large percentage of single family homes, but also has a significant number of small commercial properties, four schools, two churches, and a nursing home. There are a number of high risk buildings between the Station 7 and Station 5 response areas that are outside the 1.5 mile travel distance. Figure 18 highlights these high risk buildings that are not covered. The area in question between Station 5 and Station 7 has 112 high risk buildings and 369 single family dwellings. There is a considerable amount of duplication in response area between Station 4 and Station 5. Hind sight shows that Station 5 was built too close to Station 4 and when determining a location for Station 7, this overlap in coverage was taken into consideration. If an opportunity presents itself, Station 5 will be relocated to an area more suitable for providing better overall coverage. This opportunity does not currently exist.

The south and southwest sections of the city are currently covered by apparatus responding from Station 7 and Station 2. As these areas of the city are developed and the buildout of infrastructure allows, new fire stations will be placed in these areas to compensate for the gaps in coverage. As future growth allows for the building of an eventual Station 8 in the southern portion of the city, it would allow for the relocating of Station 2 to the north and east to close the gap between the Station 1 and Station 2 response areas. This is a long term outlook and there are no current plans to relocate Station 2. The gap in coverage area on the NDSU campus remains a concern, but has been alleviated to a certain degree by the use of AVL dispatching. There is also a significant overlap in coverage area between stations 4 and 1. Due to the significant run volume and number high risk buildings that reside in PZ 1, this overlap in coverage is warranted.

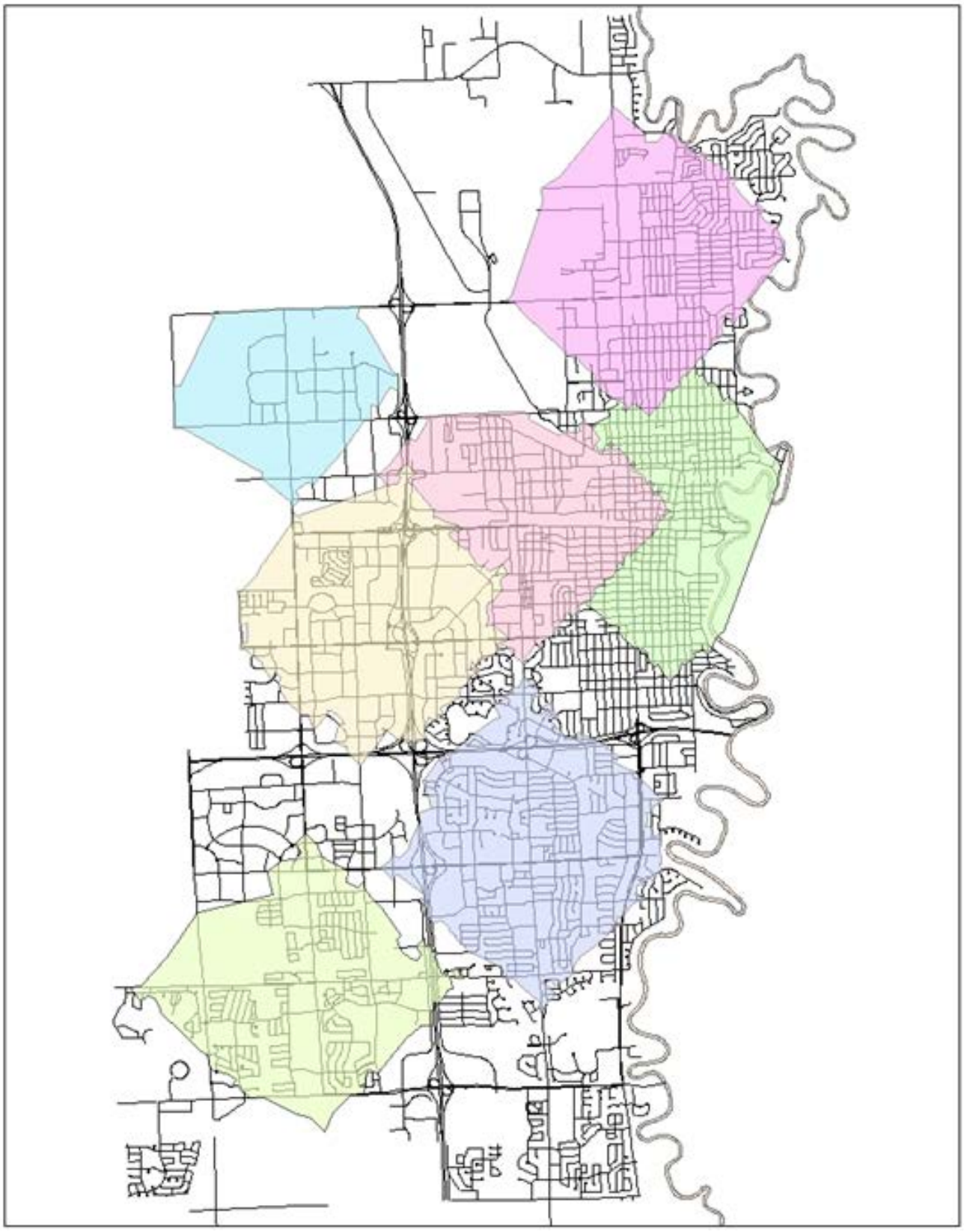


Figure 11. 1.5 Mile Station Travel Distance Coverage

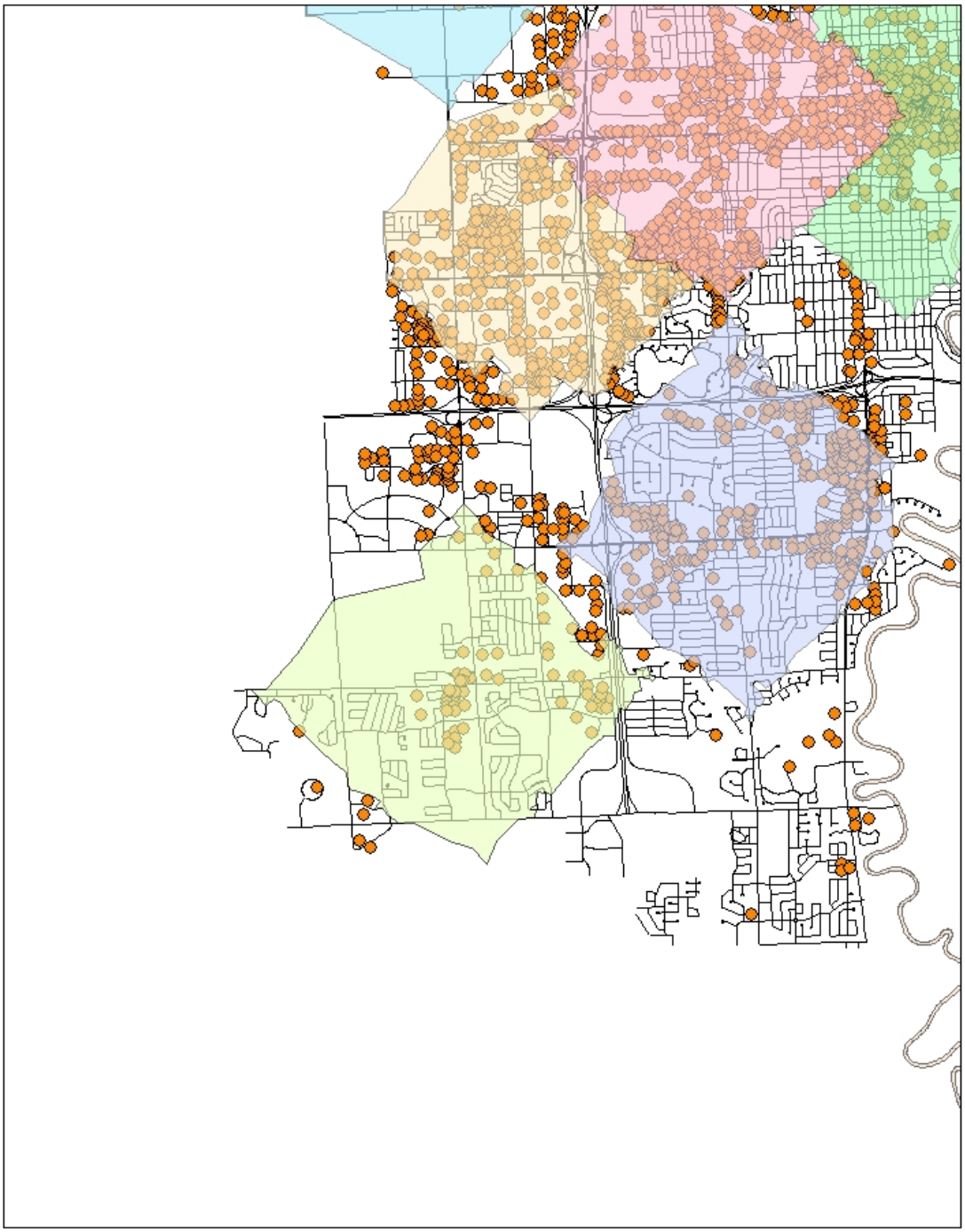


Figure 12. High Risk Buildings in gap between Stations 5 & 7

Critical Tasks and Effective Response Force

In order to establish an effective response force (ERF), the specific tasks necessary to mitigate a given situation are examined. Once these tasks have been identified, the number of personnel and apparatus needed to complete these tasks can be determined. The FFD considers the following incident types when determining the necessary ERF for successfully mitigating an event. It is important to remember that the incident commander has the authority to call for any additional resources deemed necessary should an incident show the potential to escalate beyond the capabilities of the assigned resources. The emergency situations defined include:

- Low, moderate, and high risk fires
- Low, moderate, and high risk EMS
- Low, moderate, and high risk technical rescue incidents.
- Low, moderate, and high risk hazardous materials incidents
- Low, moderate, and high risk wildland fires

Low Risk Fire		
1 engine company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Engine	Command/Safety/Communications	1
1st Engine	Pump Operator	1
1st Engine	Attack Line	1
	Total ERF	**3**

Moderate Risk Fire		
1st Alarm - 1 command vehicle staffed with 1 person, 4 engine companies staffed with 3 personnel each, and 1 truck company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
Batt. Chief	Command/Safety/Communications	1
1st Engine	Pump Operator	1
1st Engine	Attack Line	2
1st Truck	Search and Rescue	3
2nd Engine	Water Supply	1
2nd Engine	Ventilation	2
3rd Engine	Second Attack Line	3
4th Engine	RIC	3
	Total ERF	**16**

High Risk Fire		
1st Alarm - 1 command vehicle staffed with 1 person, 4 engine companies staffed with 3 personnel, and 1 truck company staffed with 3 personnel. 2nd Alarm – 2nd command vehicle staffed with 1 person, and 5th engine company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Batt. Chief	Command/Communications	1
1st Engine	Pump Operator	1
1st Engine	Attack Line	2
1st Truck	Ventilation	3
2nd Engine	Water Supply	1
2nd Engine &3rd Engine	Search and Rescue	5
4th Engine	Second Attack Line	3
2nd Batt. Chief	Safety Officer	1
5th Engine	RIC	3
	Total ERF	**20**

The high risk fire table above represents a typical 2 alarm response. It is the maximum response force available that could feasibly respond inside the time constraints of NFPA 1710. Expanded events or high rise fires require multiple alarm call-backs and an extended period of time for a suitable ERF to be assembled.

Low Risk EMS		
1 engine company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Engine	Command/Safety/Communications	1
1st Engine	Patient assessment/Interventions	2
	Total ERF	**3**

Moderate Risk EMS		
1 command vehicle staffed with 1 person, 3 engine companies staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
Batt. Chief	Command/Safety/Communications	1
1st Engine	Scene Safety	3
2nd Engine	Incident/vehicle stabilization	3
3rd Engine	Patient assessment/Interventions	3
	Total ERF	**10**

High Risk EMS		
1st Alarm - 1 command vehicle staffed with 1 person, 4 engines staffed with 3 personnel, and 1 truck company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
Batt. Chief	Command/Safety/Communications	1
1st Engine	Scene Safety	3
1st truck & 2nd Engine	Incident/vehicle stabilization	6
4th & 5th Engine	Patient assessment/Interventions	6
	Total ERF	**16**

Low Risk Technical Rescue		
1 engine company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Engine	Command/Safety/Communications	1
1st Engine	Search/Rescue/victim removal	2
	Total ERF	**3**

Moderate Risk Technical Rescue		
1st Alarm - 1 command vehicle staffed with 1 person, 1 engine company cross staffed with TRT vehicle & trailer, 3 engine companies staffed with 3 personnel each, and 1 truck company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Batt. Chief	Command/Safety/Communications	1
1st Engine	Primary Search/Rescuers	3
2nd Engine/TRT vehicle and 1st Truck	Additional/Backup Searchers/Rescuers	6
3rd Engine	Riggers/Rope Tenders/Air Supply	3
4th Engine	Boat/Tool/Equipment Operators/Support Staff	3
	Total ERF	**16**

High Risk Technical Rescue		
1st Alarm - 1 command vehicle staffed with 1 person, 1 engine company cross staffed with TRT vehicle & trailer with 3 personnel, 3 engine companies staffed with 3 personnel each, and 1 truck company staffed with 3 personnel. 2nd Alarm – 2nd command vehicle staffed with 1 person and 5th engine staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Batt. Chief	Command/Communications	1
1st Engine	Primary Search/Rescuers	3
2nd Engine/TRT vehicle and 1st Truck	Additional/Back up Search/Rescuers	6
3rd Engine	Riggers/Rope Tenders/Air Supply	3
4th Engine and 5th Engine	Boat/Tool/Equipment Operators/Support Staff	6
2nd Batt. Chief	Safety	1
	Total ERF	**20**

Low Risk Hazmat		
1 engine company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Engine	Command/Safety/Communications	1
	Spill Containment	2
	Total ERF	**3**

Moderate Risk Hazmat		
1st Alarm - 1 command vehicle staffed with 1 person, 1 engine company cross staffed with a Hazmat vehicle with 3 personnel, 3 engine companies staffed with 3 personnel, and 1 truck company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Batt. Chief	Command/Safety/Communications	1
1st Engine	Team Leader/Resource Officer/Safety	3
1st Trk & 2nd Engine	Monitoring/Recon	4
2nd Engine & 3rd Engine	Entry Team/Incident Mitigation/Containment	4
4th Engine & 5th Engine	Decontamination	4
	Total ERF	**16**

High Risk Hazmat		
1st Alarm - 1 command vehicle staffed with 1 person, 1 engine company cross staffed with a HazMat vehicle with 3 personnel, 3 engine companies staffed with 3 personnel, and 1 truck company staffed with 3 personnel. 2nd Alarm – 2nd command vehicle staffed with 1 person and 5th engine staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Batt. Chief	Command/Communications	1
1st Engine	Team Leader/Resource Officer/Safety	3
2nd Engine/Hazmat & 4th Engine	Monitoring/Recon	4
1st Truck & 3rd Engine	Entry Team/Incident Mitigation/containment	6
4th Engine & 5th Engine	Decontamination	5
2nd Batt. Chief	Safety	1
	Total ERF	**20**

Low Risk Wildland Fires		
1 engine company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Engine	Command/Safety/Communications/Lookout	1
1st Engine	Pump Operator	1
1st Engine	Attack Line	1
	Total ERF	**3**

Moderate Risk Wildland Fires		
1st Alarm - 1 command vehicle staffed with 1 person, 2 engine companies crossed staffed with 2 Type 6 engines with 3 personnel each, 2 engines staffed with 3 personnel each, and 1 truck company staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Batt. Chief	Command/Safety/Communications	1
1st Engine and Type 6	Driver	1
1st Engine and Type 6	Pump Operator and Attack Line	2
2nd Engine and Type 6	Driver	1
2nd Engine and Type 6	Pump Operator and Attack Line	2
1st Truck	Evacuation/Perimeter Control/Lookout	3
3rd Engine and 4th Engine	Water Supply	6
	Total ERF	**16**

High Risk Wildland Fires		
1st Alarm - 1 command vehicle staffed with 1 person, 2 engine companies crossed staffed with 2 Type 6 engines with 3 personnel each, 2 engines staffed with 3 personnel each, and 1 truck company staffed with 3 personnel. 2nd Alarm – 2nd command vehicle staffed with 1 person and 5th engine staffed with 3 personnel.		
Apparatus	**Critical Task**	**Minimum Personnel**
1st Batt. Chief	Command/Communications	1
1st Engine and Type 6	Driver	1
1st Engine and Type 6	Pump Operator and Attack Line	2
2nd Engine and Type 6	Driver	1
2nd Engine and Type 6	Pump Operator and Attack Line	2
1st Truck	Evacuation/Perimeter Control/Lookout	3
3rd Engine and 4th Engine	Water Supply	6
5th Engine	Hot spots/Exposure Control	3
2nd Batt. Chief	Safety	1
	Total ERF	**20**

Performance Objectives (Benchmark Statements)

Performance objectives outline the goals and desired response times for various types of emergencies. The FFD compiles performance data in two ways; the first is based on the entire primary service area, the second is by individual planning zones. Benchmark response time objectives for emergency calls for service have been set to correspond with National Fire Protection Association (NFPA) Standards 1710 (2016 edition) and 1221 (2019 edition). Baseline performance is derived from the 90th percentile (out of 100 events, the time data for the 90th event is provided) of the most recently available performance data. These times are compiled from three measurable components.

- Alarm handling time - the time from a 9-1-1 call being answered to the time FFD resources are dispatched
- Turn out time - the time from dispatching FFD resources to the time those resources are en route to the scene
- Travel time - the time from FFD resources going en route to the time those resources arrive on scene

The combining of call handling, turn out and travel times comprise the total response time. The following are the performance objects the FFD has set for various low, moderate and high risk events.

Fires

Fire (low risk)

Benchmark Statement: For low risk fires, a single FFD apparatus response with a minimum of three personnel shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will include an apparatus with a minimum 1250 gallon per minute pump capacity and 500 gallons of water. The first due unit will be capable to establish incident command, request additional resources as necessary, monitor scene safety, establish communications, operate the fire pump, and operate an attack line capable of extinguishing vehicle, refuse, and small outbuilding fires. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Fire (moderate risk)

Benchmark Statement: For moderate risk fires, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will include an apparatus with a minimum 1250 gallon per minute pump capacity and 500 gallons of water. The first due unit will be capable to establish incident command, monitor scene safety, establish communications, request additional resources, rescue victims, operate the fire pump, and operate an attack line capable of containing a fire.

An effective response force (ERF) of 16 personnel shall arrive within 10 minutes 20 seconds total response time 90% of the time. The ERF will be able to conduct search and rescue operations, supply water, perform ventilation, put additional fire attack lines into operation, and establish a rapid intervention crew. The ERF on scene will comprise a first alarm assignment and be able to control working fires in structures. . All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Fire (high risk)

Benchmark Statement: For high risk fires, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will include an apparatus with a minimum 1250 gallon per minute pump capacity and 500 gallons of water. The first due unit will be capable to establish incident command, monitor scene safety, establish communications, request additional resources, rescue victims, operate the fire pump, and operate an attack line capable of containing a fire.

An effective response force (ERF) of 20 personnel shall arrive within 12 minutes 30 seconds total response time 90% of the time. The ERF will be able to conduct search and rescue operations, supply water, perform ventilation, put additional fire attack lines into operation, provide a safety officer and establish a rapid intervention crew. The ERF on scene will comprise a second alarm response and be able to control working fires in structures. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

EMS

EMS (low risk)

Benchmark Statement: For low risk EMS incidents, a single FFD apparatus response with a minimum of three personnel shall arrive within 6 minutes total response time 90% of the time. The first due unit shall be able to establish incident command, assess scene safety, establish communications, perform a patient assessment, and initiate interventions which include AED use, airway management, oxygen therapy, and chest compressions. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

*The FFD relies upon Sanford Ambulance (SA) to complete the effective response force (ERF) component for all EMS response, provide ALS service, and transport the patient.

EMS (moderate risk)

Benchmark Statement: For moderate risk EMS incidents, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes total response time 90% of the time. The first due unit shall be able to establish incident command, assess scene safety, establish communications, perform a patient assessment, and initiate interventions which include AED use, airway management, oxygen therapy, and chest compressions.

An effective response force (ERF) of 10 personnel will arrive within 10 minutes 20 seconds total response time 90% of the time, and in addition to the tasks above, be capable to control motor vehicle accidents requiring extrication, or be capable to treat additional patients. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

EMS (high risk)

Benchmark Statement: For high risk EMS incidents, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes total response time 90% of the time. The first due unit shall be able to establish incident command, assess scene safety, establish communications, perform a patient assessment, and initiate interventions which include AED use, airway management, oxygen therapy, and chest compressions.

An ERF of 16 personnel will be capable to mitigate a mass casualty incident and will respond within 12 minutes 30 seconds total response time 90% of the time. The ERF comprises a first alarm assignment. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Technical Rescue

Technical Rescue (low risk)

Benchmark Statement: For low risk technical rescue incidents, a single FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will include an apparatus with capabilities to establish incident command, monitor scene safety, establish communications, request additional resources, and conduct an elevator rescue or simple extrication. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Technical Rescue (moderate risk)

Benchmark Statement: For moderate risk technical rescue incidents, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will include an apparatus with capabilities to establish incident command, monitor scene safety, establish communications, request additional resources, and conduct an elevator rescue or simple extrication.

An effective response force (ERF) of 16 personnel shall arrive within 10 minutes 20 seconds total response time 90% of the time. The ERF will comprise a first alarm assignment, and include either the technical rescue truck, 856, an FFD boat, or ice rescue equipment. Personnel will be able to conduct rescue operations that include rope, trench, confined space, structural collapse, or water/ice rescue. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Technical Rescue (high risk)

Benchmark Statement: For high risk technical rescue incidents, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will include an apparatus with capabilities to establish incident command, monitor scene safety, establish communications, request additional resources, and conduct an elevator rescue or simple extrication.

An effective response force (ERF) of 20 personnel shall arrive within 12 minutes 30 seconds total response time 90% of the time. The ERF will comprise a second alarm assignment, and include either the technical rescue truck, 856, an FFD boat, or ice rescue equipment. Personnel will be able to conduct rescue operations that include rope, trench, confined space, structural collapse, or water/ice rescue. Operations will include significant technical issues or large scale operations as might occur during a natural disaster. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

HazMat (Hazardous Materials)

Hazardous Material (low risk)

Benchmark Statement: For low risk hazardous materials (HazMat) events, a single FFD apparatus will respond with a minimum of three personnel shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit shall be able to establish incident command, monitor scene safety, establish communications, and contain a small, non-life threatening spill of less than 5 gallons or otherwise mitigate the hazmat incident. Personnel will be trained to a minimum of HazMat Operations level and recognize the need for additional resources. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Hazardous Materials (moderate risk)

Benchmark Statement: For moderate risk hazardous materials (HazMat) events, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit shall be able to establish incident command, monitor scene safety, establish communications, and request additional

resources. Personnel will be trained to a minimum of HazMat Operations level and recognize the need for additional resources.

An effective response force (ERF) of 16 personnel shall arrive within 10 minutes 20 seconds total response time 90% of the time. The ERF will comprise a first alarm assignment, include Engine 807 cross staffed with the HazMat truck, 857, and personnel trained to the HazMat tech level that are able to act as a team leader, science officer, decon officer, and safety officer. They will be able to recon the scene, use HazMat monitors, enter the scene, rescue victims, control a spill or leak, perform decontamination operations, and minimize environmental hazards. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Hazardous Materials (high risk)

Benchmark Statement: For high risk hazardous materials (HazMat) events, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit shall be able to establish incident command, monitor scene safety, establish communications, and request additional resources. Personnel will be trained to a minimum of HazMat Operations level and recognize the need for additional resources.

An effective response force (ERF) of 20 personnel shall arrive within 12 minutes 30 seconds total response time 90% of the time. The ERF will comprise a second alarm assignment, include Engine 807 cross staffed with the HazMat truck, 857, and personnel trained to the HazMat tech level that are able to act as a team leader, science officer, decon officer, and safety officer. They will be able to recon the scene, use HazMat monitors, enter the scene, rescue victims, control a spill or leak, perform decontamination operations, and minimize environmental hazards. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Wildland Fires

Wildland Fires (low risk)

Benchmark Statement: For low risk vegetation fires, a single FFD apparatus response with a minimum of three personnel shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will include an apparatus with a minimum 1250 gallon per minute pump capacity and 500 gallons of water. The first due unit will be capable to establish incident command, request additional resources as necessary, monitor scene safety, establish communications, operate the fire pump, and operate an attack line capable of extinguishing small wildland fires. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Wildland Fires (moderate risk)

Benchmark Statement: For moderate risk wildland fires, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will be capable to establish incident command, request additional resources as necessary, monitor scene safety, establish communications, operate the fire pump, and operate an attack line capable of beginning attack on wildland fires.

An effective response force (ERF) of 16 personnel shall arrive within 10 minutes and 20 seconds total response time 90% of the time. The ERF will include two crossed staffed Type 6 engines, “grass rigs,” and be able to put additional fire attack lines into operation, operate the Type 6 engine off road, and protect exposures. The ERF on scene will comprise a first alarm assignment, and be able to control moderate risk wildland fires. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Wildland Fires (high risk)

Benchmark Statement: For high risk wildland fires, the first due FFD apparatus will respond with a minimum of three personnel and shall arrive within 6 minutes 20 seconds total response time 90% of the time. The first due unit will be capable to establish incident command, request additional resources as necessary, monitor scene safety, establish communications, operate the fire pump, and operate an attack line capable of beginning attack on high risk wildland fires.

An effective response force (ERF) of 20 personnel shall arrive within 12 minutes 30 seconds total response time 90% of the time. The ERF will be able to supply water, put additional fire attack lines into operation, and provide a safety officer. The ERF on scene will comprise a second alarm assignment, be able to control high risk wildland fires, and be able to protect exposures. All operations conducted on scene will be in accordance with established FFD policies and operating guidelines.

Response Time Performance

With the performance objectives defined, it is important to determine whether or not these objectives are being met. This is done by analyzing response time data. To assist with calculating these measurements the computer software StatsFD is used. This software takes data from the current record management system (RMS) and performs calculations that show the 90th percentile of performance (out of 100 events, the time data for the 90th event is provided). The performance measures stated in the above performance objective section represents total response time. This time is a combination of alarm handling time, turnout time, and travel time. Distribution is a measure of the first due apparatus, concentration is a measure of the effective response force.

Alarm Handling

The FFD uses NFPA Standard 1221 (2019) as a guideline for Alarm Handling. The NFPA 1221 standard of 60 seconds 90% of the time is used for all calls at the highest prioritization level, including:

- Trauma
- Neurologic emergencies (stroke, seizure)
- Cardiac related events
- Unconscious/unresponsive patients
- Allergic reactions
- Patient not breathing
- Choking
- Fire
- Explosion
- Other calls as determined by the AHJ

Calls that are exempt from the above time requirements include:

- Joint responses with law enforcement
- HazMat
- TRT
- Language translation
- Incomplete location
- Disaster mode

For these calls a time standard is not set in NFPA 1221, but the FFD has had a historical requirement of 90 seconds 90% of the time and 120 seconds 99% of the time.

Alarm Handling (All Incidents) - 90th Percentile Times Baseline Performance	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	2:14	1:51	2:04	2:15	2:32	2:36

Table 26. Alarm handling history

Turnout Time

The FFD uses NFPA 1710 (2016) as a guide for setting benchmark performance for turnout times. A turnout time of 60 seconds 90% of the time is set as a minimum baseline performance standard for EMS calls. A turnout time of 80 seconds 90% of the time is set as a minimum baseline performance standard fire calls.

Turnout Time (All Incidents) - 90th Percentile Times Baseline Performance	2017-2021	2021	2020	2019	2018	2017
Turnout Time	1:24	1:20	1:21	1:25	1:27	1:26

Table 27. Turnout time history

Travel Time

The FFD does not respond emergent (lights and siren) to all call types. Calls for service such as carbon monoxide detector activations with no symptoms of illness, lift assists, police assists, outdoor odor investigations, citizen complaints, and alarm resets are examples where an emergent response is not warranted. There are certain call types that dictate the initial arriving apparatus respond emergent, but others do not. For example, calls for alarm activations with no sign of smoke or fire in the building. The primary engine responds emergent while remaining responding apparatus respond non-emergent (no lights or siren). If the first arriving resource finds an indication that an emergency may be present (multiple alarm activations, odor of smoke, sprinkler activation etc.), then the remaining responding apparatus are upgraded to an emergent response at that time. Because of the wide variety and severity of call types to which the FFD responds, there are incidents where it is at the discretion of the officer in charge whether or not to respond emergent. For the purpose of tracking travel time, only apparatus with an initial and continuous emergent response to their arrival on scene are analyzed.

The FFD chooses to use NFPA 1710 (2016) to establish benchmark performance objectives for travel time. 240 seconds (4:00 minutes) travel time 90% of the time for the first arriving unit and 480 seconds (8:00 minutes) travel for the effective response force (ERF) 90% of the time is the benchmark set by the FFD for travel time. Table 28 shows department wide baseline performance for travel time for the first arriving unit and ERF. This data represents all types of responses and represents apparatus that responded emergent and arrived on scene for the last five years. It also shows travel times excluding PZ 8 and 9 where the FFD currently does not have any permanent fire stations or fixed assets in place.

Travel Time (All Incidents) - 90th Percentile Times Baseline Performance	**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Travel Time 1st Unit	5:26	5:29	5:34	5:36	5:22	5:10
Travel Time 1st Unit (excluding PZ 8 & 9)	4:49	4:45	4:47	5:03	4:46	4:41

Table 28. Travel time history

Total Response Time

The following is the current FFD performance for total response time department wide. The calculations represent apparatus that responded emergent and arrived on scene. The department wide measurements include all incidents where units went emergent and therefore contains many runs not categorized in the more specific measurement groups, such as EMS or Structure Fires. This larger sampling allows for a more confident analysis. Table 29 shows the total response times for the last five years.

Total Response Time (All Incidents) - 90th Percentile Times Baseline Performance	**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Total Response Time 1st Unit	8:06	7:30	7:57	8:17	8:28	8:11
Total Response Time 1st Unit (excluding PZ 8 & 9)	7:56	7:19	7:44	8:05	8:18	8:03
	n=29,879	n=5869	n=5814	n=5663	n=5975	n=6558

Table 29. Total Response time history

Response Time Performance by Incident Type

Some portions of the following tables are listed as “not applicable” (NA). This is due to various data sets that are either insufficient or of no value. For example; single engine responses result in the first arriving unit comprising the entirety of the ERF. Recording ERF times for these incidents is redundant and would also skew department wide data when analyzing ERF times for “All Incidents,” resulting in artificially low times. Some incidents such as TRT or Water/Ice Rescue have an insufficient volume of calls to produce a usable sampling or a low enough call volume where a single incident could have an over-weighted impact on the overall averages. In these instances times will vary wildly and have no practical application in assessing overall performance.

(Low Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		1:43	1:19	1:57	2:05	1:35	1:39
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:22	1:21	1:17	1:23	1:17	1:30
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:26	4:54	5:19	5:10	5:34	5:28
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		5:26	4:54	5:19	5:10	5:34	5:28
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	7:33	6:53	7:32	7:31	7:33	7:43
				n=423	n=84	n=93	n=92	n=66	n=88
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	6:20	7:33	6:53	7:32	7:31	7:33	7:43
				n=423	n=84	n=93	n=92	n=66	n=88
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Moderate Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		1:43	1:23	1:39	1:40	1:53	1:49
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:23	1:23	1:21	1:24	1:22	1:26
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		4:42	4:49	4:25	4:57	4:48	4:27
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		10:54	10:54	11:43	10:11	10:15	9:54
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	6:53	6:30	7:09	7:00	7:00	6:48
				n=339	n=61	n=66	n=67	n=69	n=76
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	10:20	12:32	11:57	14:00	12:28	12:52	12:16
				n=139	n=21	n=23	n=30	n=30	n=35
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(High Risk) Fire Suppression - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		1:32	1:32	1:14	1:07	1:35	1:59
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:25	1:17	1:19	3:09	1:20	1:25
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:23	3:42	5:25	7:49	4:29	5:38
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		17:20	18:10	17:01	14:44	15:49	11:18
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	6:53	5:52	6:34	9:40	6:19	7:28
				n=58	n=9	n=18	n=9	n=10	n=12
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	12:30	19:07	18:29	19:07	16:20	22:45	12:80
				n=10	n=1	n=4	n=1	n=3	n=1
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Low Risk) EMS - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		2:20	1:59	2:04	2:14	2:42	2:46
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:17	1:15	1:17	1:18	1:19	1:16
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:58	6:18	6:10	6:02	5:46	5:28
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		5:58	6:18	6:10	6:02	5:46	5:28
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:00	8:39	8:24	8:35	8:39	8:57	8:36
				n=22,541	n=4423	n=4323	n=4228	n=4578	n=4989
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	6:00	8:39	8:24	8:35	8:39	8:57	8:36
				n=22,541	n=4423	n=4323	n=4228	n=4578	n=4989
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Moderate Risk) EMS - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		2:09	1:06	1:20	2:06	2:21	2:22
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:22	1:18	1:17	1:15	1:32	1:19
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:22	5:20	4:49	5:35	5:36	5:17
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		9:54	9:54	8:32	11:15	11:01	9:29
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:00	7:50	7:21	7:26	7:53	8:33	7:54
				n=1,031	n=201	n=139	n=210	n=195	n=268
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	10:00	12:28	10:41	10:01	14:24	14:22	11:52
				n=281	n=58	n=42	n=54	n=58	n=69
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(High Risk) EMS - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		3:14	2:35	3:23	3:14	2:36	3:18
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:38	1:30	1:09	1:27	1:53	1:30
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:58	5:58	5:41	6:39	8:00	5:50
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		8:54	NA	NA	8:54	8:42	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:00	9:14	8:14	9:01	13:27	9:14	8:20
				n=42	n=6	n=4	n=8	n=10	n=14
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	12:10	11:21	NA	NA	10:59	11:21	NA
				n=2	n=0	n=0	n=1	n=1	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Low Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		1:39	1:11	1:38	2:05	1:48	1:29
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:11	1:09	1:09	1:09	1:10	1:25
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:10	6:52	3:30	2:49	3:58	5:00
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		5:10	6:52	3:30	2:49	3:58	5:00
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	8:24	8:24	6:27	6:17	5:17	7:15
				n=16	n=2	n=2	n=1	n=1	n=10
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	6:20	8:24	8:24	6:27	6:17	5:17	7:15
				n=16	n=2	n=2	n=1	n=1	n=10
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Moderate Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		3:22	4:14	3:22	3:27	2:19	2:03
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:30	1:37	1:30	1:14	2:52	1:35
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		6:14	9:07	NA	6:02	5:12	6:14
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		NA	NA	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	13:23	16:52	NA	13:23	8:04	7:58
				n=15	n=6	n=0	n=4	n=2	n=3
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	10:20	NA	NA	NA	NA	NA	NA
				n=0	n=0	n=0	n=0	n=0	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

.

(High Risk) Technical Rescue - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		3:50	NA	4:38	3:50	2:55	1:45
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:28	NA	1:28	3:39	1:00	0:56
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		3:31	NA	2:10	3:31	0:40	1:10
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		NA	NA	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	6:58	NA	5:10	6:58	6:57	3:09
				n=8	n=0	n=2	n=4	n=1	n=1
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	12:30	NA	NA	NA	NA	NA	NA
				n=0	n=0	n=0	n=0	n=0	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Low Risk) Hazmat - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		1:56	1:25	1:59	2:20	1:52	2:02
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:25	1:25	1:21	1:28	1:25	1:24
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		6:57	6:07	5:25	10:26	5:51	4:42
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		6:57	6:07	5:25	10:26	5:51	4:42
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	9:53	8:06	10:20	12:58	7:02	6:45
				n=89	n=24	n=16	n=25	n=13	n=11
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	6:20	9:53	8:06	10:20	12:58	7:02	6:45
				n=89	n=24	n=16	n=25	n=13	n=11
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Moderate Risk) Hazmat - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		2:10	1:34	2:15	2:12	2:13	2:08
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:27	1:18	1:27	1:30	1:25	1:32
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:19	4:56	5:13	5:57	5:32	4:37
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		12:23	12:40	12:05	12:10	10:43	18:38
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	7:42	6:52	7:34	8:05	7:42	7:48
				n=244	n=52	n=48	n=53	n=48	n=43
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	10:20	14:41	13:56	14:41	14:23	12:16	20:26
				n=57	n=6	n=10	n=12	n=20	n=9
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(High Risk) Hazmat - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		3:07	3:07	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		0:52	0:52	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		2:57	2:57	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		NA	NA	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	6:56	6:56	NA	NA	NA	NA
				n=1	n=1	n=0	n=0	n=0	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	12:30	NA	NA	NA	NA	NA	NA
				n=0	n=0	n=0	n=0	n=0	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Low Risk) Wildland - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		2:05	1:16	2:04	NA	2:05	2:05
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		0:59	0:59	0:58	NA	1:32	0:53
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		5:12	5:12	5:14	NA	1:48	3:37
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		5:12	5:12	5:14	NA	1:48	3:37
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	7:38	6:37	7:38	NA	5:25	5:17
				n=7	n=2	n=3	n=0	n=1	n=1
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	6:20	7:38	6:37	7:38	NA	5:25	5:17
				n=37	n=9	n=6	n=0	n=4	n=2
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(Moderate Risk) Wildland - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		2:56	1:34	3:20	3:30	2:25	3:27
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		1:29	2:20	2:07	2:52	1:36	1:05
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		6:49	7:16	6:26	3:26	4:19	10:27
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		8:49	NA	8:49	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	9:29	9:29	9:23	6:07	7:14	12:01
				n=51	n=13	n=13	n=4	n=9	n=12
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	10:20	12:52	NA	12:52	NA	NA	NA
				n=1	n=0	n=1	n=0	n=0	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

(High Risk) Wildland - 90th Percentile Times - Baseline Performance			Benchmark (Target)	2017-2021	2021	2020	2019	2018	2017
Alarm Handling	Pick-up to Dispatch	Urban		NA	NA	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Turnout Time	Turnout Time 1st Unit	Urban		NA	NA	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Travel Time	Travel Time 1st Unit **Distribution**	Urban		NA	NA	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
	Travel Time ERF **Concentration**	Urban		NA	NA	NA	NA	NA	NA
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	6:20	NA	NA	NA	NA	NA	NA
				n=0	n=0	n=0	n=0	n=0	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX
	Total Response Time ERF **Concentration**	Urban	12:30	NA	NA	NA	NA	NA	NA
				n=0	n=0	n=0	n=0	n=0	n=0
		Rural		mm:ss	mm:ss	mm:ss	mm:ss	mm:ss	mm:ss
				n=XXX	n=XXX	n=XXX	n=XXX	n=XXX	n=XXX

Response Time Performance by Planning Zone

The following tables represent all emergent responses in planning zones 1-9. PZ 8 and 9 do not currently house any fixed FFD assets and represent times from apparatus responding from Station 2 and Station 7 respectively.

Planning Zone 1 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:28	1:58	2:09	2:30	2:47	2:50
Turnout Time	Turnout Time 1st Unit	1:17	1:14	1:18	1:19	1:17	1:18
Travel Time	Distribution	4:57	4:59	5:02	5:03	4:58	4:41
	Concentration*	8:34	8:35	8:39	9:03	8:29	8:24
Total Response Time	Distribution	7:39	6:57	7:22	7:52	7:52	7:46
		n=9495	n=1737	n=1614	n=1797	n=2026	n=2321
	Concentration*	12:03	11:24	14:01	12:03	12:11	10:47
		n=344	n=66	n=73	n=66	n=73	n=64

Table 38. PZ 1 Response Time Performance

Planning Zone 2 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:18	1:56	2:03	2:20	2:41	2:42
Turnout Time	Turnout Time 1st Unit	1:20	1:29	1:29	1:24	1:20	1:17
Travel Time	Distribution	5:31	5:42	5:33	5:49	5:30	5:06
	Concentration*	8:43	8:43	8:40	9:09	8:53	8:31
Total Response Time	Distribution	8:13	7:38	8:10	8:22	8:33	8:11
		n=5902	n=1184	n=1131	n=1133	n=1237	n=1217
	Concentration*	11:48	10:53	10:42	11:05	13:59	12:31
		n=223	n=34	n=50	n=34	n=50	n=44

Table 39. PZ 2 Response Time Performance

Planning Zone 3 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:11	1:50	2:01	2:06	2:38	2:26
Turnout Time	Turnout Time 1st Unit	1:19	1:18	1:18	1:16	1:26	1:18
Travel Time	Distribution	5:34	5:38	5:35	5:49	5:42	5:07
	Concentration*	10:58	10:13	10:58	11:55	9:48	12:15
Total Response Time	Distribution	8:13	7:40	8:13	8:20	8:42	8:09
		n=3631	n=728	n=711	n=664	n=763	n=765
	Concentration*	14:35	13:04	18:00	17:12	11:37	15:28
		n=95	n=25	n=21	n=25	n=21	n=16

Table 40. PZ 3 Response Time Performance

Planning Zone 4 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:25	1:50	2:10	2:21	2:51	2:49
Turnout Time	Turnout Time 1st Unit	1:24	1:21	1:21	1:26	1:27	1:25
Travel Time	Distribution	4:54	4:49	5:08	4:56	4:46	4:54
	Concentration*	6:42	6:45	6:35	6:52	6:34	7:23
Total Response Time	Distribution	7:47	6:52	7:32	7:58	8:11	8:04
		n=4774	n=906	n=883	n=956	n=1007	n=1022
	Concentration*	9:44	10:01	9:39	10:09	9:33	9:57
		n=303	n=52	n=76	n=52	n=76	n=45

Table 41. PZ 4 Response Time Performance

Planning Zone 5 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:19	1:56	2:06	2:17	2:37	2:47
Turnout Time	Turnout Time 1st Unit	1:14	1:13	1:16	1:13	1:16	1:15
Travel Time	Distribution	5:18	5:23	5:10	5:21	5:12	5:21
	Concentration*	8:06	7:44	7:54	8:13	7:15	8:53
Total Response Time	Distribution	7:53	7:20	7:37	8:01	8:11	8:30
		n=7431	n=1569	n=1551	n=1458	n=1434	n=1419
	Concentration*	11:01	10:09	10:59	11:12	10:27	11:32
		n=330	n=58	n=61	n=58	n=61	n=72

Table 42. PZ 5 Response Time Performance

Planning Zone 6 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:27	1:22	2:05	2:52	2:39	2:31
Turnout Time	Turnout Time 1st Unit	1:24	1:23	1:27	1:21	1:26	1:23
Travel Time	Distribution	5:40	5:29	5:52	5:54	6:14	5:39
	Concentration	10:12	NA	11:20	NA	NA	NA
Total Response Time	Distribution	8:36	7:22	8:04	8:32	9:31	8:40
		n=507	n=110	n=105	n=95	n=96	n=101
	Concentration*	14:18	NA	14:18	NA	NA	NA
		n=21	n=6	n=10	n=0	n=1	n=4

Table 43. PZ 6 Response Time Performance

Planning Zone 7 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:15	1:55	2:10	2:12	2:40	2:42
Turnout Time	Turnout Time 1st Unit	1:24	1:20	1:22	1:27	1:29	1:24
Travel Time	Distribution	5:31	5:29	5:50	5:39	5:17	5:18
	Concentration	9:13	9:54	8:25	9:18	8:37	10:34
Total Response Time	Distribution	8:16	7:33	8:28	8:32	8:30	8:28
		n=3440	n=887	n=640	n=700	n=614	n=599
	Concentration	11:53	12:11	10:38	13:22	10:53	13:17
		n=102	n=25	n=25	n=25	n=25	n=13

Table 44. PZ 7 Response Time Performance

Planning Zone 8** 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:18	1:44	2:08	2:14	2:39	2:35
Turnout Time	Turnout Time 1st Unit	1:19	1:16	1:16	1:22	1:22	1:17
Travel Time	Distribution	7:56	8:27	8:01	8:21	7:28	7:35
	Concentration*	13:12	NA	NA	NA	NA	NA
Total Response Time	Distribution	10:44	10:29	10:19	11:08	11:22	10:12
		n=967	n=185	n=194	n=189	n=199	n=200
	Concentration*	13:26	NA	NA	NA	NA	NA
		n=18	n=7	n=1	n=5	n=4	n=1

Table 45. PZ 8 Response Time Performance

Planning Zone 9** 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	2:20	1:38	1:53	2:20	3:07	3:47
Turnout Time	Turnout Time 1st Unit	1:24	1:20	1:20	1:28	1:32	1:40
Travel Time	Distribution	8:16	8:19	8:20	8:24	7:39	7:34
	Concentration	NA	NA	NA	NA	NA	NA
Total Response Time	Distribution	10:51	10:23	10:41	10:53	11:21	10:19
		n=206	n=47	n=49	n=41	n=43	n=26
	Concentration*	NA	NA	NA	NA	NA	NA
		n=2	n=0	n=1	n=0	n=1	n=0

Table 46. PZ 9 Response Time Performance

Planning Zone 10** 90th Percentile Times Baseline Performance (all incidents)		**2017-2021**	**2021**	**2020**	**2019**	**2018**	**2017**
Alarm Handling	Pick-up to Dispatch	0:46	0:46	NA	NA	NA	NA
Turnout Time	Turnout Time 1st Unit	1:05	1:05	NA	NA	NA	NA
Travel Time	Distribution	9:15	9:15	NA	NA	NA	NA
	Concentration	NA	NA	NA	NA	NA	NA
Total Response Time	Distribution	10:30	10:30	NA	NA	NA	NA
		n=12	n=12	NA	NA	NA	NA
	Concentration*	NA	NA	NA	NA	NA	NA
		n=1	n=1	NA	NA	NA	NA

Table 47. PZ 10 Response Time Performance

Performance Gaps

Performance gaps are identified by measuring the current baseline performance against the stated benchmark objectives. For example, the FFD has set its benchmark objective for travel time at 4 minutes, 90% of the time. If the baseline number is 3:55, then the "Gap" column would show a green :05, meaning the standard is being met by 5 seconds. If the baseline number is 4:24, then the "Gap" column would show a red :24 meaning the standard is not being met by 24 seconds. Measuring performance gaps identifies specific areas of concern throughout the primary service area. These performance gaps result from various circumstances such as the current placement of fixed assets, the type and location of available apparatus, available staffing or current infrastructure. Identifying performance gaps is essential when considering preparations for future growth and strategic planning. The following tables display performance gaps for the primary service area as well as the individual planning zones on a trailing 5 year basis.

Primary Service Area 2021 Performance Gaps		**Baseline**	**Benchmark**	**Gap**
Alarm Handling	All	1:51	1:00	:51
Turnout Time *(First Due)*	Fire	1:20	1:20	:00
Travel Time *(All Calls)*	Distribution	5:29	4:00	1:29
Total Response Time *(All Calls)*	Distribution	7:30	6:00	1:30

Table 48. City Wide Performance Gaps

2021 Alarm Handling Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:51	1:00	:51

2021 Turnout Time Performance Gaps				
		Baseline	Benchmark	Gap
Turnout Time	**Fire**	1:23	1:20	:03
Turnout Time	**EMS**	1:15	1:00	:15

2021 Travel Time Performance Gaps				
		Baseline	Benchmark	Gap
Travel Time	Distribution	4:49	4:00	:49
	Concentration	10:54	8:20	2:34

2021 Total Response Time Performance Gaps				
		Baseline	Benchmark	Gap
Total Response Time	Distribution	6:30	6:20	:10
	Concentration	11:57	10:20	1:37

2021 Fires Moderate Risk Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:51	1:00	:51
Turnout Time	1st Unit	1:23	1:20	:03
Travel Time	Distribution	4:49	4:00	:49
	Concentration	10:54	8:20	2:34
Total Response Time	Distribution	6:30	6:20	:10
	Concentration	11:57	10:20	1:37

2021 EMS Low Risk Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:59	1:00	:59
Turnout Time	1st Unit	1:15	1:00	:15
Travel Time	Distribution	6:18	4:00	2:18
Total Response Time	Distribution	8:24	6:20	2:04

2019 Hazardous Materials Moderate Risk Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:34	1:00	:34
Turnout Time	1st Unit	1:18	1:20	:02
Travel Time	Distribution	4:56	4:00	:56
	Concentration	12:40	8:20	4:20
Total Response Time	Distribution	6:52	6:20	:32
	Concentration	13:56	10:20	3:36

2019 Technical Rescue Moderate Risk Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	4:14	1:00	3:14
Turnout Time	1st Unit	1:37	1:20	:17
Travel Time	Distribution	9:07	4:00	5:07
	Concentration	NA	8:20	NA
Total Response Time	Distribution	16:52	6:20	10:32
	Concentration	NA	10:20	NA

Performance Gaps by Planning Zone

2021 Planning Zone 1 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:58	1:00	:58
Turnout Time	1st Unit	1:14	1:00	:14
Travel Time	Distribution	4:59	4:00	:59
	Concentration	8:35	8:00	:35
Total Response Time	Distribution	6:57	6:00	:57
	Concentration	11:24	10:00	1:24

2021 Planning Zone 2 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:56	1:00	:56
Turnout Time	1st Unit	1:19	1:00	:19
Travel Time	Distribution	5:42	4:00	1:42
	Concentration	8:43	8:00	:43
Total Response Time	Distribution	7:38	6:00	1:38
	Concentration	10:52	10:00	:52

2021 Planning Zone 3 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:50	1:00	:50
Turnout Time	1st Unit	1:18	1:00	:18
Travel Time	Distribution	5:38	4:00	1:38
	Concentration	10:13	8:00	2:13
Total Response Time	Distribution	7:40	6:00	1:40
	Concentration	13:04	10:00	3:04

2021 Planning Zone 4 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:50	1:00	:50
Turnout Time	1st Unit	1:21	1:00	:21
Travel Time	Distribution	4:49	4:00	:49
	Concentration	6:45	8:00	1:15
Total Response Time	Distribution	6:52	6:00	:52
	Concentration	10:01	10:00	:01

2021 Planning Zone 5 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:56	1:00	:56
Turnout Time	1st Unit	1:13	1:00	:13
Travel Time	Distribution	5:23	4:00	1:23
	Concentration	7:44	8:00	:16
Total Response Time	Distribution	7:20	6:00	1:20
	Concentration	10:09	10:00	:09

2021 Planning Zone 6 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:21	1:00	:21
Turnout Time	1st Unit	1:23	1:00	:23
Travel Time	Distribution	5:29	4:00	1:29
	Concentration	n=6	8:00	NA
Total Response Time	Distribution	7:22	6:00	1:22
	Concentration	n=6	10:00	NA

2021 Planning Zone 7 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:55	1:00	:55
Turnout Time	1st Unit	1:20	1:00	:20
Travel Time	Distribution	5:29	4:00	1:29
	Concentration	9:54	8:00	1:54
Total Response Time	Distribution	7:33	6:00	1:33
	Concentration	12:11	10:00	2:11

2021 Planning Zone 8 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:44	1:00	:44
Turnout Time	1st Unit	1:16	1:00	:16
Travel Time	Distribution	8:27	4:00	4:27
	Concentration	n=7	8:00	NA
Total Response Time	Distribution	10.:29	6:00	4:29
	Concentration	n=7	10:00	NA

2021 Planning Zone 9 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	1:38	1:00	:38
Turnout Time	1st Unit	1:20	1:00	:20
Travel Time	Distribution	8:19	4:00	4:19
	Concentration	n=0	8:00	NA
Total Response Time	Distribution	10:23	6:00	4:23
	Concentration	n=0	10:00	NA

2021 Planning Zone 10 Performance Gaps				
		Baseline	Benchmark	Gap
Alarm Handling	Pick-up to Dispatch	:46	1:00	**:14**
Turnout Time	1st Unit	1:05	1:00	:05
Travel Time	Distribution	9:15	4:00	5:15
	Concentration	n=1	8:00	NA
Total Response Time	Distribution	10:30	6:00	4:30
	Concentration	n=1	10:00	NA

Response Reliability

Response reliability is the percentage of time that a first due unit is available for calls in its primary response area. If a unit were available to respond to every call for service in its initial response area, it would have 100% unit reliability. There are several reasons why a first due unit might not be available for calls in its primary area; out on another call for service, training out of area or equipment failure are a few examples. The FFD puts emphasis on maintaining adequate city wide emergency response coverage during day to day activities. This is accomplished using several methods. Each station is equipped with video conferencing capabilities to allow for meetings and classroom training sessions without units having to vacate their primary response area. Apparatus will routinely exchange coverage areas when operating remotely is not an option. Stations 4 and 6 are the primary locations for fixed training assets. This necessitates that personnel leave their primary response areas for training purposes. To maintain adequate coverage, units from Stations 4 and 6 are repositioned to cover the response areas of the units attending training. For example, Engine 804 stands by for Engine 802 while 802 is at the training ground. 804 now becomes the primary engine for PZ 2 and 802 becomes the primary engine for PZ 4. From April until November, this occurs regularly. The FFD maintains a standard operating guideline (SOG 103) that provides guidance to the officer in charge on maintaining station coverage. An analysis of simultaneous incidents provides an overview of unit reliability for each planning zone and the entire service area. Table 47 shows unit reliability on a trailing five year basis. The departments goal is to maintain unit reliability of 90% or greater.

	Total Calls for Service					Simultaneous Calls for Service					Unit Reliability				
	2021	**2020**	**2019**	**2018**	**2017**	**2021**	**2020**	**2019**	**2018**	**2017**	**2021**	**2020**	**2019**	**2018**	**2017**
PZ 1	3597	3652	3420	3150	3268	460	382	439	393	404	87.21%	89.54%	87.16%	87.52%	87.64%
PZ 2	2190	1989	1848	1875	1712	181	149	136	136	108	91.74%	92.51%	92.64%	92.75%	93.69%
PZ 3	1389	1474	1198	1154	1092	70	74	60	62	62	94.96%	94.98%	94.99%	94.63%	94.32%
PZ 4	1576	1595	1410	1424	1432	97	83	97	88	82	93.85%	94.80%	93.12%	93.82%	94.27%
PZ 5	2544	2348	2007	1944	1818	240	198	142	164	138	90.57%	91.57%	92.92%	91.56%	92.41%
PZ 6	147	142	126	133	129	3	1	2	0	3	97.96%	99.30%	98.41%	100.00%	97.67%
PZ 7	1552	1275	1144	940	899	101	77	55	40	36	93.49%	93.96%	95.19%	95.74%	96.00%
PZ 8	376	352	338	335	315	8	5	8	6	6	97.87%	98.58%	97.63%	98.21%	98.10%
PZ 9	84	88	62	52	33	1	0	2	1	0	98.81%	100.00%	96.77%	98.08%	100.00%
PZ 10	17	NA	NA	NA	NA	0	NA	NA	NA	NA	100.00%	NA	NA	NA	NA
Dept. wide	**13,493**	**12,923**	**11,563**	**11,020**	**10,699**	**1,162**	**969**	**941**	**890**	**839**	**91.39%**	**92.50%**	**91.86%**	**91.92%**	**92.16%**

Table 47. Unit Reliability

This table demonstrates that PZ 1 is the only planning zone within the city that is not meeting the goal of 90% unit reliability. PZ 1 also has the largest overall call volume by a significant margin. Department wide, the response reliability goal is being met, however the trailing 5 year trend shows a steady decrease in unit reliability, indicative of a steadily growing demand for services and an increasing strain on resources.

Section 5: Evaluation of Current Deployment and Performance

Evaluation Methodology

In order to identify strengths and weaknesses within the organization, it is important to evaluate performance at regular intervals. The FFD currently compiles response data on a monthly basis. Five year trailing data is updated annually. This process includes an assessment of current workloads, volume and intensity of response types with an updated risk analysis of the current planning zones.

Evaluation Determinations

Monthly response data is forwarded to company officers in order to identify performance gaps or deteriorating trends as early as possible and allow corrective measures to be taken at the company level where possible. Annualized data is assessed along with the annual review of this CRA/SOC to assist in strategic planning and future placement of fixed assets and department resources.

Alarm Handling

For many years, the FFD has used NFPA Standard 1221 (2013) as a guideline for Alarm Handling time expectations. The NFPA 1221 Standard of 60 seconds 80% of the time and 106 seconds 95% was used for all calls except EMS, Hazmat, and Technical Rescue. For EMS, Hazmat, and Technical Rescue, NFPA 1221 indicated 90 seconds 90% of the time and 120 seconds 99% of the time. In this updated version of the SOC, the FFD has used NFPA 1221 (2019) as a guideline for alarm handling times. The updated 2019 version states that the standard of alarm handling will be 60 seconds 90% of the time for the following high priority calls:

- Trauma
- Neurologic emergencies (stroke, seizure)
- Cardiac related events
- Unconscious/unresponsive patients
- Allergic reaction
- Patient not breathing
- Choking
- Fire
- Explosion
- Other calls as determined by the AHJ

Exempt from these time requirements and without a time standard listed include:

- Joint responses with law enforcement
- HazMat
- TRT
- Language translation
- Incomplete location
- Disaster mode

Continual updates of time standards from NFPA make it difficult to remain consistent with similar goals over a long period. The FFD will continue to use the most updated and current standard as a goal, record the baseline times each year, and strive to provide the best service possible to the citizens and visitors of Fargo.

An analysis of FFD alarm handling times indicates that times are below the desired standard of performance, especially for EMS incidents. Over the last several years, several changes have been implemented to alarm handling which resulted in some minor improvements. In 2012, FM Ambulance purchased the PRO QA medical dispatching software program through a grant in an effort to improve alarm handling times. This should have resulted in much better alarm handling times, but has not. In 2015 the FFD began dispatching to EMS calls based on chief complaint; one minute and 30 seconds was reached 54.1% of the time in 2015 compared to 43.7% in 2014, and 35.6% in 2009. These numbers show some improvement over the years, but the FFD will continue working with the RRRDC to find solutions to bring the alarm handling times to acceptable levels.

A review of the alarm handling process and time stamping procedure at the RRRDC by the FFD personnel revealed five reasons for the below standard times:

- Inefficient call handling procedures
- Staffing
- Law Enforcement focused culture where speed is less important
- Technical limitations
- ProQA and EMD dispatching protocols

Turnout Times

Turnout times are one of the only times the fire department controls completely and where improvements can be made by fire personnel. Turnout times have remained consistent over the last five years with only a couple seconds difference between 2017 and 2021. In an attempt to reduce turnout times further, a time clock was placed on the apparatus floor at Station 1 in 2017 so crews could see in real time how many seconds it had been since they were dispatched. Turnout times are discussed frequently with suppression crews and the importance of quick turnout times is emphasized.

Travel Times

Travel times are affected by many variables, with road conditions being a major factor during most of the year in Fargo. During winter driving conditions, roads are slippery or have reduced driving lanes due to snow cover. During the summer, road construction blocks many streets and requires detours and traffic slow downs. Emergency vehicle preemption devices, otherwise known as opticoms, are used at the majority of light controlled intersections in an attempt to allow apparatus to continue through without the need to come to a complete stop. The FFD will continue to support safe driving practices and record times to demonstrate actual times.

Section 6: Maintenance and Improvement of Response Capabilities

During discussions with RRRDC staff concerning alarm handling times, several issues have surfaced. RRRDC staff report a large number of 9-1-1 calls that have an incomplete location due to the increasing number of cell phones used to make calls. When landlines were more prevalent, reverse 9-1-1 provided the location and phone number quickly. Cell phones often only provide latitude and longitude coordinates which may not be exact enough to determine an address. Because of this, dispatchers spend extra time questioning the caller to determine the address of the incident, which contributes to an extended alarm handling time. RRRDC did begin using RapidSOS in February of 2019, which provides a faster, more effective location for the dispatcher that is generated after entering the phone number. RRRDC also changed an internal policy in February of 2020 that permits the call taker to accept a phone number if it populates on their screen and the caller provides it, rather than repeating it back for verification.

RRRDC staff also report a large number of 9-1-1 calls that require an extended time to understand the nature of the emergency and the location from the caller due to language difficulties. Some of these calls may fall under the category of "language translation," but many are also due to variables that make understanding the caller difficult. The alarm handling time is extended due to these issues with the caller.

The list included in NFPA 1221 that require a 60 second alarm handling time 90% of the time includes several specific EMS call types. RRRDC staff report that it is often difficult to ascertain the exact nature of the call, which may change as dispatchers gather additional information. The data the FFD gathers to analyze for times does not provide the specific EMS complaint from CAD, but rather groups the incidents according NFIRS codes which shows who arrived first on scene, the FFD or F-M Ambulance.

These issues not only make it difficult for RRRDC staff to dispatch FFD units within the time standard, but the data analysis is difficult to sort according to the call types listed.

Resolution of inefficient call handling procedures

The RRRDC is a multi-jurisdictional dispatch center, dispatching all public safety agencies in Cass County, North Dakota and Clay County, Minnesota. Dispatchers are required to follow numerous dispatching protocols and dispatch fire, law enforcement, medical services, as well as many non-emergency calls that need various levels of attention. All of these agencies have different priorities and expectations of the dispatch center. RRRDC also has a difficult time recruiting and retaining new dispatchers, with extended alarm handling time as the result. Assistant chiefs and other staff meet regularly with the RRRDC in an attempt to improve the alarm handling issues as they relate to the department. The FFD will continue to monitor and make recommendations to improve this process.

Resolution of technical limitations

One factor that was identified as delaying alarm handling times was the use of priority dispatching protocols for EMS calls. Since the FFD was considered a secondary responder to all EMS calls, EMS calls were screened to determine if an FFD response was needed. The series of

questions that were asked delayed dispatch, but eliminated an estimated 50% of medical runs where a fire crew would likely not have a positive impact on patient outcomes. As a solution, because most of the slow alarm handling time problems involved EMS calls, the FFD began dispatching on chief complaint. If a dispatcher receives certain chief complaints from a caller, it would trigger an immediate dispatch of the closest fire unit. This process has reduced call handling times to a certain degree, but has also increased the call volume and strain on FFD resources significantly. Table 58 below displays the chief complaint call handling guide.

Call types highlighted in yellow require metro fire response	
01 Abdominal Pain	17 Falls
02 Allergies /Envenomation	18 Headache
03 Animal Bites/Attacks	19 Heart Problem
05 Back Pain – Non-traumatic	20 Heat/Cold Exposure
06 Breathing Problems	21 Hemorrhage/Laceration
07 Burns/Scalds	23 Overdose Poisoning
08 Inhalation	24 Pregnancy/Childbirth
09 Cardiac/Respiratory arrest	26 Sick Person
10 Chest Pain	27 Stab/Gunshot/Penetrating Trauma
11 Choking	28 Stroke
12 Convulsions /Seizures	30 Traumatic Injuries
13 Diabetic problem	31 Unconscious/Fainting
14 Drowning bath/pool (use water rescue for river response)	32 Unknown Problem – Man Down
15 Electrocution/Lightning	33 Transfer/Interfacility
16 Eye Problems	
Assault	
Sexual Assault	
Carbon Monoxide/Inhalation/HazMat	Handle under appropriate call type
Inaccessible Incident/Other entrapment	Handle under appropriate call type (rescues)
Psychiatric/Abnormal Behavior/Suicide Attempt	Handle under mentally impaired or suicidal call type - fire does not respond
Traffic/Transportation incidents	Handle under Injury accident call type
x-send fire 01Abdominal Pain	x-send fire 18 Headache
x-send fire 03 Animal Bites	x-send fire 20 Heat-Cold
x-send fire 05 Back Pain	x-send fire 26 Sick Person
x-send fire 16 Eye Problems	x-send fire 33 Transfer

Table 58. EMS call handling guide

Turnout times are within the direct control of the personnel working for the FFD. The time clock placed on the apparatus floor at Station 1 has been met with positive feedback and has been a factor in reduced turnout times for the station. The purchase and installation of time clocks for the remaining stations is currently a top consideration and will be completed as funding allows. Turnout times will also continue to be recorded and distributed monthly to all battalion chiefs and captains.

Performance gaps and planning zone issues

Performance gaps within the FFD include alarm handling, turnout times, travel times, fixed asset locations, and ERF concentrations. The FFD has made a number of adjustments in an attempt to improve unit reliability.

Alarm handling times were addressed in the section above.

Turnout Times:

1. Turnout times are calculated on a monthly basis and forwarded to company officers to allow deficiencies in turnout time to be addressed as soon as possible at the company level. This data is forwarded along with trailing months so positive or negative trends can be identified.
2. Technical limitations exist with the dispatching and mobile software used by the department with deficiencies in its reliability and accuracy. The department continues to work with the City of Fargo IS department and software provider Tyler Technologies to address issues.

Travel Times and Fixed Asset Locations:

1. PZ5 is a comprised primarily of commercial properties, commerce centers and multi-family dwellings. Station 5's location is adjacent to main through ways which provide good access, but also are susceptible to extremely high volumes of traffic during normal working hours causing gridlock or slow traffic conditions at certain periods of the day. Station 5's location also creates some overlap with Station 4's first due area and creates a

gap in coverage between PZ5 and PZ7 based on ISO travel recommendations. Future plans may include relocating Station 5 to the south and west, providing better access while lessening the negative impact from traffic conditions. It would also provide better coverage and shorter travel distances throughout PZ5 by closing the coverage gap in the southern portions of PZ5. Relocating Station 5 would entail acquiring land in a suitable location inside what is a fully developed portion of the city. The financial impact of relocating Fire Station 5 is currently cost prohibitive and there are no immediate plans to undertake the process in the foreseeable future. It is considered a "target of opportunity" should the necessary land, resources and funding become available.

2. Fire Station 6 is an isolated station in a primarily industrial portion of the city. Its placement was chosen based on the location of a city owned property that was remodeled to accommodate a fire station. This location does not allow efficient access to the more developed areas of PZ6, it does however, strategically place it in close proximity to economically sensitive buildings with high dollar values, large numbers of employees and above normal quantities of hazardous materials. Station 6's close proximity to theses high risk facilities is a justifiable tradeoff for its otherwise extended travel times to other portions of PZ6.
3. Fire Station 7 is isolated in the far southwestern corner of the city. Adjacent fire stations are located on the northern and eastern edges of PZ7 only. There is a coverage gap along the northern edge of PZ7 which causes the response time for the secondary engine located in PZ5 to be extended. The FFD attempts to alleviate the delayed responses from secondary apparatus by stationing two apparatus, 1 engine and 1 truck, along with a battalion chief at Fire Station 7. The relocation of Station 5 as discussed above and/or the construction of an additional fire station further to the south would have a positive impact on improving ERF concentrations for PZ7. Both options come at significant cost and remain unfeasible until such a time as sufficient resources and infrastructure become available.
4. Based on ISO travel distances, Station 2 is located too far south and west. Although this does aid in responses to the adjacent PZ8 where there are currently no fixed assets, it creates a gap in coverage on the northern edge of PZ2 which increases travel and total response times to that area. This, coupled with the absence of an additional fire station to

the south, creates a negative impact on ERF response times to PZ2 as well. Repositioning Station 2 is currently cost prohibitive and would also require the allocation of land in a developed portion of the city which will also prove difficult.

5. The performance gap in PZ8 of greatest concern is the lack of any fixed departmental assets. The FFD has a plan in place for the construction of a new fire station in the next 1-3 years in the area of 64th Ave. South. The exact time frame is dependent on sufficient funding becoming available along with the buildout of the infrastructure necessary support emergency responses; primarily the construction of an interstate highway overpass on 64th Ave South.
6. Geographical variables: Travel times are often compromised by conditions beyond the department's control. Winter road conditions traditionally inhibit travel from November through March or April on an annual basis. The short warm weather season also provides a condensed window for road construction; causing traffic delays, detours and impediments on a city wide scale for the entirety of the summer months. The needs of the fire department are secondary to completing infrastructure projects that will improve the city.

ERF Concentrations:

1. The FFD has reduced its ERF for alarm activations with no sign of an emergency present (smoke odor or visible smoke or fire) to one engine company and one truck company. This should increase unit reliability by reducing the instances of resources being assigned to nuisance alarms occurring outside of their primary planning zone.
2. Battalion chiefs are given the authority to redirect assigned resources where appropriate. For example, a secondary resource from an ERF could be diverted to a single engine response in its vicinity and replaced with an additional resource from outside the static response area for the aforementioned ERF.
3. Future plans may include positioning secondary response vehicles in various fire stations. This will require budgetary allocations for resources and staffing that are currently not available. There is no current time frame outlining when sufficient funding may be available for the addition of the staffing and equipment necessary to operate an additional apparatus.

4. PZ3 is “geographically” isolated; there is a single arterial roadway from the south (10th St. N.) and a single arterial roadway from the west (19th Ave. N.) leading into PZ3 that allows for more than a single lane of traffic. Because there is essentially one way in and out, these throughways allowing for two lanes of directional traffic are often congested. This lack of sufficient infrastructure along with the long and narrow geography of the city isolates Fire Station 3 and causes travel and response times for apparatus placed outside of PZ3 to be extended significantly. The predominantly residential nature of PZ3 along with the age of that portion of the city, makes the expansion of the current infrastructure cost prohibitive and unlikely. Extended ERF concentration times for PZ3 can be expected into the foreseeable future.
5. PZ9 is primarily rural in nature with little current development. It was established in 2015 for planning purposes only. The FFD will continue to gather data from within PZ9, however there are no current plans to place any fixed assets within PZ9. Future plans will be adjusted based upon the future development and demand for services in the area.

Section 7: Correlation of CRA-SOC Document to CFAI Accreditation Model

Performance Indicator	Location in SOC
2A.1	p. 17 Service Area p. 12 Figure 1 Map of the City of Fargo
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Appendix A: Community Risk Reduction Plan

Fargo Fire Department

2019 Community Risk Reduction Plan

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Introduction

The purpose of this community risk reduction plan is to manage community risks as identified in the community risk assessment and standards of cover. As identified by the Center for Public Safety the community risk reduction program intends to be comprehensive and include both prevention and mitigation strategies. Risks identified are presented below along with the corresponding strategies. Many risks are managed through multiple programs, including code enforcement, public education, engineering controls, and finally emergency response.

Risk Reduction Plan

The intent of this document is not to repeat information that has been presented in the Standards of Cover. Community demographics, department information and other background information is available in the SOC. Risks have been identified and prioritized through a Community Risk Assessment. These risks are outlined below. Each identified risk is presented on a template that describes strategies to reduce the risk. The template follows a general format that identifies the risk, describes the problem statement, states the goal, identifies resources required, identifies community partners, lists activities, outputs, short and long-term impacts, describes the rationale and assumptions, and finally describes the evaluation methods. It is important to note that every attempt is made to determine evaluation methods that measure outcomes as opposed to outputs. Often, the outcomes will be an evaluation of the number of incidents in Fargo as compared to a city of similar size in our region. These types of evaluations are similar to that of response evaluation. For example, response evaluations typically consider response times (output) and compare those response times to national standards, a fire growth chart, or in the case of ems a suggested care timeline. Outcomes can be measured statistically to determine correlation to an activity of either response or prevention. However, proving causation is usually quite difficult as many factors can simultaneously influence rates of incidents.

EMS Incidents

Problem Statement:			
Survivability of cardiac arrest decreases by 10 percent every minute intervention is delayed.			
Goal:			
Increase the survivability rates of cardiac arrest victims in the community.			
Resources Required:			
Trained CPR Instructors Public Access Defibrillators (AED's) Classroom space		Brochures Volunteers Staff time	
Community Partners:			
Essentia Health American Red Cross		Sanford Health	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
HeartSafe Fargo Save a Life Saturday AED/CPR Courses	No. of AED's No. of attendees No. AED certified	Increased awareness of public access AED's and administration of CPR	Improved intervention and AED access times increased survival rates
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
The combination of public access defibrillators and trained people capable of using them will allow for quick access and intervention of cardiac events.		The community supports funding AED's and hands on courses.	
Evaluation Methods:			
Data will have to be collected from FM Ambulance or other healthcare providers in the area to determine if survival rates have increased and if bystander CPR rates have increased.			

Vehicle Crashes

Problem Statement:			
Vehicle crashes can cause injury to occupants			
Goal:			
Reduce the impact of vehicle crashes particularly on young occupants			
Resources Required:			
Website, brochures			
Community Partners:			
Sanford Health – Safety Shoppe			
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Direct citizens to Safety Shoppe resources	No. of people sent to Safety Shoppe No. of car seats checked	Ensure Car seats are properly installed. Educate citizens on vehicle safety	Reduce the number of injuries and fatalities in vehicle crashes
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Ensuring children and adults are properly restrained in a vehicle will reduce injuries and fatalities of vehicle crashes.		Citizens will participate in car seat checks. Sanford will continue to support Safety Shoppe as a resource for the community.	
Evaluation Methods:			
Compare injury and fatality rate of vehicle crashes in Fargo vs other similar sized cities. This program is at no cost to the FFD. Monitoring of the program should continue to ensure the community has this resource available.			

Low Risk Fires

Problem Statement:			
Low risk fires include: vehicle fires, grass fires, dumpster fires, and fires in small outbuildings such as sheds. While these fires are considered low risk, they contribute to fire loss and have the potential to spread to other areas.			
Goal:			
To reduce the occurrence of low risk fires.			
Resources Required:			
Website Brochures Juvenile FireSetter program		Staff time for presentation of learn not to burn Investigation personnel/time	
Community Partners:			
Fargo Police Department National Highway Transportation Safety Administration Fargo and West Fargo Public Schools Fargo Private Schools Fargo Park District			
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Distribute information and presentation through community partners Document and report vehicle fire causes Collaborate with FPD to determine persons responsible	No. of brochures distributed. No. of people taught Fire incident data No. of investigations prosecuted No. of investigations determined	Create a safety mindset in school age children and juveniles. Create awareness of causes of fires. Create awareness of vehicle recalls.	Change community behavior to reduce unintentional fires. (proper disposal methods). Reduce the number and impact of fire incidents.
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Low risk fires are started for multiple reasons. When the public is aware of those reasons, appropriate behavior changes can reduce the number of fires.		People will want to reduce the number of fires when they are aware of the impact and knowledgeable on the methods of prevention.	
Evaluation Methods:			
Specific programs can be evaluated based on a reduction of incidents on a pre and post program basis. The overall incident rates will be compared to cities of similar size in our region. Juvenile fire setter rates will be monitored to determine if further intervention is needed.			

Hazardous Materials Incidents

Problem Statement:			
Hazardous materials incidents have the potential to cause injury, fire, damage to property and/or the environment, and long-term impacts.			
Goal:			
To prevent all hazardous materials incidents and ensure owners of hazardous materials are prepared to reduce the impact of hazardous materials incidents.			
Resources Required:			
International Fire Code Inspector Staff time Public education/training		Hazardous Materials Management Plans Tier II reports/ Pre incident plans Built in protection measures	
Community Partners:			
Facility owners North Dakota State University Department of Transportation		Industry safety professionals Federal Railroad Administration	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Enforce HMMP and HMIS provisions of the fire code. Ensure plans are available through MDC. Provide educational opportunities to facility owner/operators. Provide educational brochures. Monitor legislation.	No. of facilities with HMMP. No. of facilities with adequate Pre plans. No. of facility personnel contacted. No. of brochures distributed.	Create awareness of Hazardous Materials requirements. Create awareness of Hazardous Materials potential impacts. Facility owners create proper inventories and management plans. Create awareness with legislators.	Reduce the number of hazardous materials incidents. Where incidents occur reduce the impact through built in control and management plans.
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Create awareness of the hazards and regulations associated with hazardous materials. Facilities that are aware of the hazards and have management and inventories in place will work to reduce incidents/impacts.		When owner/operators and legislators understand the impact of hazardous materials they will work to reduce the potential for an incident to occur. Owners that are aware of regulations will work to comply with the law.	
Evaluation Methods:			
Compare rates of hazardous materials incidents to communities of similar size in our region. Determine if HMMP and HMIS plans were present where facilities had incidents. Monitor regulations affecting transportation to determine if new hazards are present.			

Moderate Risk Fire

Problem Statement:			
Moderate risk fires include fires in 1 or 2 family homes, apartment buildings with 3 or fewer units, and buildings less than 6500sf. These fires have the potential for loss of life and significant fire loss.			
Goal:			
To have zero fire deaths, reduce the rate of injury from fire, and reduce the number of fires.			
Resources Required:			
Website Brochures Juvenile FireSetter program		Staff time for presentation of learn not to burn Investigation personnel/time	
Community Partners:			
Fargo Police Department US Bureau of ATF Fargo and West Fargo Public Schools Fargo Private Schools Fargo Park District		North Dakota State Fire Marshal American Red Cross	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Distribute information and presentation through community partners Conduct Smoke detector installs. Advocate for fire sprinklers Collaborate with FPD to determine persons responsible	No. of brochures distributed. No. of people taught Fire incident data No. of investigations prosecuted No. of investigations determined No. of detectors installed No. of buildings sprinkled	Create a safety mindset in school age children and juveniles. Create awareness of causes of fires. Create awareness of smoke alarms. Create awareness of importance of fire sprinklers	Change community behavior to reduce unintentional fires. (proper disposal methods). Reduce the number and impact of fire incidents. Change attitude towards built in fire protection systems
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Moderate risk fires are started for multiple reasons. When the public is aware of those reasons, appropriate behavior changes can reduce the number of fires.		People will want to reduce the number of fires when they are aware of the impact and knowledgeable on the methods of prevention.	
Evaluation Methods:			
Specific programs can be evaluated based on a reduction of incidents on a pre and post program basis. The overall incident rates will be compared to cities of similar size in our region. Juvenile fire setter rates will be monitored to determine if further intervention is needed. The number of residential buildings with sprinkler systems and smoke alarms are significant since the chance of dying in a fire is reduced by 80%.			

High Risk Fire

Problem Statement:			
High-risk fires include fires in Hospitals, Nursing homes, Schools, places of Public Assembly, and buildings greater than 6500sf. These fires have the potential for loss of life and significant fire loss.			
Goal:			
To have zero fire deaths, reduce the rate of injury from fire, and reduce the number of fires.			
Resources Required:			
Website Brochures Juvenile FireSetter program		Staff time for presentation of learn not to burn Investigation personnel/time Owner/Occupant training	
Community Partners:			
Fargo Police Department US Bureau of ATF Fargo and West Fargo Public Schools Fargo Private Schools Fargo Park District		North Dakota State Fire Marshal American Red Cross	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Code Enforcement to ensure property owners are compliant. Distribute information and presentation. Advocate for fire sprinklers Collaborate with FPD to determine persons responsible	No. of brochures distributed. No. of people taught Fire incident data No. of investigations prosecuted No. of investigations determined No. of detectors installed No. of buildings sprinkled	Create a safety mindset in school age children and juveniles. Create awareness of causes of fires. Create awareness of smoke alarms. Create awareness of importance of fire sprinklers	Change community behavior to reduce unintentional fires. (proper disposal methods). Reduce the number and impact of fire incidents. Change attitude towards built in fire protection systems
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
High risk fires are started for multiple reasons. Property owners and staff are integral to fire safety for high risk occupancies. Staff that is cognizant of fire safety will work to reduce the impact and number of fires.		People will want to reduce the number of fires when they are aware of the impact and knowledgeable on the methods of prevention.	
Evaluation Methods:			
Specific programs can be evaluated based on a reduction of incidents on a pre and post program basis. The overall incident rates will be compared to cities of similar size in our region. The number of residential buildings with sprinkler systems and smoke alarms are significant since the chance of dying in a fire is reduced by 80%.			

Water/Ice Rescue

Problem Statement:			
The Red River is the main body of water located in Fargo, ND. The river is not typically used for recreational swimming. Regardless there are several drownings a year in the river. Other retention basins and legal drains also present a drowning hazard.			
Goal:			
To reduce the instances of drownings and near drownings. Increase the understanding of the importance of PFD's.			
Resources Required:			
Brochures Personnel presentation time website		Lifebuoy and cabinet Maintenance personnel time for lifebuoy	
Community Partners:			
Fargo Park District River Keepers North Dakota Game and Fish		FM Ambulance Red River Dive Team US Army Corps of Engineers	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Distribute Brochures. Install Safety throw rings at common drowning areas. Create awareness of water safety programs provided by partners through website.	No. of Brochures distributed. No. of website visits. No. of throw rings installed. No. of times rings used.	Create awareness of throw ring locations. Create awareness of water safety.	Change behavior of public to safe use of Red River, and other bodies of water.
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Many of the incidents involving drownings also involve the use of alcohol or other careless behavior. Education will drive behavior changes. Systems should be in place in the event a person is in the water in need of help.		If a method was readily available, (throw ring) chances of survival will increase. The public will act safer when they are aware of water safe behaviors.	
Evaluation Methods:			
Measure the rate of drownings versus previous years. Measure the rate of near drownings.			

Technical Rescue

Problem Statement:			
Technical Rescue incidents include structural collapse, confined space rescue, high angle rescue, and trench rescue. Fortunately, technical rescue incidents are a low frequency event. However, their impact can be significant including loss of life.			
Goal:			
Continue to maintain a low incident rate of technical rescue incidents.			
Resources Required:			
Brochures Classroom presentation		Staff time for presentations Website	
Community Partners:			
OSHA North Dakota Safety Council		North Dakota WSI City of Fargo Building Inspections	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Distribute brochures. Coordinate classes with community partners. Direct employers to community partners.	No. of Brochures distributed. No. of classes held. No. of employers trained.	Create awareness of the hazards surrounding technical rescue incidents. Provide educational information to employers.	Change behavior of employers to reduce high risk behaviors. (using trench boxes, confined space monitoring, etc)
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Several regulations currently exist to reduce the possibility of technical rescue incidents. Employers should be made aware of the regulations and best practices. Over time behavior will encourage safe practices.		Community partners will work to provide information regarding workplace regulations. Employers that are aware of the regulations and best practices will want to comply.	
Evaluation Methods:			
Measure the rate of technical rescue incidents. Determine if near miss data is available and measure year to year changes.			

Flood

Problem Statement:			
The city of Fargo's topography is prone to spring flooding and flash flooding due to rainstorms. The potential of property loss is significant. Loss of life is also possible during significant flooding events.			
Goal:			
To reduce the impact of a flood event.			
Resources Required:			
Brochures Website			
Community Partners:			
FM Diversion Authority American Red Cross FEMA		Fargo Cass Emergency Management City of Fargo Engineering City of Fargo Public Works	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Provide links to flood information on website. Distribute informational brochures. Promote preparedness and resiliency.	No. of website visitors. No. of brochures distributed. No. of 'ready' businesses	Create awareness of the impact of flooding. Create awareness of steps to take to prepare. Create awareness of steps to reduce impact.	Reduce impact of flood events. Have systems in place to prevent flooding (diversion)
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Educate the public about the impact of floods and how they can be prepared. Educated citizens will take steps to recover and reduce the impact of a flood.		Citizens and businesses would take steps necessary to ensure that daily operations can continue. Community partner agencies will continue to put systems in place to reduce flooding risk.	
Evaluation Methods:			
Evaluate the preparedness of the city at various flood levels.			

Tornado

Problem Statement:			
The City of Fargo is at risk of a tornado strike. A previous tornado touch down caused neighborhood destruction and loss of life.			
Goal:			
To reduce the impact of a tornado.			
Resources Required:			
Website Brochure Classes			
Community Partners:			
Ready.gov American Red Cross Weather Service		Fargo Cass Emergency Management FEMA Local News	
Activities	***Outputs***	***Short-Term Impacts***	***Long-Term Impacts***
Provide links to Ready.gov on website. Distribute brochures. Support CERT Program.	No. of website visitors. No. brochures distributed No. of citizens trained.	Creates awareness of tornado safe actions. Trained citizens to assist with response.	Improved building techniques that provide for safe areas. Improved recovery time and minimized impact.
Rationale: ***(How change occurs & program rationale)***		***Assumptions:*** ***(Factors or conditions assumed to be true)***	
Citizens will become educated on how to prepare before, react to, and recover from a tornado. This will reduce the impact of a tornado strike.		Citizens will want to take actions that keep them safe during inclement weather.	
Evaluation Methods:			
Through surveys and community input determine readiness of business and residents.			