2025 FIRE & EMS DEPLOYMENT STUDY

Coeur d'Alene Fire Department

Idaho

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Emergency Services Consulting International
Providing Expertise and Guidance that Enhances Community Safety

Executive Summary

The Coeur d'Alene Fire Department (CDAFD) is at a critical juncture in its development. As the city continues to grow and evolve, so too must its emergency services. Recognizing this, CDAFD engaged Emergency Services Consulting International (ESCI) to conduct a comprehensive evaluation of its current operations and future needs. The result is a set of strategic recommendations designed to enhance service delivery, optimize performance, and ensure long-term sustainability. At the heart of ESCI's recommendations are two distinct deployment strategies, offering a different path forward for how CDAFD can structure its fire station distribution and staffing.

The first option (Scenario J) envisions a five-station deployment model, including the seamless integration of KCFR Station 4. This plan calls for relocating Station 2 to the north, near Dalton and Pleasant, and constructing a new Station 5 at the Riverstone site. Under this configuration, Station 2 would be staffed around the clock with a ladder/quint company, a medic unit, and a Battalion Chief. Medic 31 would be relocated to Station 3, and Medic 34, located at Station 4, would be staffed on a full-time basis.

This model significantly enhances coverage across the city, including areas slated for annexation. It addresses a key challenge: current travel times exceed the recommended standard by an average of two minutes. By adding a fifth station, CDAFD can reduce response times and improve service reliability. Ladder service to the northern part of the city would see a 77% improvement, and the overall distribution of medic units would be more balanced. Perhaps most importantly, the effective response force would increase from 19 to 24 firefighters—a 26% boost in firefighting capability, better aligning resources with the city's high-rise and commercial risks.

The second option (Scenario F), by contrast, maintains a four-station model while still incorporating KCFR Station 4. In this scenario, Station 2 would be relocated to the south, near Marie and Ramsey. Like Scenario J, it would be staffed 24/7 with a ladder/quint company, a medic unit, and a Battalion Chief. Medic 31 would again be moved to Station 3, and Medic 34 would be staffed full-time.

While Scenario F offers less overall coverage than Scenario J, it still represents a meaningful improvement over the current configuration. Ladder service to the northern city would improve by 62%, and the new location of Station 2 would place the second ladder truck closer to downtown, where most high-rise buildings are located.

Medic unit coverage would also be improved, and the workload across the three units would be well-balanced. Staffing would increase from 19 to 21 firefighters—a 10% improvement—which would ensure the ability to handle a moderate-risk occupancy, although still below the personnel recommended for high-rise or large commercial fires.

Both options recommend relocating the Battalion Chief to either the new or current Station 2, pursuing funding with Kootenai County EMS for full-time Medic 34 staffing, ensuring ladder companies have at least four personnel due to operational complexity, and aiming for four-person engine crews in the long term, as funding allows.

Beyond deployment strategies, ESCI emphasizes the importance of operational enhancements. CDAFD should collaborate with regional fire chiefs to establish AVL dispatching and automatic aid agreements, ensuring that the closest units respond quickly, regardless of boundaries. Reviewing fire and EMS dispatch centers can help address call delays. CDAFD should also monitor and improve turnout times to meet national standards.

Capital planning is essential. ESCI advises creating a Capital Facilities Plan to upgrade fire stations, improve accommodations, zone development, and workflow between living areas and apparatus bays. A Vehicle Replacement Plan should also be implemented to ensure timely apparatus updates, taking into account funding and manufacturer lead times. CDAFD should collaborate with Kootenai County EMS to establish a data-driven ambulance replacement schedule for ensuring continued reliability.

ESCI recommends legislative and funding actions, including partnering with local and state officials to enable local option tax funding for tourist communities the size of Coeur d'Alene. CDAFD should also review EMS fees and property tax rates with Kootenai County EMS to address increasing service needs.

A cost-benefit analysis of overtime is also recommended to determine the number of additional personnel needed to maintain adequate staffing without over-reliance on overtime. Regardless of the path chosen, the supporting recommendations in staffing, dispatch, capital planning, and funding will be essential to building a resilient and responsive fire department that meets the needs of a dynamic and growing community.

Acknowledgments

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City Leadership

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Letter from the Chief

Mayor Gookin and City Council Members,

As your Fire Chief, my foremost responsibility is to ensure our fire department meets the community's current and future needs. While addressing today's demands is challenging, planning for tomorrow is even more critical.

First, I want to thank you for your unwavering support over the past four years, including your approval of both the Customer-Centered Strategic Plan and the Station Location/Fire & EMS Deployment Study. I also extend my gratitude to the ESCi team for their expertise and guidance in developing these essential tools for our organization.

Independent, data-driven evaluations provide us with a clear picture of current performance and actionable recommendations for the future. Strategic planning is not optional; it is a core leadership function, especially given fiscal constraints and sustainability challenges. These studies serve as our "report card" today and a roadmap for tomorrow.

With the passage of the Fire Department General Obligation Bond last year, identifying the optimal location for a future fire station became a priority. The study analyzed multiple scenarios, and after careful review, we focused on those that are both effective and achievable. Key considerations included historical service demand, response performance, geographic coverage, staffing levels, and operational workload. Additionally, incorporating KCFR Station 4 resources was essential, as Automatic Aid agreements are critical to modern deployment planning and achieving national benchmarks.

After thorough review, evaluation, and consultation with ESCi and CDAFD command staff, I offer the following recommendations:

- Enter into Automatic Aid agreements with Kootenai County Fire & Rescue and the Northern Lakes Fire District to enhance regional cooperation and resource sharing.
- Implement Recommended Units/AVL CAD dispatching citywide and with partner agencies once Automatic Aid is in place.
- Work with CDAFD leadership (Company Officers and Chief Officers) to establish a culture that emphasizes "turnout time" standards. Establish clear benchmarks that include target goals, officer reinforcement, and performance feedback.

- Create internal Hazardous Materials Training and pre-planning around the identified Toxic Release Inventory sites identified.
- Work with Kootenai County Central Dispatch to establish "Alarm Handling Time" standards that include benchmarks and performance updates to participating agencies.
- Educate our City Council on the importance of NFPA 1710 as it specifically relates to minimum staffing levels, response times, objectives, and resource deployment standards.
- Implement EMS Scenario-F: relocate M32 to new Station 2 location (south), relocate M31 to Station 3 and prioritize M34 to be staffed 24/7.
- Consider Station Location Scenario-F as the preferred option for improved service delivery. This scenario is the most achievable and positions us to create a possible "dual fire house" in the future, relocating Station 2 to Ramsey & Marie, leveraging available property, and aligning with G.O. Bond plans. Consider incorporating Ladder Truck Scenario D to provide improved coverage to the city's north side.

In closing, the recommendations by ESCi give a clear data driven and actionable path forward. Our investment in optimal fire station locations, staffing and the strategic deployment of resources can ensure that your fire department remains capable of protecting our residents, businesses and visitors at the level that they expect and deserve. I look forward to working with our city leadership, our community and personnel to move these recommendations into action.

Thomas Greif

Fire Chief

Coeur d'Alene FD

Community & Organizational Overview

Service Area Population & Community Demographics

The City of Coeur d'Alene has an estimated population of 59,988 residents across 16.8 square miles in Kootenai County, Idaho. The city is situated on the shore of Lake Coeur d'Alene, surrounded by forested mountains and possessing a distinct downtown resort area, commercial corridors, and a wide variety of residential neighborhoods.

The median household income in Coeur d'Alene is $71,125, and the median home value is $567,833. During the daytime, and particularly during the tourism season, the population increases to almost 74,000 due to the influx of workers and visitors. Coeur d'Alene is home to 3,263 businesses, which employ nearly 40,000 people.

Vulnerable populations, including individuals with disabilities, older people, and those below the poverty line, often have increased needs for emergency services. These groups may face higher risks during emergencies due to limited mobility, health issues, or insufficient access to resources, making it crucial that emergency services are adequately prepared to support them.

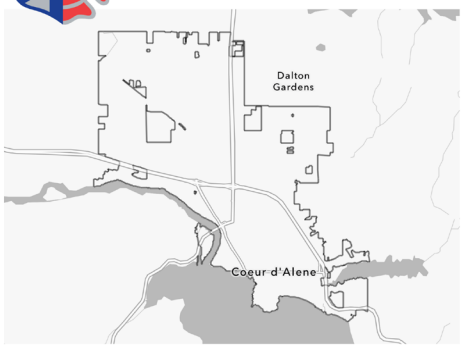
There is a total of 24,998 households in Coeur d'Alene. The average household size is 2.35 individuals, and the median age of the population is 39.2 years. The city also has an elderly population of 12,193 individuals aged 65 and older, which is approximately 21% of the city's residents. This is slightly higher than the overall state average of just over 17%.

In Coeur d'Alene, 10% of households are actually below the poverty level. There are also 6,636 households with members who have disabilities, and a total of 5,345 residents who are without health insurance.

The following infographic summarizes the community data.

COMMUNITY PROFILE

Area: 16.8 square miles



59,988
Population

24,998
Households

2.35
Avg Size Household

AT RISK POPULATION

6,636
Households With Disability

12,193
Population 65+

1,458
Households Without Vehicle

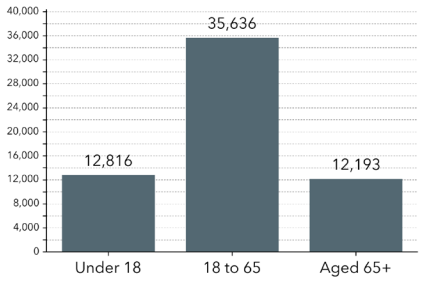
HOUSING PROFILE

39.2
Median Age

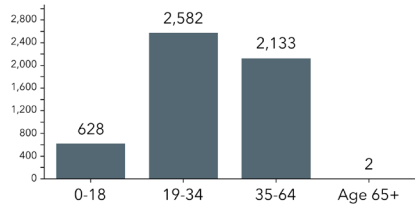
$71,125
Median Household Income

$567,833
Median Home Value

POPULATION BY AGE



POPULATION NO HEALTH INSURANCE (ACS)



POPULATION AND BUSINESSES

73,903
Daytime Population

3,263
Total Businesses

39,934
Total Employees

Language Spoken (ACS)	Age 5-17	18-64	Age 65+	Total
English Only	**8,477**	**30,701**	**10,343**	**49,521**
Spanish	**471**	**1,063**	**106**	**1,640**
Spanish & English Well	444	1,007	94	1,545
Spanish & English Not Well	27	56	12	95
Spanish & No English	0	0	0	0
Indo-European	**38**	**163**	**58**	**259**
Indo-European & English Well	38	163	51	252
Indo-European & English Not Well	0	0	7	7
Indo-European & No English	0	0	0	0
Asian-Pacific Island	**37**	**305**	**59**	**401**
Asian-Pacific Isl & English Well	37	254	13	304
Asian-Pacific Isl & English Not Well	0	51	17	68
Asian-Pacific Isl & No English	0	0	29	29
Other Language	**0**	**2**	**13**	**15**
Other Language & English Well	0	2	13	15
Other Language & English Not Well	0	0	0	0
Other Language & No English	0	0	0	0

POVERTY AND LANGUAGE

10%
Households Below the Poverty Level

2,222
Households Below the Poverty Level

0
Pop 65+ Speak Spanish & No English

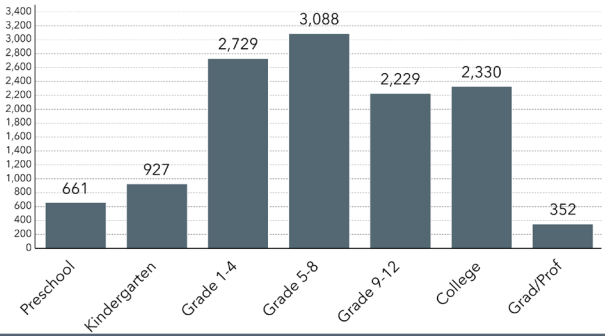
WEALTH PROFILE

83
Wealth Index

52
Housing Affordability

32
DiversityIndex

SCHOOL ENROLLMENT (ACS)



Source: Esri, ACS, Esri-Data Axle, U.S. Census Bureau 2024, 2029, 2018-2022.

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History, Formation & Organizational Demographics

The Coeur d'Alene Fire Department (CDAF) was first organized in 1889 with a group of volunteers and a hose cart. In 1939, the department hired its first paid firefighter and has continued to evolve over the decades to meet the rapidly changing needs of the fire and emergency service in a growing community. The department is now a fully paid career fire department, providing all-risk services to nearly 60,000 residents, thousands of year-round visitors, and a sprawling business community.

The department employs 63 firefighting personnel and 10 administrative staff who operate out of four fire stations and a headquarters facility. The department staffs three fire engines and one ladder truck while providing technical rescue and water-based emergency response services. Additionally, through a partnership with Kootenai County Emergency Medical Services (KCEMS), the department offers advanced life support (ALS) ambulance services to the City of Coeur d'Alene and its surrounding areas. This ALS ambulance service is achieved by staffing two full-time paramedic ambulances 24 hours per day, seven days per week, and a third paramedic ambulance, currently staffed 24 hours a day, four days a week.

ISO & CPSE Accreditation

The Idaho Surveying and Ratings Bureau (ISRB) collects and evaluates information from communities throughout the State of Idaho on their structure fire suppression capabilities. The data is analyzed using the Insurance Services Office (ISO) Fire Suppression Rating Schedule (FSRS), and a Public Protection Classification (PPC) grade is then assigned to the community.

The ISO Class rating system assesses a community's fire protection capabilities on a scale of 1 to 10. Class 1 indicates the best possible fire protection system, while Class 10 indicates no fire protection available. This program evaluates factors such as water supply, fire department capabilities, emergency communication systems, and community risk reduction efforts. An ISO Class 1 rating typically indicates an advanced level of fire protection, reflecting factors like well-distributed fire stations, high staffing and training levels, effective emergency communications, and comprehensive public education programs.

A community's investment in fire mitigation has proven effective in preventing future fire losses. Statistical data on insurance losses support the relationship between excellent fire protection, as measured by the PPC program, and low fire losses. Insurance companies use PPC information for underwriting and to help establish fair fire insurance premiums for homeowners and commercial business owners. The ISRB evaluated the Coeur d'Alene Fire Department in April 2023, and their detailed final report was issued on May 31, 2023. The fire department currently holds a Class 3 rating.

There are several areas where the City of Coeur d'Alene's overall PPC score can be improved, potentially leading to a better classification for its residents. Those areas include community risk reduction, such as fire prevention and public education programs, which the City of Coeur d'Alene should consider strengthening. However, because 50% of the overall score is based on the fire department, the greatest opportunity for improvement lies in improving the delivery of fire protection services.

The Center for Public Safety Excellence (CPSE), in collaboration with the Commission on Fire Accreditation International (CFAI), has developed an organizational evaluation process that enables fire departments to measure themselves against nationally recognized standards. With access to experienced mentors and peer assessors, a department completes a comprehensive internal assessment. Working toward accreditation improves community alignment, encourages quality improvement, identifies an organization's strengths and weaknesses, enables data-driven decision-making, and helps ensure the department has defined a mission and related objectives.

The process of achieving accreditation offers tremendous benefits but also requires a significant investment of time and effort at multiple levels. The City of Coeur d'Alene has not embarked on the journey toward accreditation. Some organizations have hired accreditation managers to oversee the initial process and maintain accreditation in subsequent years.

Description of the Current Service Delivery Infrastructure

Fire Protection Delivery System

The Coeur d'Alene Fire Department has developed a service delivery system that ensures an all-risk emergency response is available to the community 24 hours a day, seven days a week. This includes fire suppression services, advanced life support care and transport, community risk reduction programs, boat fire and water rescue response, special event coordination, and specialized technical rescue capabilities. The department's technical rescue team and its K-9 search and rescue team members are also part of a state and federal response program.

With a population of nearly 60,000 spread out over 16.8 square miles, Coeur d'Alene is situated in a picturesque location on the shore of Lake Coeur d'Alene and the surrounding mountain regions. This mix of diverse geography, with a variety of residential neighborhoods, a vibrant downtown area, and numerous high-rise buildings, dictates the range of services provided by the fire department. In addition, year-round tourism and regional EMS responsibilities complicate the delivery of these services.

Administrative support and leadership for the Coeur d'Alene Fire Department is comprised of the Fire Chief, three (3) Deputy Chiefs, one (1) EMS Officer, two (2) Deputy Fire Marshals, and three (3) administrative professionals. With four fire stations, the department's 63 firefighting personnel work across three shifts and staff one Battalion Chief vehicle, three fire engines, one ladder truck, and two ambulances on a 24-hour basis, seven days a week.

A third ambulance is staffed 24 hours a day, four days a week, to ensure adequate coverage for the growing demand for emergency medical services. In addition to providing ALS ambulance service within the City of Coeur d'Alene, the department provides ambulance service to a larger regional area in partnership with the Kootenai County Emergency Medical Services System.

EMS Delivery System

The Kootenai County Emergency Medical Services System (KCEMSS) is a county-wide, government-operated ambulance service that provides 911 emergency medical care and interfacility transport across Kootenai County, Idaho. The system is a collaborative model that integrates all fire departments within the county and one nonprofit ambulance organization. This structure allows KCEMSS to deliver rapid, coordinated, and high-quality emergency medical services (EMS) to both urban and rural areas. The system is designed to ensure that emergency medical technicians (EMTs) and paramedics are strategically placed throughout the county, optimizing response times and coverage.

KCEMSS operates under a unique model in which EMTs and paramedics are employed by local fire departments, except for Harrison Community Ambulance, which operates independently and receives financial support from KCEMSS. This decentralized staffing model allows for flexibility and local responsiveness while maintaining centralized oversight and resource allocation.

KCEMSS offers a range of EMS services, including basic and advanced life support, critical care transport, and interfacility transfers. The system is designed to serve not only Kootenai County residents but also visitors and residents of neighboring counties in North Idaho. Through contracts with local fire departments and the Harrison Community Ambulance, KCEMSS ensures that ambulances, medical equipment, and supplies are available throughout the region.

The system includes several transportation agencies:

- Coeur d'Alene Fire Department: 2 full-time and 1 part-time ambulance
- Kootenai County Fire & Rescue: 2 full-time ambulances
- Northern Lakes Fire Protection District: 2 full-time ambulances
- Spirit Lake Fire Protection District: 1 full-time ambulance
- Timberlake Fire Protection District: 1 full-time ambulance
- Worley Fire Protection District: 1 full-time ambulance
- East Side Fire Protection District: 1 part-time ambulance

Additionally, quick response units (QRUs), such as those in the Hauser Lake and Mica Kidd Island Fire Protection Districts, play a vital role, especially in rural areas. These units, often staffed by volunteers, can arrive on the scene faster than ambulances, providing critical early intervention.

KCEMSS operates under a hybrid funding model that combines user fees with property tax revenue. As an ambulance district, it receives community tax support, which helps offset the financial burden of low reimbursement rates from Medicare and Medicaid. This model ensures that services remain accessible and sustainable, even when patient billing does not cover the full cost of care.

The system's financial strategy reflects a commitment to fiscal responsibility and community service. Despite the challenges of rising healthcare costs and limited reimbursements, KCEMSS maintains one of the lowest tax levies in Idaho. This balance between cost efficiency and service quality underscores the system's dedication to public health and safety.

KCEMSS is a model of regional collaboration and innovation in the emergency medical care delivery system. The system's success is rooted in the cooperation of multiple agencies that have come together to form a unified EMS network. This collaborative spirit extends to training, medical oversight, and community outreach, ensuring all responders have the latest knowledge and tools.

Coeur d'Alene Fire Department

The Coeur d'Alene Fire Department consistently operates two 24-hour ambulance units that receive funding from KCEMS. Additionally, one ambulance, Medic 34, is assigned to Station 4 and operates on a rotation Monday through Thursday or Tuesday through Friday, four days a week. KCEMS subsidizes this unit for 40 hours each week, while the Coeur d'Alene Fire Department covers the additional 56 hours to accommodate the 24-hour shift structure.

The CDAF alternate response unit (ARU) is assigned to the Kootenai Health Center and operates from 8:00 AM to 5:00 PM, Monday through Friday, provided sufficient staff are available. Staffed by three (3) personnel working overtime, the ARU is fully funded by the department.

Governance & Lines of Authority

The City of Coeur d'Alene operates under a Mayor-Council form of government. In this structure, the Mayor serves as the chief executive and is elected separately from the City Council. Although the Mayor plays a significant role in policymaking, the day-to-day operations are delegated to a City Administrator. The City Administrator is appointed by and reports directly to the Mayor, providing leadership and oversight across the City of Coeur d'Alene's thirteen departments.

The governance of the Coeur d'Alene Fire Department is structured to ensure accountability, operational efficiency, and alignment with municipal leadership and community expectations. The CDAF operates under the jurisdiction of the City of Coeur d'Alene and is guided by a strategic framework that integrates City leadership, departmental command, and community input.

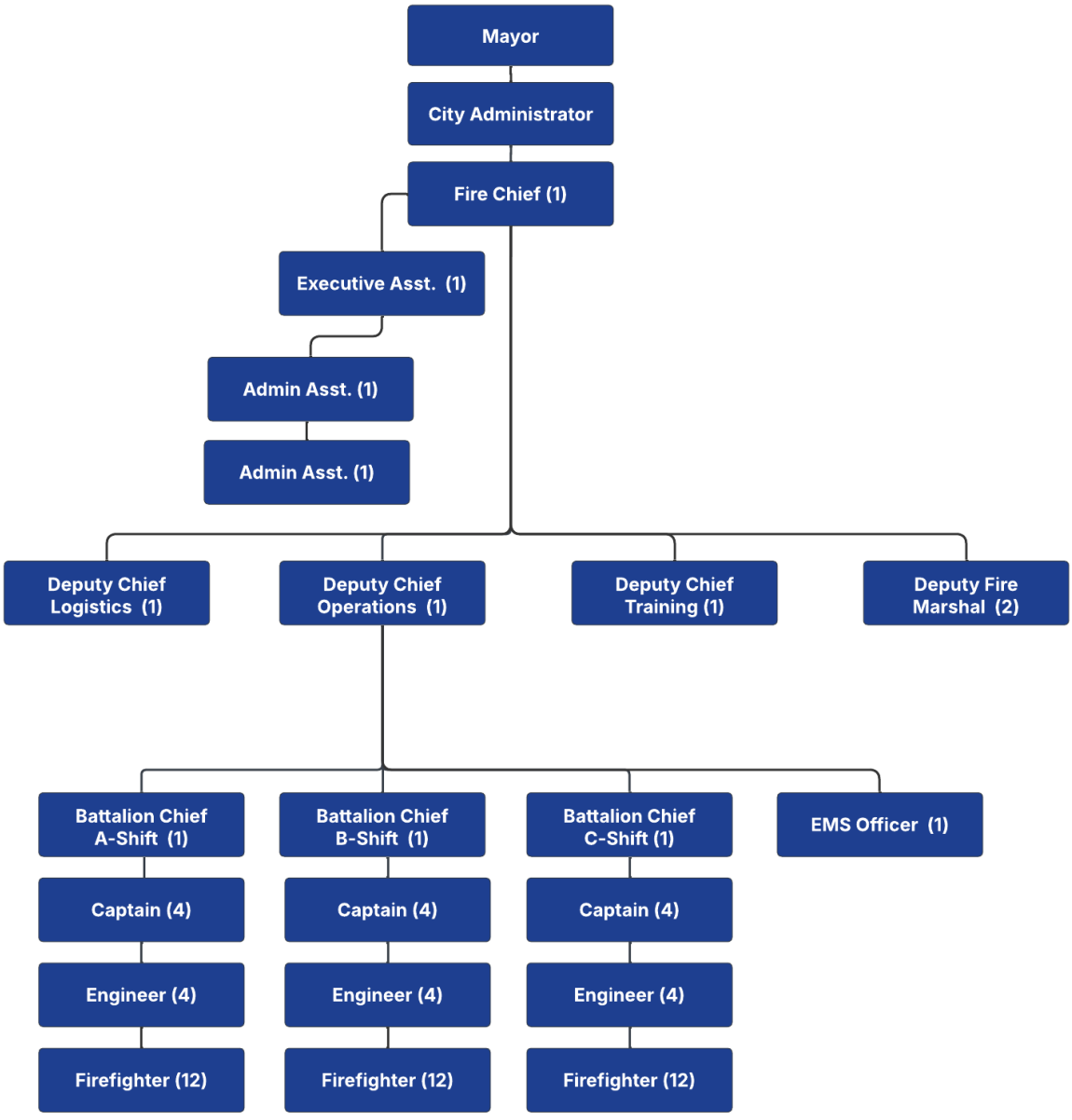
The Fire Chief serves as the executive leader of the fire department, reporting directly to the City Administrator and coordinating closely with elected officials, including the Mayor and City Council. The Chief oversees all department operational, administrative, and strategic functions, including personnel management, emergency response coordination, and inter-agency collaboration.

Deputy and Battalion Chiefs support the Fire Chief and manage specific operational areas, such as training, emergency medical services, and fire prevention.

Organizational Design

The following organizational chart represents the number of personnel, ranks, and reporting structure to ensure a reasonable span of control and unity of command. There are 73 personnel, with 10 in administrative positions and 63 in operations.

Figure 1. City of Coeur d'Alene Organizational Chart



Facilities

Each of the Coeur d'Alene Fire Department's facilities comprises a system to respond to and mitigate community risks. Within each of these strategically located facilities, a range of specialized equipment and firefighters stand ready to respond to a wide range of emergencies. This section provides an overview of each facility, Figures 2 through 8, and its characteristics and potential deficiencies.

Figure 2. CDAF Fire Administration Building Profile

Station Name	Fire Administration Building
Address	300 E Foster Ave.
Date of Construction	2008
Type of Construction	Wood Frame
Date of Remodels	N/A
Square Footage	7,181
Number of Bays	N/A
Drive-thru or Back-in Bays	N/A
# of Beds	N/A
# of Sleeping Rooms	N/A
# of Shower Facilities	N/A
# of Maximum Staffing	N/A
Units	N/A

The City of Coeur d'Alene Fire Department's Administration Building serves as the central hub for the department's leadership, planning, and support operations. The facility is approximately 7,181 square feet and is built with wood-frame and brick wainscot, consistent with the City's architectural standards for municipal buildings. The building includes offices for administrative staff, meeting rooms, and support spaces for departmental coordination. It is designed to facilitate administrative functions — such as budgeting, personnel management, and strategic planning — while also supporting community engagement activities, including public meetings and fire prevention education.

Fire Station 1

Figure 3. CDAF Station 1 Facility Profile

Station Name	Station 1
Address	320 E Foster Ave.
Date of Construction	1975
Type of Construction	Wood Frame
Date of Remodels	2007
Square Footage	5,797
Number of Bays	3
Drive-thru or Back-in Bays	3 Back-in
# of Beds	8
# of Sleeping Rooms	5
# of Shower Facilities	2
# of Maximum Staffing	6
Units	L1, M31, B3

Fire Station 1 serves the downtown and surrounding central areas of the City of Coeur d'Alene. The facility spans approximately 5,797 square feet and includes crew quarters and operational support spaces. The building is rated as being in "Fair" condition. It features three apparatus bays that house a variety of emergency response vehicles, including a ladder truck, medic unit, and Battalion Chief unit. The station was constructed using conventional stick-frame methods, with reinforced structural elements, to meet essential services standards and ensure resilience during emergencies.

Originally built in 1975 and remodeled in 2007, Fire Station 1 does not meet modern design characteristics. For example, fire stations now incorporate segregated zones to isolate contaminants brought back from firefighting activities, separate bedrooms for gender privacy, isolated workout facilities, and designated areas for personal protective equipment (PPE).

Station 1 has limited space for modern apparatus, outdated living quarters, and insufficient decontamination facilities. Additionally, the station's layout presents challenges for efficient movement between apparatus bays and living areas. The Battalion Chief is currently housed in Station 1 and is not centrally located. Plans to relocate the Battalion Chief to a central location, possibly Station 2, are underway to better serve the fire department's operational command needs and the community.

Fire Station 2

Figure 4. CDAF Station 2 Facility Profile

Station Name	Station 2
Address	3850 N Ramsey Rd.
Date of Construction	1992
Type of Construction	Metal
Date of Remodels	2006
Square Footage	6,100
Number of Bays	2
Drive-thru or Back-in Bays	2 Back-in
# of Beds	7
# of Sleeping Rooms	4
# of Shower Facilities	2
# of Maximum Staffing	6
Units	E2, M32

Fire Station 2 was originally built in 1992 to accommodate two (2) firefighters, but has been modified to house more personnel per shift. The facility is rated as "Marginal" to "Poor" range. Plans are underway to include a Battalion Chief in a proposed rebuild. The current facility features two apparatus bays that house Engine 2 and Medic 32, dormitory-style sleeping quarters located upstairs, a small Captain's room with minimal separation from the apparatus bay, and limited space for report writing, meals, and meetings.

Over the years, the building has experienced significant deterioration, including roof leaks, mold growth, diesel fumes infiltrating living and gear storage areas, and inadequate decontamination facilities for responders. In response to these challenges, the department has proposed a $6 million rebuild as part of a broader $16.4 million General Obligation Bond. The new design aims to address current deficiencies by including expanded apparatus bays to accommodate modern emergency vehicles, private sleeping quarters for firefighters working 48-hour shifts, a mass decontamination area, clear separation between living and operational zones, and a larger meeting and training room, recognizing Station 2 is adjacent to the department's training hub.

Fire Station 3

Figure 5. CDAF Station 3 Facility Profile

Station Name	Station 3
Address	1500 E Foster Ave.
Date of Construction	2001
Type of Construction	Wood Frame
Date of Remodels	N/A
Square Footage	8,458
Number of Bays	2
Drive-thru or Back-in Bays	2 Drive-thru
# of Beds	7
# of Sleeping Rooms	4
# of Shower Facilities	2
# of Maximum Staffing	3
Units	E3, R3

Fire Station 3 is located at 1500 North 15th Street and serves the northeastern portion of the city. The facility spans 8,458 square feet and was designed to blend traditional firehouse architecture with the residential character of the surrounding neighborhood. The facility is in "Good" condition and features two apparatus drive-through bays, a range of emergency response vehicles, dormitories, offices, an exercise room, and shop space.

A 30-person meeting and community room is also built into the facility, supporting both departmental and public functions. Constructed as an "essential services" building, the station was built with reinforced standards to ensure operational continuity during emergencies. The station faces some deficiencies typical of aging infrastructure, such as limited space for modern equipment and evolving operational needs, including the potential need to add a second company due to incident demand. Fire stations should have separate sleeping rooms to accommodate personnel of both genders, ensuring privacy.

These challenges highlight the importance of ongoing evaluation and potential upgrades to maintain service effectiveness for the community and firefighter safety.

Fire Station 4

Figure 6. CDAF Station 4 Facility Profile

Station Name	Station 4
Address	6564 N. Atlas Rd.
Date of Construction	2017
Type of Construction	Wood Frame
Date of Remodels	N/A
Square Footage	7,053
Number of Bays	2
Drive-thru or Back-in Bays	2 Drive-thru
# of Beds	7
# of Sleeping Rooms	4
# of Shower Facilities	2
# of Maximum Staffing	5
Units	E4, M34

Fire Station 4 is located at 6564 N. Atlas Road, serving the northwest portion of the city. The facility measures 7,053 square feet. It features a modern configuration that supports both operational efficiency and firefighter wellness. The station features two drive-through apparatus bays and utilizes traditional wood-frame construction and brick wainscot for durability and aesthetic integration with the surrounding area. The facility is in "Excellent" condition.

The interior layout features essential spaces, including dormitories, offices, and operational support areas, all designed to meet current standards for emergency response facilities, except for independent bedrooms. The interior design features clear separation zones between living and operational areas, adequate decontamination spaces, and sufficient room for modern apparatus and equipment, with one exception: apparatus bays will not accommodate a ladder company.

Marine Station

Figure 7. CDAF Marine Station Facility Profile

Station Name	Marine Station
Address	212 S 3rd St.
Date of Construction	2023
Type of Construction	Wood Frame
Date of Remodels	N/A
Square Footage	1,544
Number of Bays	1
Drive-thru or Back-in Bays	N/A
# of Beds	N/A
# of Sleeping Rooms	N/A
# of Shower Facilities	N/A
# of Maximum Staffing	N/A
Units	Fire Boat 3

The marine facility is located at the Third Street Marina, which was placed into service in January 2023. The facility enhances emergency response capabilities on the north end of Lake Coeur d'Alene, providing quicker access to water-based incidents. The facility is in "Excellent" condition and requires no cosmetic repairs.

The marine facility houses Fire Boat 3, named "Chdeln" (meaning "to guard or protect"). It features a Seaflex mooring system that automatically adjusts to seasonal water levels.

The facility's location and configuration are tailored to support rapid deployment by responding crews from Fire Station 1. The facility serves a symbolic and community role, reflecting partnerships with the Coeur d'Alene Tribe and the City of Coeur d'Alene, and was dedicated in a ceremony that emphasized tradition and collaboration.

Training Facility

Figure 8. CDAF Training Facility Profile

Station Name	Training Facility
Address	3850 N Ramsey Rd.
Date of Construction	2010
Type of Construction	Metal Clad over Metal
Date of Remodels	N/A
Square Footage	7,331
Number of Bays	N/A
Drive-thru or Back-in Bays	N/A
# of Beds	N/A
# of Sleeping Rooms	N/A
# of Shower Facilities	N/A
# of Maximum Staffing	N/A
Units	N/A

The City of Coeur d'Alene Fire Department's training facility is a five-story structure with a basement that connects to a confined space training prop and is designed as a specialized training facility, continually serving to refine the skills and aptitude of firefighters in confronting realistic emergencies. The training facility comprises a four-story tower with 7,331 square feet and various other props to simulate emergency scenarios, allowing firefighters to practice and maintain their skills. The property for the training facility measures over 32,000 square feet, approximately three-quarters of an acre.

The lower section of the building is used for live-fire and smoke training, where firefighters enter a blackened hallway and experience a heated environment with an obscured line of sight, helping them learn to move as a team through challenging conditions.

The tower portion of the facility offers various training opportunities, including simulated rescues in multi-story apartments or office buildings. Teams practice raising ladders to specific windows, searching smoke-filled upper floors for simulated victims, and executing high-angle rope rescues from the roof. The CDAF's ladder truck can practice apparatus placement and aerial maneuvering techniques. The tower's windows and interior stairwells become a critical classroom for practicing everything from forcible entry to emergency "bailout" maneuvers, ensuring every firefighter knows how to save themselves if trapped.

This Figure provides guidance on the rating of each facility.

Figure 9. Fire Station Rating Guide

Excellent	• Like-new condition. • No visible structural defects. • The facility is clean and maintained. • The interior layout is functional, with no unnecessary impediments to the apparatus bays or offices. • No significant defect history. • Building design and construction match the building's purposes. • Age is typically less than ten years.
Good	• The exterior has a good appearance with minor or no defects. • Clean lines, good workflow design, and only minor wear on the building interior. • The roof and apparatus apron are in good working order, absent any significant full-thickness cracks or crumbling of the apron surface or visible roof patches or leaks. • Building design and construction match the building's purposes. • Age is typically less than 20 years.
Fair	• The building is structurally sound, with a weathered appearance and minor non-structural defects. • The interior condition shows normal wear and tear, but flows effectively to the apparatus bay or offices. • Mechanical systems are in working order. • Building design and construction may not align with the building's intended purposes. • Shows increasing age-related maintenance but with no critical defects. • The typical age is 30 years or older.
Marginal	• The building is structurally sound, with a weathered appearance and moderate non-structural defects. • Full-thickness cracks and crumbling concrete on the apron may exist. • The roof has evidence of leaking and/or multiple repairs. • The interior is poorly maintained and shows signs of deterioration, with moderate non-structural defects. • Problematic age-related maintenance and/or defects are evident. • It may not be well suited to its intended purpose. • Age is typically greater than 40 years.
Poor	• The building is cosmetically weathered and worn, with potential structural defects, though none are imminently dangerous or unsafe. • Large, multiple full-thickness cracks and crumbling concrete on the apron. • The roof has evidence of leaking and/or multiple repairs. • The interior is poorly maintained and shows signs of advanced deterioration, with moderate to significant non-structural defects. • Problematic age-related maintenance and/or major defects are evident. • It is not well suited to its intended purpose. • Age is typically greater than 50 years.

Apparatus

Maintaining fire service apparatus and equipment is crucial to ensuring operational readiness, safety, and longevity. Essential elements of this maintenance include regular inspections and preventive maintenance schedules, which should be strictly adhered to in accordance with manufacturer recommendations and NFPA standards.

The CDAF should inspect and service all mechanical components, including engines, pumps, and aerial ladders, and test electrical systems and communication devices. Equipment and apparatus must be regularly cleaned to prevent corrosion and extend their lifespans.

Additionally, thorough documentation of all maintenance activities is necessary to track the condition and service history of each piece of equipment, enabling timely repairs and replacements as needed. Training personnel in proper operation and maintenance techniques is equally important to minimize wear and tear and ensure the equipment performs effectively during emergencies.

Age, Condition, & Serviceability

ESCI offers agencies a matrix to evaluate their apparatus condition and use based on experience, using the criteria shown in the figure below.

Figure 10. Vehicle Condition Grade Criteria

Evaluation Factors	Points Assignment Criteria
Age	One point for every year of chronological age, based on in-service date.
Miles/Hours	One point for each 10,000 miles or 1,000 hours of operation.
Service	A score of 1-5 points is assigned based on the type of service unit. For instance, fire pumpers would be given a '5' because they are classified as severe-duty service.
Condition	This category considers body condition, rust, interior condition, accident history, anticipated repairs, and other relevant factors. The better the condition, the lower the points assigned. Again, a score of 1-5 points is assigned.
Reliability	Points are assigned on a scale of 1-5, depending on the frequency with which a vehicle is in the shop for repair. For example, a rating of '5' would be assigned to a vehicle in the shop on average 2 or more times per month. In contrast, a rating of '1' would be assigned to a vehicle in the shop an average of once every three months or less.

Figure 11on the following page provides a recommended scoring criterion to guide leadership on the overall condition of the apparatus.

Figure 11. Scoring Categories

Apparatus Reviews

The following table assesses fire apparatus, including age, condition, serviceability scores, and mileage scores, which are calculated by dividing the vehicle's total mileage by 10,000. The scoring system used for maintenance, condition, and serviceability ranges from 1 to 5. A score of '1' indicates routine preventative maintenance is regularly performed, the vehicle is in excellent condition, and it is very reliable with little downtime. Conversely, a score of '5' denotes no routine maintenance, poor condition, and frequent outages for repairs, respectively. The scores are totaled to provide an overall apparatus score.

Figure 12. CDAF Emergency Apparatus Scores

Unit ID	Station	Year	Mileage	Service Score	Condition Score	Reliability Score	Overall Rating
Ladder 1	Sta. 1	2017	54,382	3	2	3	21.4 – Good
Engine 2	Sta. 2	2017	92,976	3	2	3	25.3 – Fair
Engine 3	Sta. 3	2017	100,435	3	2	3	26 – Fair
Engine 4	Sta. 3	2017	83,640	3	2	3	24.3 – Fair
Battalion 3	Sta. 1	2017	11,235	3	2	3	22.1 – Good
Medic 31	Sta. 1	2022	55,975	3	3	3	17.6 – Excellent
Medic 32	Sta. 2	2023	30,072	3	3	3	14 – Excellent
Medic 34	Sta. 4	2022	47,713	3	3	3	16.8 – Excellent
Rescue 3	Sta. 5	2006	11,112	3	2	2	27.1 – Fair
Fireboat 3	Sta. 6	2016	738 hrs.	3	2	2	16 – Excellent
Engine 322	Sta. 3	2007	149,462	3	4	3	42.8 – Poor
Medic 33	Sta. 3	2014	169,019	3	2	3	35.9 – Poor

Apparatus must be in good condition, regularly maintained, and configured to ensure reliable, safe, and effective deployment and operation in emergency incidents. Fire apparatus is a significant capital investment that necessitates planning for future replacement. The use of outdated equipment results in higher maintenance costs and longer downtime, potentially creating service delivery gaps.

Various factors can positively or negatively impact the life expectancy of an emergency response apparatus. Fire and aerial ladder trucks located in busy portions of the jurisdiction can experience a shorter life cycle due to harsher operations. These units often experience increased breakdowns due to wear and tear, reducing apparatus availability and increasing maintenance costs.

Like any mechanical device, a fire apparatus has a finite lifespan. Often, when a frontline apparatus reaches a certain age or level of wear and tear, or begins to incur increasing maintenance costs, it is moved to reserve status or decommissioned. Moving an apparatus to reserve status or decommission is a local decision. Typically, apparatus replacement is based on multiple factors, including age, mileage, engine hours, increased maintenance needs, and financial considerations.

Annex D of NFPA 1901: *Standard for Automotive Apparatus* (2016) suggests based on safety improvements that apparatus more than 15 years of age should be refurbished to meet current standards or removed from service; however, the standard acknowledges that apparatus can continue to be serviceable far beyond the 15-year threshold, depending on maintenance, wear and tear, service demands, and driver training programs. Finally, NFPA 1901 recommends that apparatus over 25 years old be replaced.

The emergency apparatus construction industry currently requires a construction window of up to 36 months, depending on the manufacturer. Due to shortages of raw materials and specialized technical components, it is now typically taking up to 3 years for emergency apparatus to be delivered. This lead time requires fire departments and municipalities to assess current and future community needs and accurately forecast budgetary requirements to make purchases several years in advance.

The City of Coeur d'Alene has utilized 10-year General Obligation Bonds to help ensure a reliable fleet of emergency apparatus and reserves. Voters approved the most recent bond in June 2025. In July, the City Council authorized the use of funds to purchase four new fire engines and one new ladder truck. In addition, the City has already purchased one new fire engine with delivery expected in the second half of 2025. It will be crucial that the delivery timeline is well understood when the City awards a bid to purchase the apparatus using bond funds.

Maintenance

The City's Public Works Department handles the maintenance of CDAF apparatus and vehicles. If necessary, specialty repair work is contracted out. The frequency of routine maintenance is determined by vehicle mileage and is often coordinated with other repair work to minimize downtime.

Regulatory Compliance

CDAF's apparatus are specified and built in accordance with all federal, state, and local regulations and maintained in accordance with manufacturer and industry standards.

Future Needs

With the recently passed General Obligation Bond, CDAF has positioned itself well with apparatus replacement going forward. With one new engine arriving soon and the General Obligation Bond providing for four more engines and one ladder truck, both frontline and reserve apparatus will be adequately equipped, assuming the new apparatus is delivered promptly. It will be crucial for the City to collaborate closely with Kootenai County Emergency Medical Services on ambulance replacements, as these vehicles experience high usage and mileage, and timely replacements are essential. The reserve ambulance (Medic 33) was rated "Poor" using this assessment tool. It should be prioritized for replacement through attrition soon.

Staffing Relief Factor

The fire service assesses the required number of full-time staff to maintain minimum shift coverage, a process referred to as the staffing relief factor (SRF). The following describes the factors in determining the Coeur d'Alene Fire Department's SRF.

Hours of Work

Line staff (firefighters) operate on a 48/96 shift schedule. This means they work two consecutive 24-hour shifts (totaling 48 hours), followed by 96 consecutive hours off duty. This schedule is part of a three-platoon system. Firefighters are generally not permitted to work more than 72 consecutive hours without the approval of the Fire Chief or their designee, unless a mutually agreed-upon emergency arises within the fire department.

The agreed-upon work period for line staff averages 56 hours per week, which includes meal periods. With a 56-hour workweek, the total hours worked in a year would be 2,920.

Overtime is defined as any authorized work performed beyond the scheduled work period or exceeding the maximum hours permitted by U.S. Department of Labor regulations for the designated work period. The Code of Federal Regulations provides a 7(k) exemption under the Fair Labor Standards Act for firefighters, limiting the hours worked without overtime to approximately 53 hours per week. Therefore, the CDAF firefighters are paid overtime for approximately three hours each week.

Minimum Staffing

The primary purpose of establishing minimum staffing standards is to ensure that sufficient personnel are available on duty to safely mitigate all types of emergencies, while accounting for community risks. The CDAF has established a minimum staffing requirement of 19 positions on days when Medic 34 is staffed and 17 on days when it is not. These positions range from firefighter to Battalion Chief and require individuals to be on duty and available 24 hours a day, 7 days a week.

In addition, department policy and the Bargaining Unit Agreement require that each fire station have at least one fire apparatus, staffed by a minimum of three (3) firefighters: a Captain (or acting Captain), an Engineer (or acting Engineer), and a Firefighter. Ambulances require at least two (2) firefighters, including one (1) paramedic licensed by the State of Idaho.

The Battalion Chief vehicle must be staffed by at least one Battalion Chief or acting Battalion Chief. The CDAF may recall off-duty personnel if a fire apparatus is sent out for mutual aid.

Overtime

Standard Operating Procedure (SOP) 1-15 outlines the guidelines for recording and approving overtime for line personnel covered under the Collective Bargaining Agreement between the City of Coeur d'Alene and IAFF Local 710. It defines overtime as hours worked beyond an employee's regular schedule, excluding time spent maintaining the minimum staffing level. It mandates that all overtime—except for late calls—must be pre-approved by a Chief Officer. Overtime must be fairly assigned, recorded to the nearest half hour, and documented. Employees are responsible for accurately logging their overtime on the day it occurs, identifying the approving Chief Officer, and ensuring the accuracy of entries before submitting their timesheets. Captains must notify the Battalion Chief via email of any late-call overtime.

Constant Staffing

SOP 1-15A outlines procedures for maintaining minimum shift staffing levels through callback and constant staffing, ensuring consistency and fairness for all line personnel. The Battalion Chief is responsible for determining qualifications and making final staffing decisions. When a position needs to be filled, a page is sent to all line personnel via FireRoster.com. For long-term staffing needs, shifts may be scheduled one set at a time, with a minimum 4-hour call-in period. Same-day staffing for shifts over 20 hours requires a 10-minute call-in period, while shifts under 20 hours are assigned to the first qualified responder. Next-day staffing allows a 20-minute call-in period, and once filled, scheduled personnel cannot be bumped by others higher on the list.

The Battalion Chief may implement mandatory staffing to ensure coverage, while avoiding assignments to 96-hour work periods or those mandated within the past six months. Selection is based on the lowest seniority that meets operational needs, and discretion may be used for reasonable exceptions. Personnel working trades or those with constant staffing may be selected for mandatory shifts that occur in the middle of a shift. Mandatory event vacancies follow the same procedure, and wildland-related staffing is filled from the Wildland Team roster, which is maintained by the team leader and subject to the Battalion Chief's discretion.

Vacation Picks

The Coeur d'Alene Fire Department's vacation pick SOP 1-25 ensures a fair and equitable system for all line personnel by requiring vacation selections to be completed by December 31st each year, under the supervision of the Battalion Chief or Acting Battalion Chief. Vacation time must be accrued before it can be requested, and picks are made in order of seniority, with each employee initially selecting one set of up to two consecutive shifts. The process cycles through the seniority list until all desired time off is chosen or employees opt out. Partial picks are allowed but must be relinquished if another employee requests the full set. All vacation requests must be submitted on the proper form for Fire Chief approval, per the IAFF Local 710 contract.

Additionally, a "third/fourth vacation leave opportunity" may be available if staffing exceeds minimum levels at 8:00 AM on the day of the shift. This opportunity is managed through an annual seniority list. Requests are submitted by 8:00 AM on Day 2 of the preceding set or between 07:00 and 07:30 AM the morning of the next set, if no prior requests have been made. Full-shift requests take precedence, and using 20 or more hours moves personnel to the bottom of the list. Trades are agreements between employees to work for one another. The Fire Chief or their designee must approve trades, provided that the agreement does not conflict with the department's best interests.

Staffing Calculation

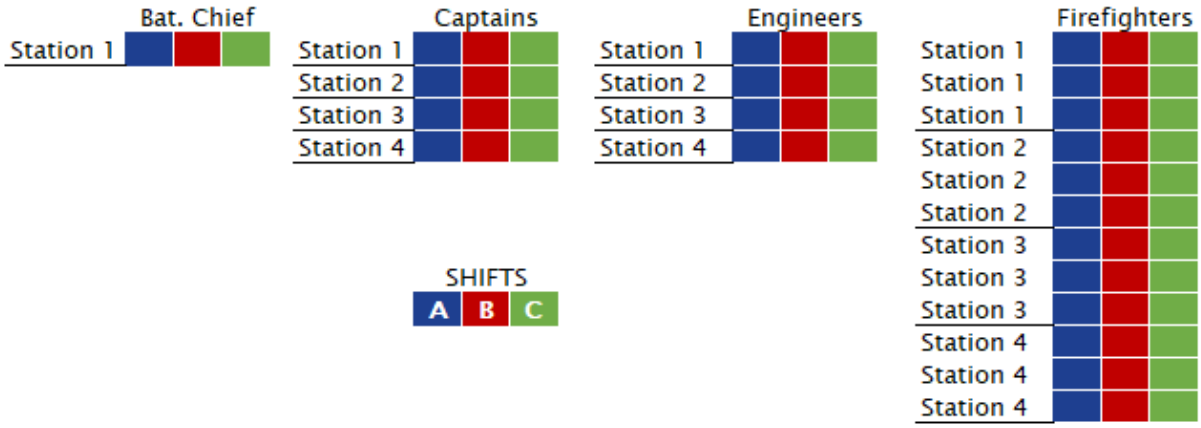
The next figure illustrates how the Staffing Relief Factor calculation for the CDAF determines the minimum staffing needed, specifically the number of full-time employees (FTEs) required to meet current minimum staffing requirements.

Figure 13. Existing Staffing Factors

Staffing Factors
365 – Days per Year
8,760 – Hours per Position Annually
2,920 – Hours Each FTE Works Annually on a 56-hour Workweek
19 – Current Minimum Daily Staffing at CDAF
63 – Number of Assigned FTEs Across Three Shifts • 3 Battalion Chiefs, 12 Captains, 12 Engineers, and 36 Firefighters

Firefighter shift scheduling and staffing are somewhat difficult to communicate to non-fire service personnel. The following infographic displays the number of positions (depicted by each colored block) assigned to each shift and the number of positions in each classification across the four fire stations.

Figure 14. Class and Position Assignments



Minimum Staffing – 56-Hour Workweek

- 365 days per year x 24 hours per day = 8,760 hours requiring coverage per position per year.
- 8,760 hours per year x 19 minimum positions per day = 166,440 hours per year that must be staffed 24/7.

Work Period Reductions

ESCI evaluated four (4) years of scheduling data to determine the average leave hours for each class. The four classifications are "Battalion Chief," "Captain," "Engineer," and "Firefighter." The process involved categorizing the 34 leave and pay codes to determine which codes should be allocated to time off. From that analysis, ESCI averaged the leave across all positions and classifications. Shift trades were not calculated as they are intended to be managed internally and should not impact staffing levels.

The following figure displays, for each class, the average number of off-shift hours and the number of available hours to work during a scheduled work period. The off-shift hours include vacation, sick leave, bereavement, remote training, jury duty, and other similar absences. The staffing relief factor (SRF) is calculated by dividing the available hours by the scheduled work hours.

Figure 15. Percent of Leave per Class

Class	Off-Shift Hrs.	Available Hrs.	Staffing Relief Factor
Battalion Chief	804	2,116	1.4
Captain	622	2,298	1.3
Engineer	562	2,358	1.2
Firefighter	595	2,325	1.3
Average Staffing Relief Factor (SRF)			**1.3**

To illustrate how this might apply, the Battalion Chief's scheduled work hours (2,920) divided by the average available hours (2,116), producing an SRF of 1.4. Three options exist to fill the vacancies: 1) Hire an additional position to cover the vacancies; 2) Fill the position through temporary promotions (acting) from the Captain's rank; 3) Utilize overtime and recruit an off-duty Battalion Chief.

The CDAF has chosen to match the same number of FTEs to the minimum number of positions for the ranks of 'Battalion Chief," "Captain," and "Engineer." As such, when the department has a vacancy in any of those ranks, a series of acting positions are used to fill the minimum staffing needs, which ultimately come from the "Firefighter" pool.

There are two FTEs within the "Firefighter" rank assigned to each station and shift to provide the capacity to fill any vacancies that might occur. If the two extra positions are not available or there are more than two vacancies, the department would then recruit off-duty personnel and pay overtime to fill the vacancies.

ESCI assessed the overall staffing capacity of the CDAF by determining whether there are sufficient personnel to match average leave, using a department-wide SRF. The minimum staffing requirement is 19 positions, multiplied by the average SRF of 1.3, yielding a total of 24.7 full-time positions. As there are three shifts, 24.7 (rounded up to 25) is multiplied, showing that 75 operations FTEs are needed. Currently, CDAF has 63 operational full-time positions, suggesting the department could reduce overtime by adding up to twelve more positions.

It is essential to note that the SRF is based on the average leave, and adding positions will offset some of the overtime; however, not all the overtime will be eliminated, largely because vacancies come in peaks and valleys. Although scheduled leave, such as vacation, can be managed, sick leave, injury/disability, and FMLA leave create spikes in the number of personnel off duty. These spikes will still require some overtime to fill the gap.

Hiring additional personnel to offset overtime costs in a fire department is a strategic approach to maintaining minimum staffing levels while managing budget efficiency and employee well-being. Overtime pay, while necessary to cover staffing gaps, can lead to burnout and long-term financial strain due to premium pay rates. These impacts are especially relevant when organizations begin using increasing levels of "force-hire overtime."

By hiring more full-time staff, departments can reduce reliance on overtime, potentially lowering overall labor costs. However, this must be weighed against the cost of benefits—such as health insurance, retirement contributions, and paid leave—which significantly increase the total compensation package for each new hire. A thorough cost-benefit analysis should compare the long-term expense of sustained overtime against the fixed and variable costs of onboarding new employees, ensuring that staffing decisions support both fiscal responsibility and operational readiness.

Staffing of Medic 34

The Coeur d'Alene Fire Department is also utilizing available personnel, along with overtime, to staff Medic 34 24 hours a day, 4 days a week. This operational decision also affects the utilization of available on-duty staff to fill vacancies.

Service Delivery & Performance

Service delivery and performance are the metrics that best illustrate the fire department's services to the community.

Service Demand Analysis

When assistance is requested, a service request is submitted to the fire department, typically through the 911 system. Analyzed by each calendar year, the primary analyses of service demand include the types of incidents, when they occur, and where they occur.

Incident Type Analysis

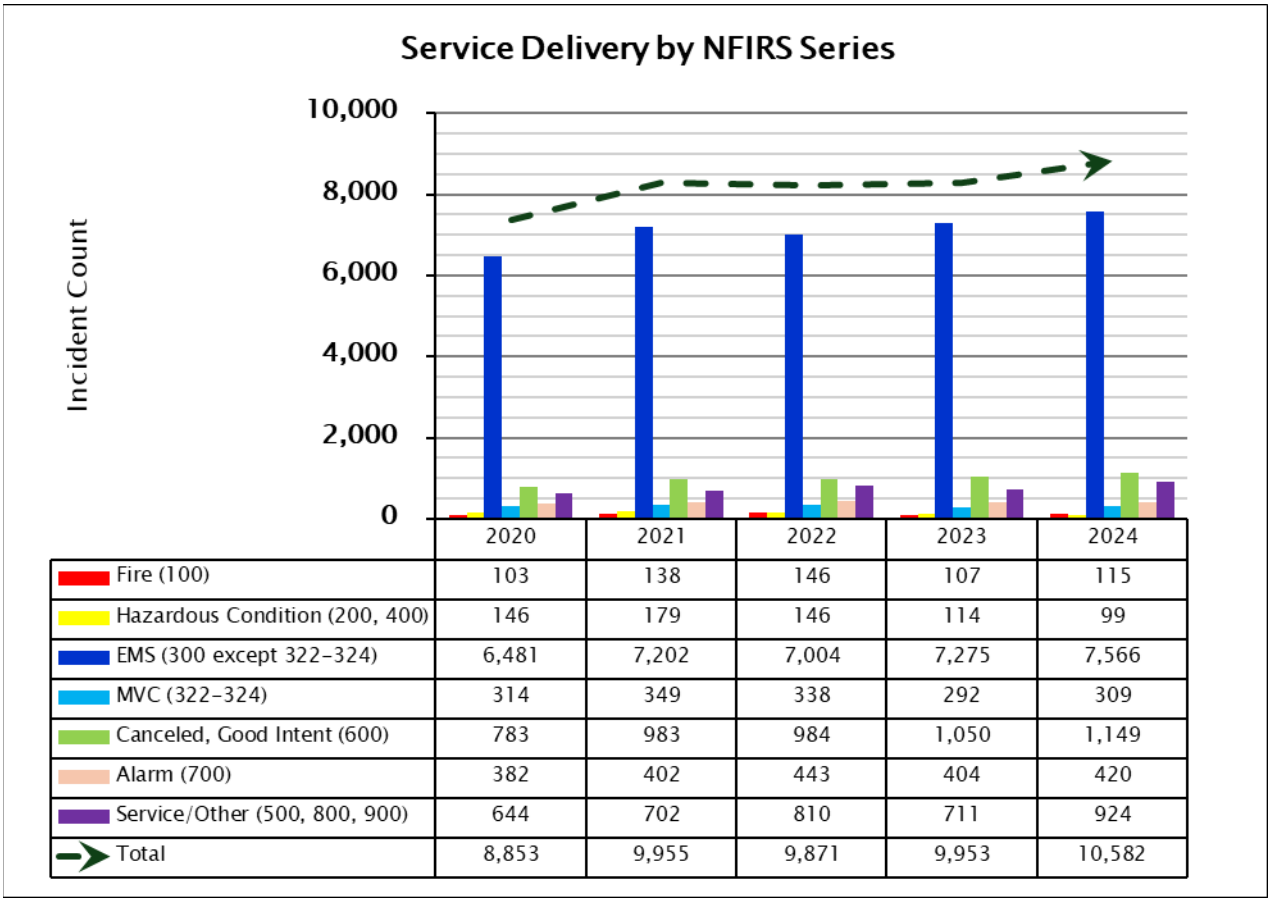
Documentation of responses to incidents includes recording the type of incident identified by an arriving unit. The National Fire Incident Reporting System (NFIRS) and its successor, the National Emergency Response Information System (NERIS), are industry-standard systems used by local fire departments to record this information. The systems track over 100 incident types, which are grouped into series, as illustrated in the following figure.

Figure 16. NFIRS Incident Series

Incident Series	Incident Heading
100-Series	Fires
200-Series	Overpressure Rupture, Explosion, Overheat (No Fire)
300-Series	Rescue and Emergency Medical Service (EMS) Incidents
400-Series	Hazardous Condition (No Fire)
500-Series	Service Call
600-Series	Canceled, Good Intent
700-Series	False Alarm, False Call
800-Series	Severe Weather, Natural Disaster
900-Series	Special Incident Type

The following figure illustrates the types of incidents the CDAF has responded to over the past five years.

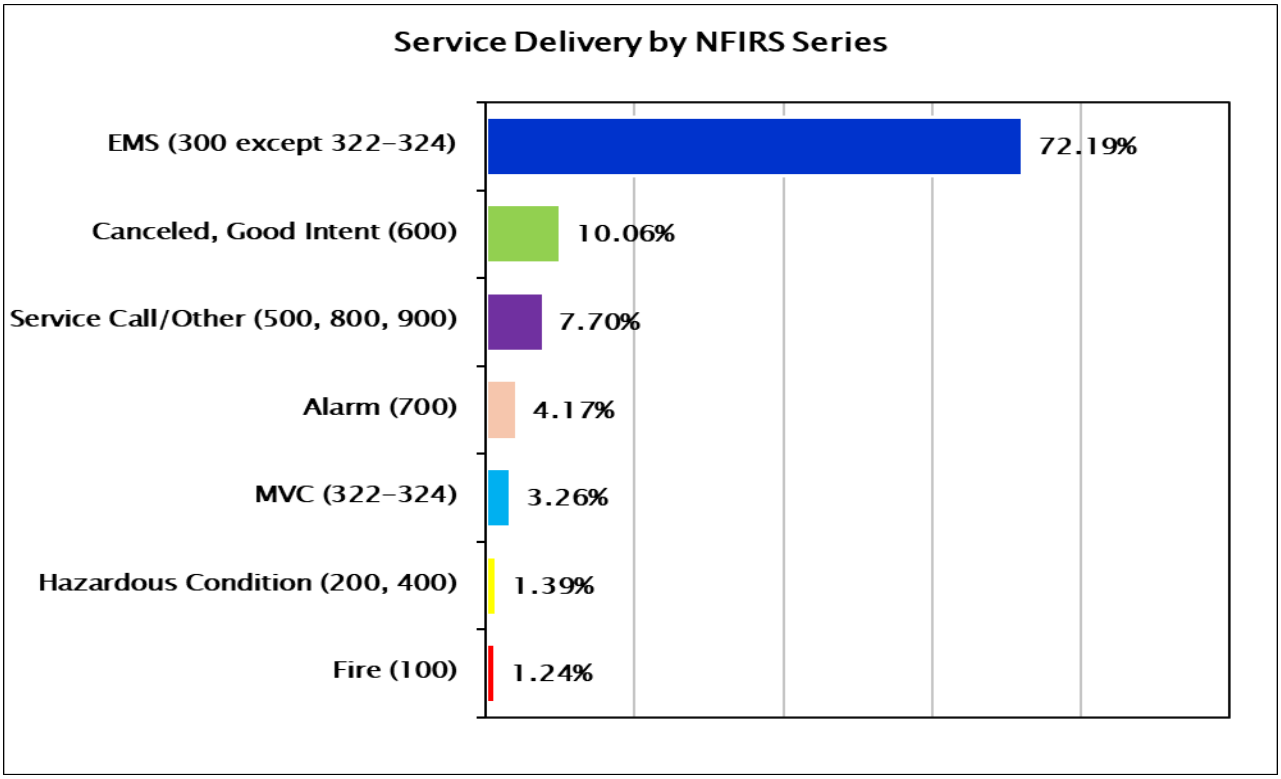
Figure 17. CDAF Service Demand by NFIRS Series, 2020–2024



	2020	2021	2022	2023	2024
Fire (100)	103	138	146	107	115
Hazardous Condition (200, 400)	146	179	146	114	99
EMS (300 except 322–324)	6,481	7,202	7,004	7,275	7,566
MVC (322–324)	314	349	338	292	309
Canceled, Good Intent (600)	783	983	984	1,050	1,149
Alarm (700)	382	402	443	404	420
Service/Other (500, 800, 900)	644	702	810	711	924
Total	8,853	9,955	9,871	9,953	10,582

Another consideration is determining the percentage of broad call classifications relative to the entirety of service demand, as illustrated in the following figure.

Figure 18. CDAF Service Demand by NFIRS Series, 2020–2024



Temporal Analysis

Another data point documented for each incident response is the time at which it occurs. This may be analyzed from three different views—month, day, and hour—as illustrated in the following figures on this page and Figure 21 on the next page.

Figure 19. CDAF Service Demand by Month, 2020–2024

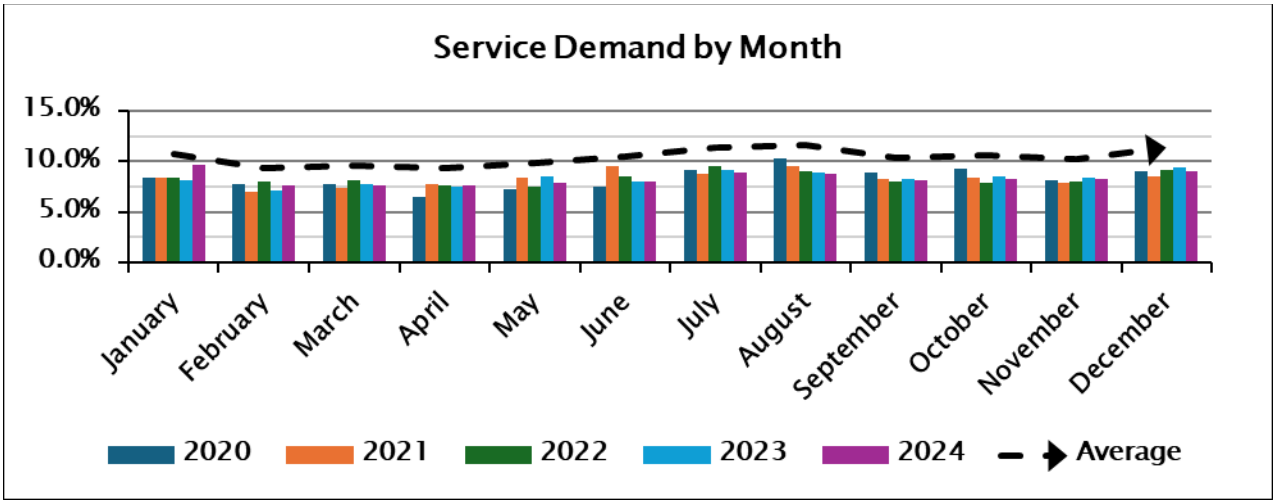


Figure 20. CDAF Service Demand by Day, 2020–2024

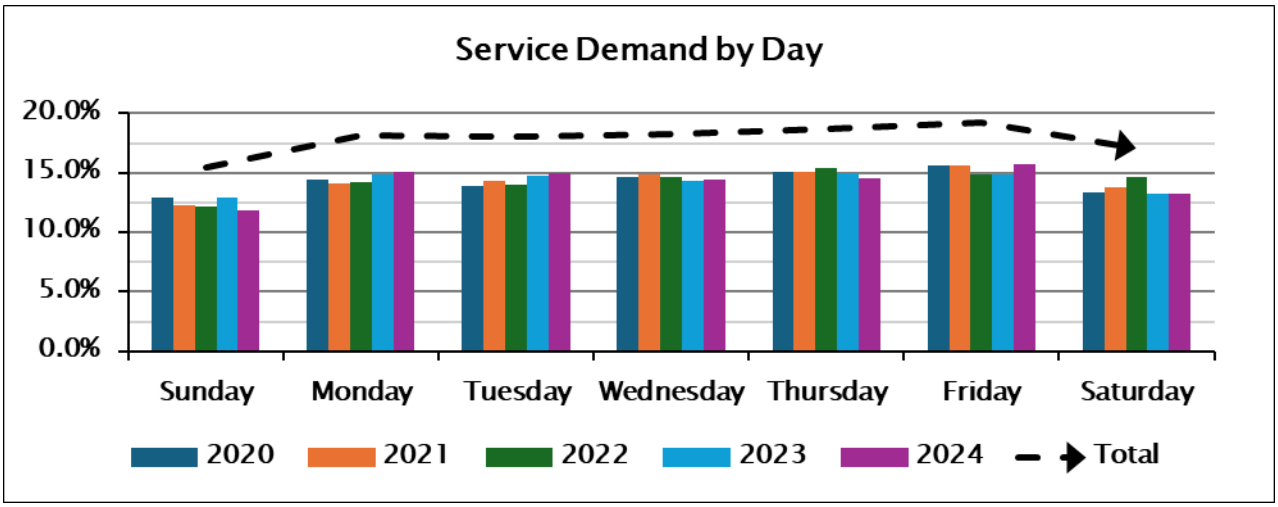
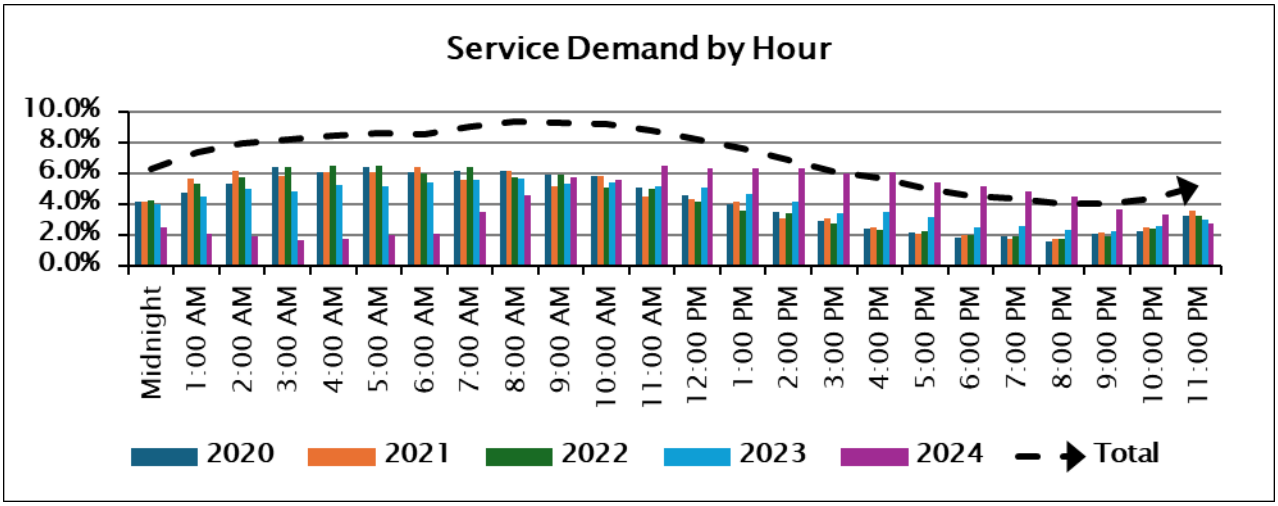


Figure 21. CDAF Service Demand by Hour, 2020–2024



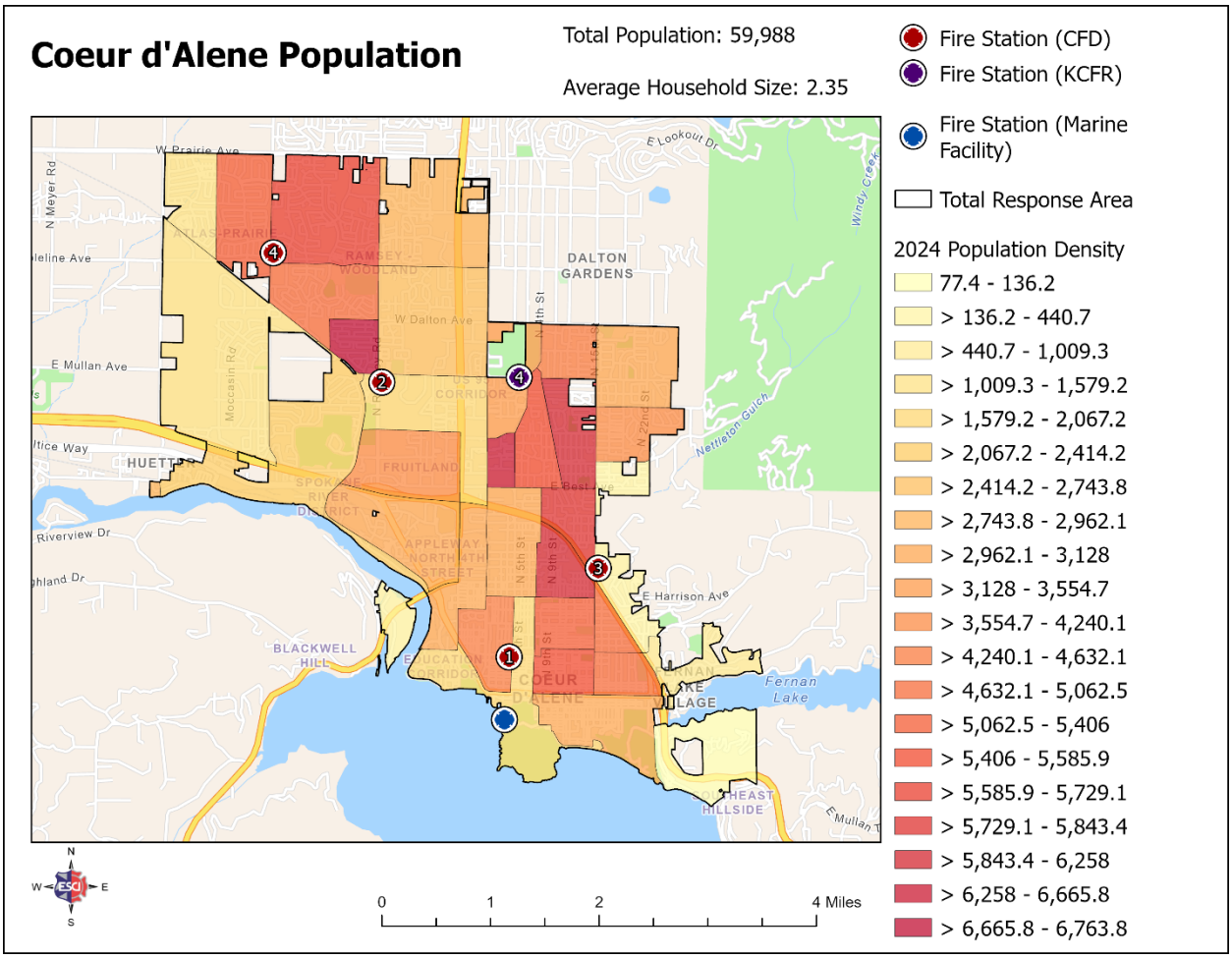
One additional note regarding the time of day: a recent national study from 2018 to 2020 found that residential structure fires with fatalities occurred most often between midnight and 1:00 AM. The eight-hour peak period (11:00 PM to 7:00 AM) accounted for 45% of residential fatal fires[1]. ESCI notes that 2024 has a typical distribution found in similar communities. However, the period from 2020 to 2023 appears to be an outlier and may be the result of a timestamping anomaly in the data.

[1] *Fatal Fires in Residential Buildings (2018–2020)*, Topical Fire Report Series Volume 22, Issue 2 /June 2022, U.S. Department of Homeland Security, U.S. Fire Administration, National Fire Data Center.

Geographic Analysis

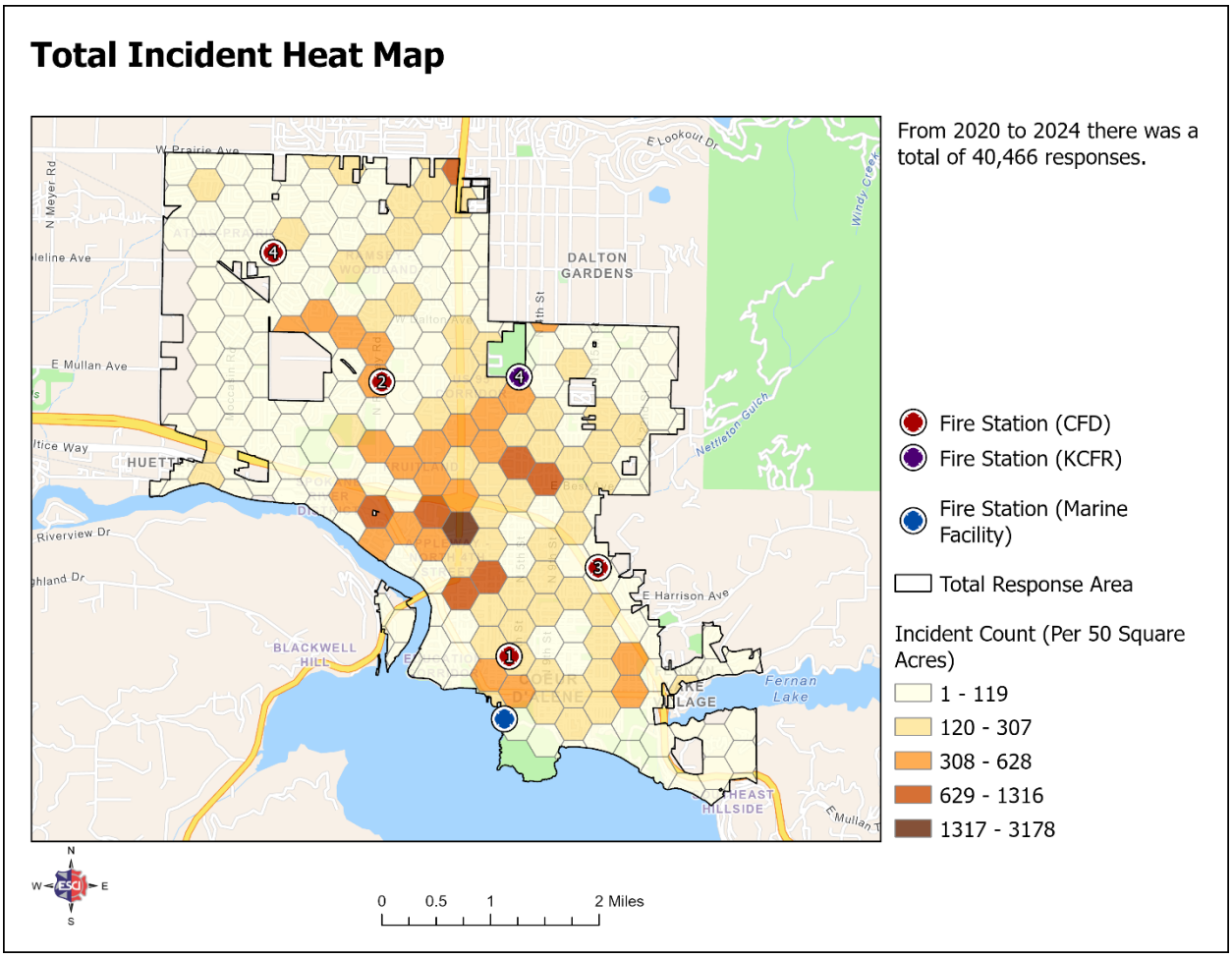
The location of incidents is closely related to the community's population density. In other words, where population density (the number of people per unit area, such as a square mile) is higher, incident density tends to be higher. Heat maps are used to display this information. To compare the initial relationship between incidents and population, the first piece of information needed is the population density, as illustrated in the following figure.

Figure 22. CDAF Population Density, 2024



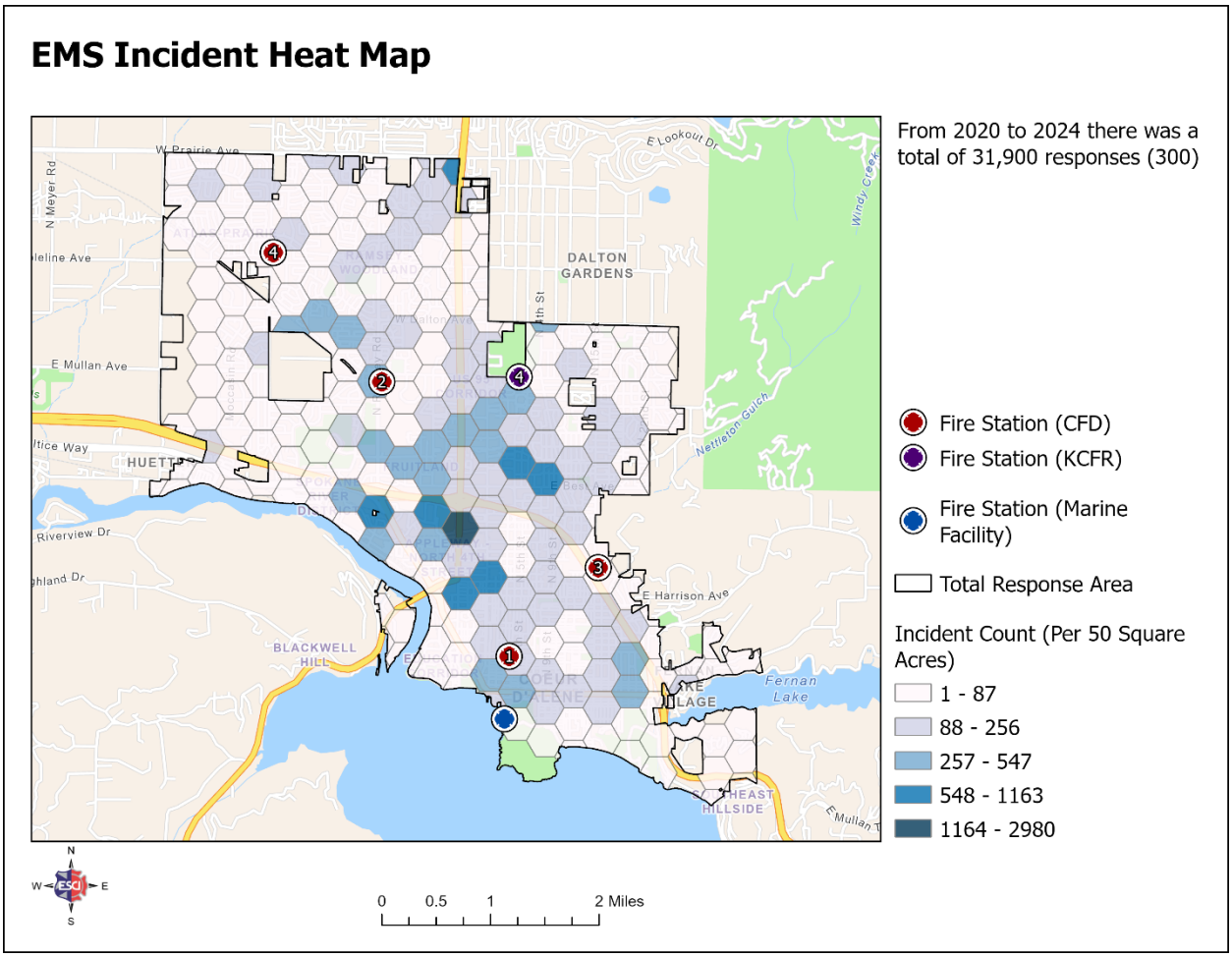
Another datapoint documented for each incident response is the incident location, either by address or by latitude and longitude. The first view of incident density includes all responses within the service area, regardless of incident type, as illustrated in the following figure. It should be noted that the incident counts in the incident density figures may vary from those in the incident type analysis figures. Incident type analysis encompasses all incidents, regardless of location or whether a valid latitude/longitude is provided, whereas incident density only includes incidents within the service area that have a valid latitude/longitude.

Figure 23. CDAF Incident Density (All Incidents), 2020–2024



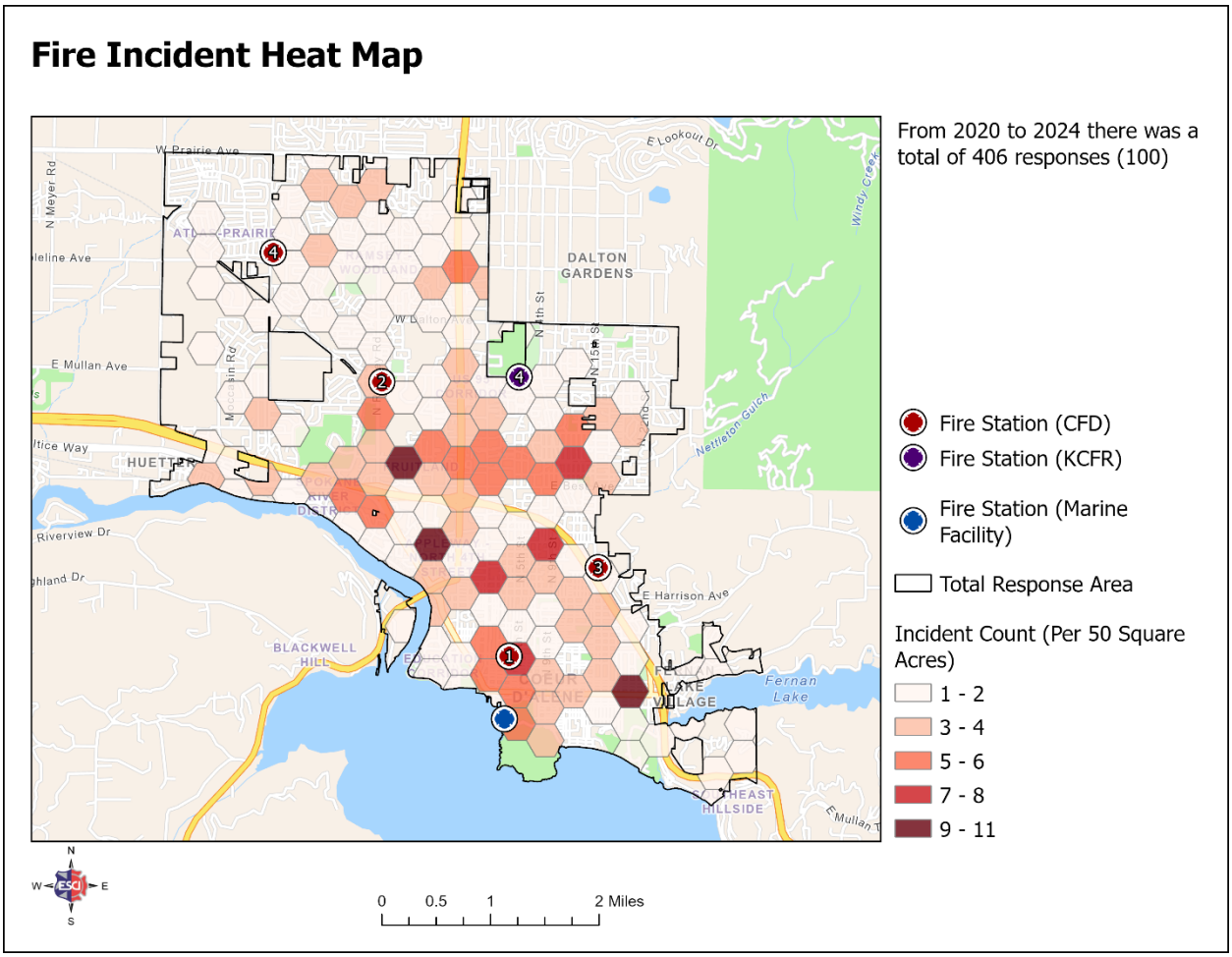
The second view of incident density includes only emergency medical services incidents, as illustrated in the following figure.

Figure 24. CDAF Incident Density (EMS), 2020–2024



The third view of incident density includes only fire incidents, as illustrated in the following figure.

Figure 25. CDAF Incident Density (Fire), 2020–2024



Resource Distribution Analysis

The placement of emergency services resources within the community should be aligned with incident density and guided by industry standards and best practices.

ISO Distribution

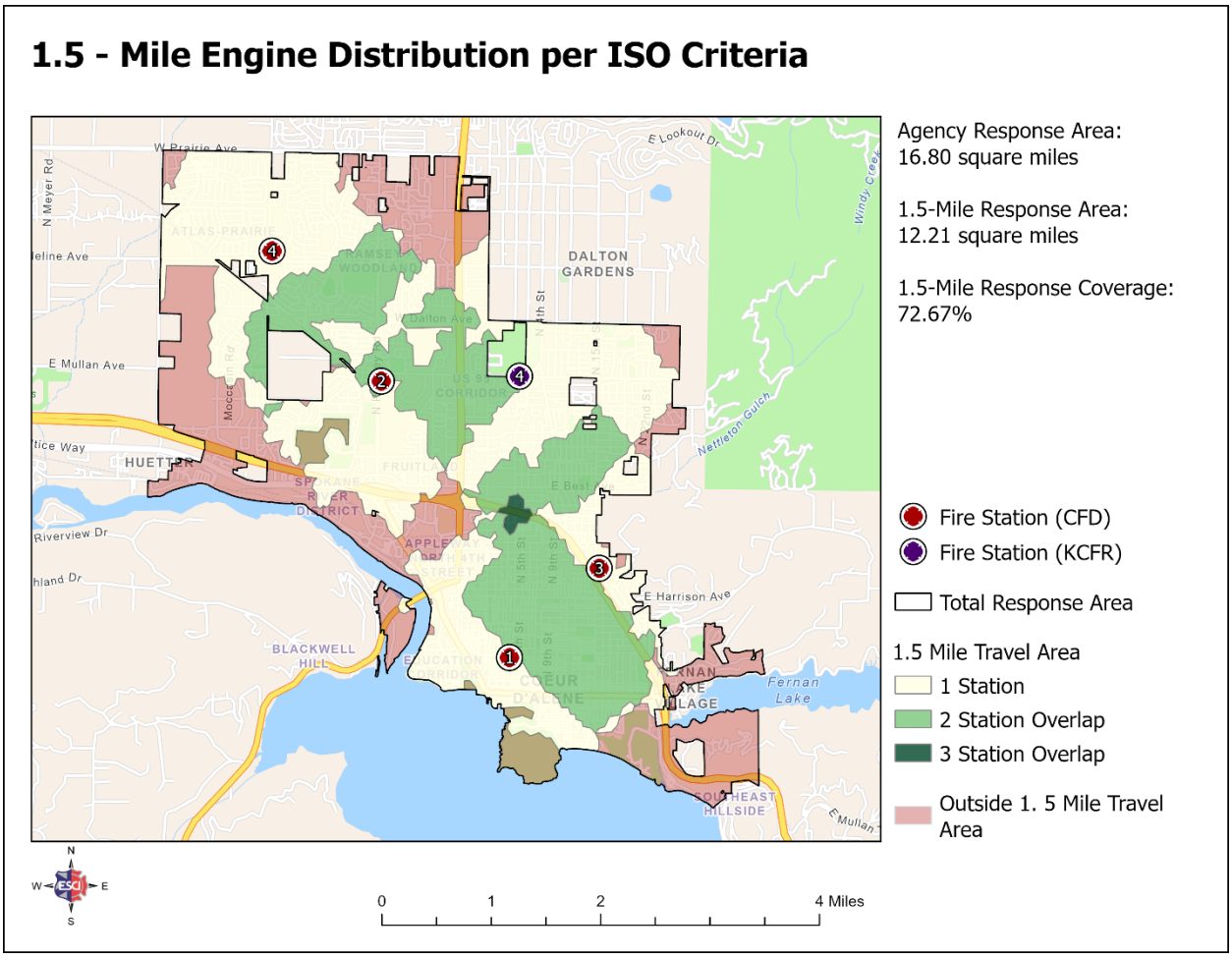
The Insurance Services Office, Inc. (ISO) is a national organization within the insurance industry that evaluates fire protection for communities across the country. A community's ISO rating is an important factor when considering fire station and apparatus concentration, distribution, and deployment, as there is a correlation between a community's ISO rating and the cost of fire (homeowners) insurance for residents and businesses.

To receive maximum credit for station and apparatus distribution, ISO evaluates the percentage of the community (contiguously built-up area) within specific distances of fire stations, central water supply access (fire hydrants), engine/pumper companies, and aerial/ladder apparatus.

1.5-Mile Engine Distribution

ISO's first measure is the overall percentage of the service area that lies within a 1.5-mile travel distance of the first-due fire engine from a fire station, as illustrated in the following figure.

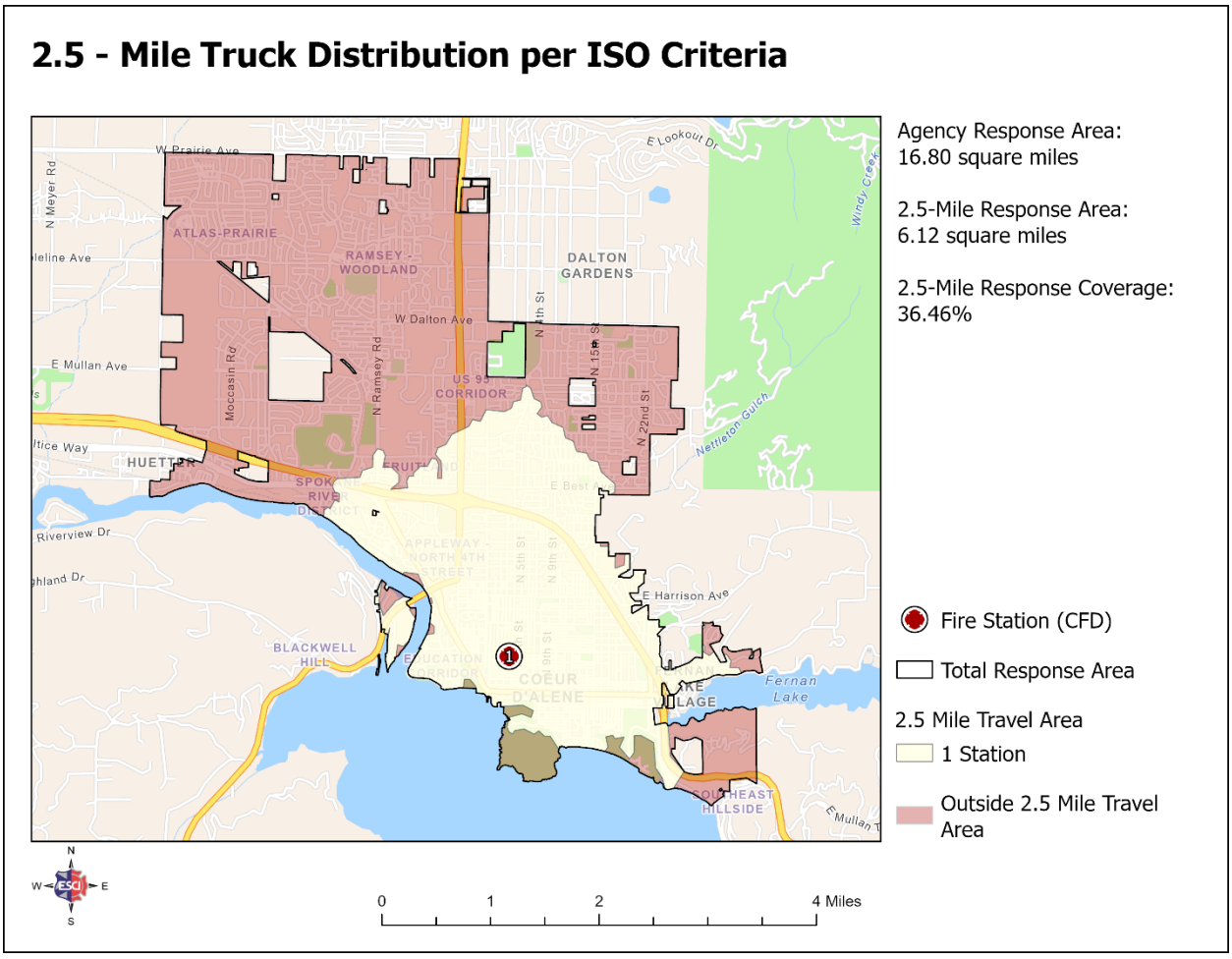
Figure 26. CDAF 1.5-Mile Engine Distribution



2.5-Mile Aerial Distribution

ISO's second measure is the overall percentage of the service area that lies within a 2.5-mile travel distance of the first-due aerial apparatus from a fire station, as illustrated in the following figure.

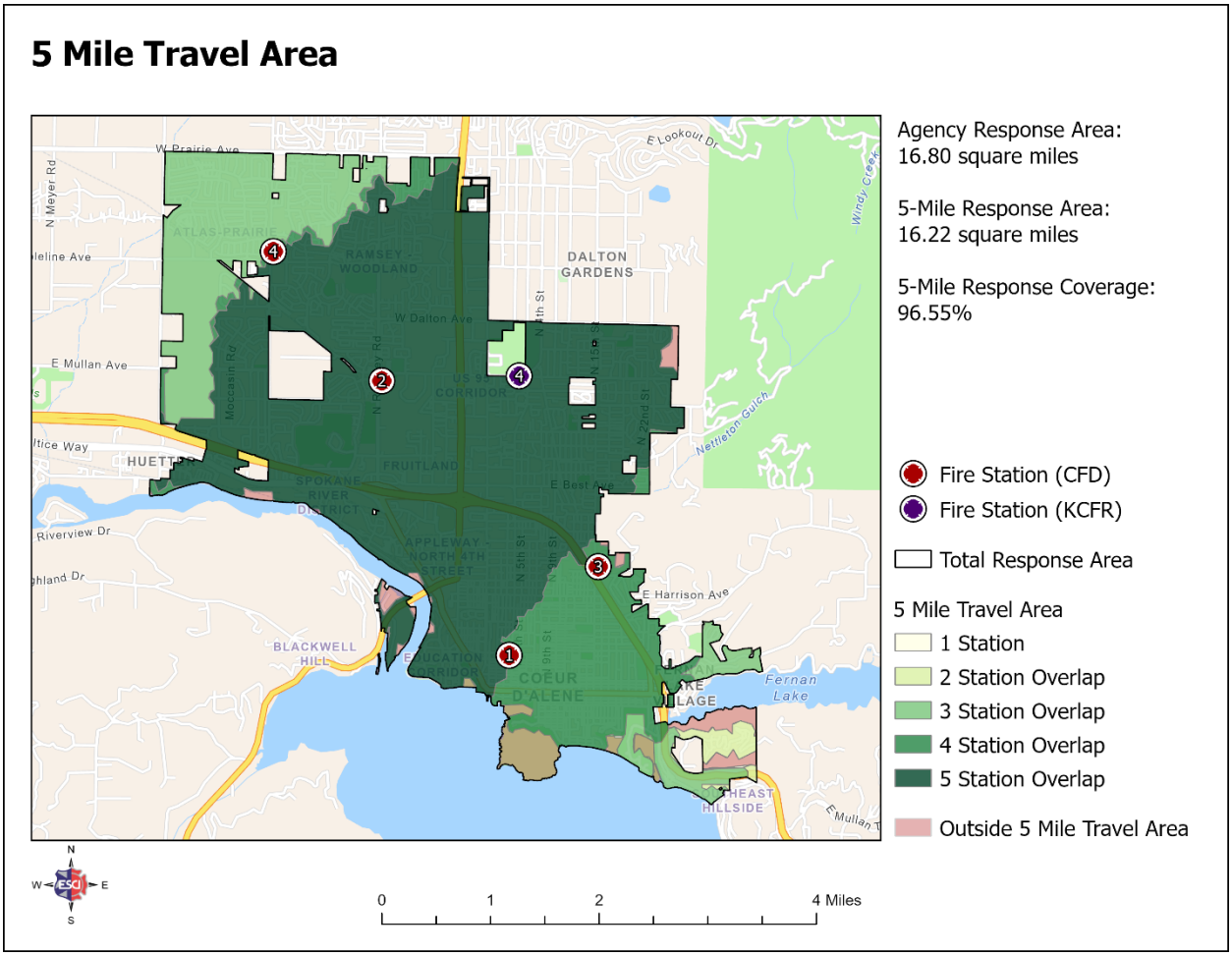
Figure 27. CDAF 2.5-Mile Aerial Distribution



5-Mile Distribution

ISO's third measure is the overall percentage of the service area within a 5-mile travel distance of a fire station, as illustrated in the following figure. Areas beyond the 5-mile travel distance may be assigned a PPC® rating of 10 (no fire department protection available).

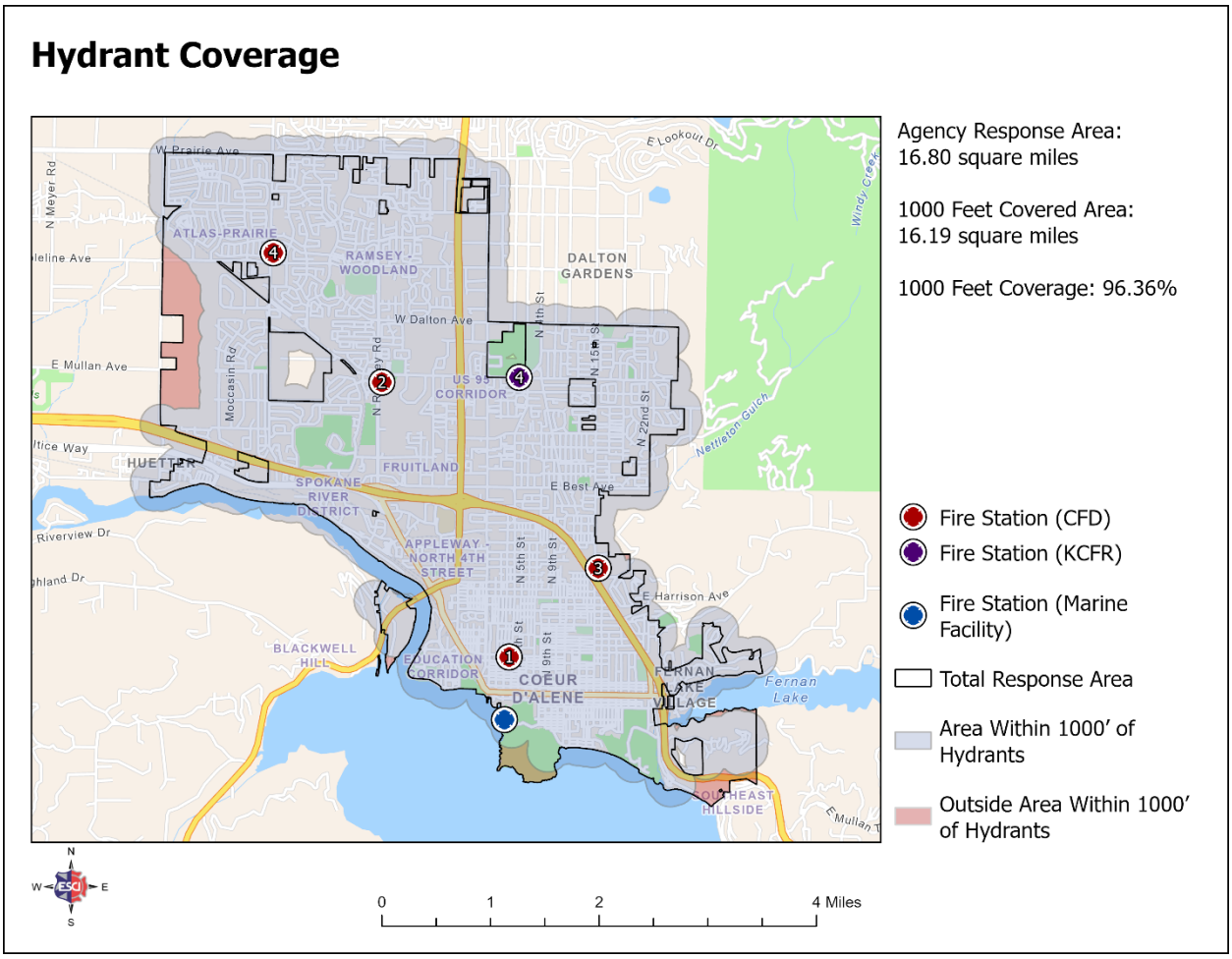
Figure 28. CDAF 5-Mile Station Distribution



Water Supply

ISO's fourth measure is the overall percentage of the service area that lies within a 1,000-foot travel distance of a fire hydrant, as illustrated in the following figure. Exceptions are made when a fire department can show that a dry hydrant or a suitable water tanker operation can provide the needed volume of water for fire suppression activities for a specific period.

Figure 29. CDAF Hydrant Distribution



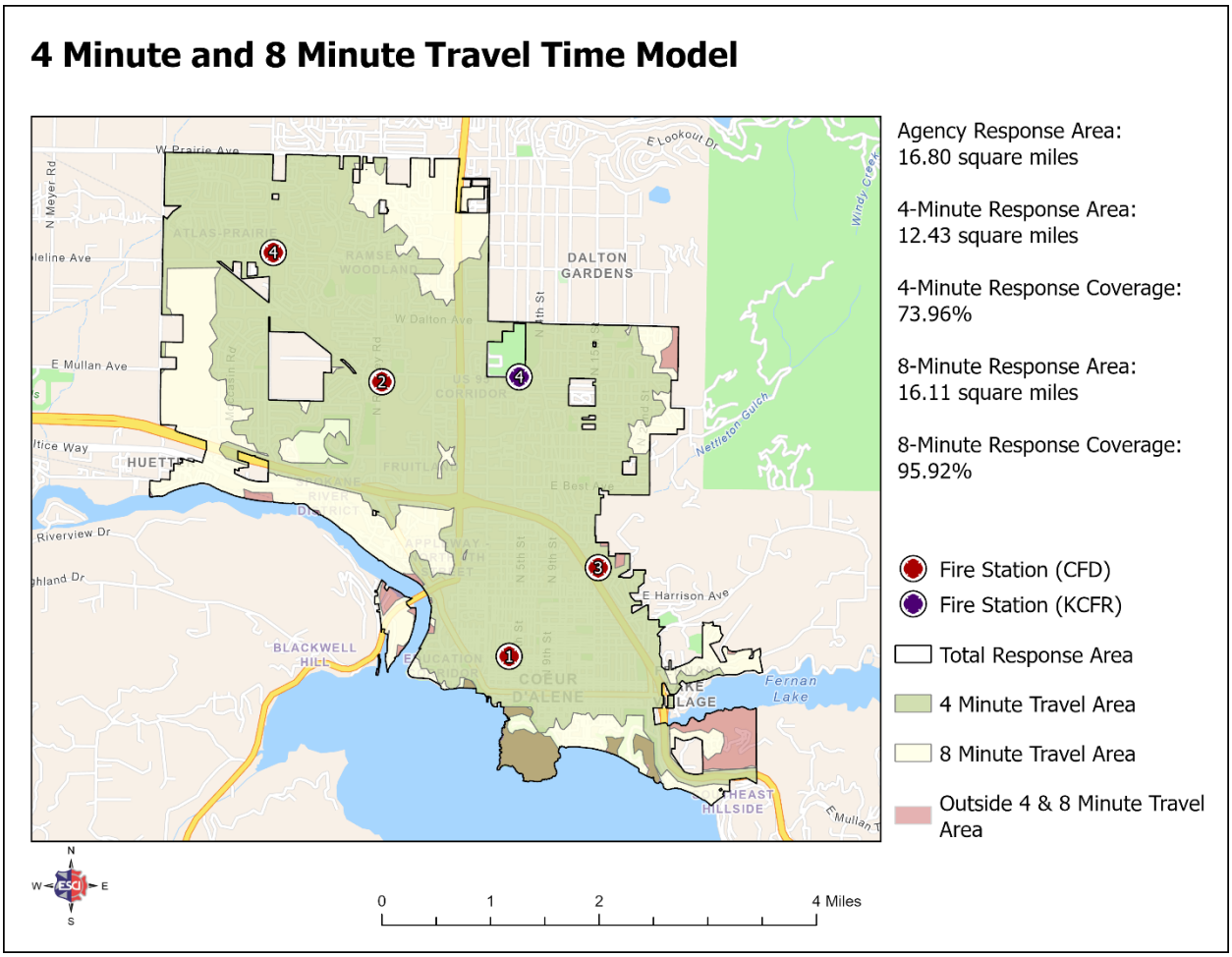
NFPA Distribution

The National Fire Protection Association (NFPA) is a trade association that develops and provides standards and codes for use by fire departments, emergency medical services, and local governments.

The standard, NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, serves as a national consensus standard for career fire department performance, operations, and safety. Within this standard, a travel time of 4 minutes, 90% of the time, is identified as the benchmark for career departments to reach emergency incidents within their jurisdiction with the first-arriving unit. Additionally, the balance of the response (the effective response force, or ERF) must arrive at the incident within 8 minutes 90% of the time.

The following figure illustrates the service areas that fall within the 4-minute and 8-minute travel times of a fire station.

Figure 30. CDAF 4-/8-Minute Travel Time per NFPA Criteria



The previous graphic provides theoretical travel times based on all units within the station at the time of dispatch. The following figure illustrates actual travel times by calendar year, grouped into 4-minute increments.

Figure 31. CDAF Travel Time Analysis, 2020-2024

Travel Time Category	2020	2021	2022	2023	2024
4 Minutes or Less	41.9%	42.1%	40.1%	41.2%	39.9%
4-8 Minutes	42.7%	41.8%	43.0%	42.4%	44.0%
8-12 Minutes	7.3%	7.7%	7.5%	7.9%	8.0%
Greater than 12 Minutes	8.1%	8.4%	9.4%	8.5%	8.2%

Resource Concentration Analysis

Each of the prior measures provided a view specifically associated with the arrival of the first unit at an incident scene. Although arriving at an incident quickly and safely is important, the ability to safely mitigate the incident is also impacted by the arrival of sufficient resources within an appropriate amount of time. The measure of this ability is called the effective response force (ERF). It ensures that sufficient personnel and resources arrive on the scene early enough to safely control a fire or mitigate other types of emergencies before substantial damage, injury, or loss of life occurs. ERF is also commonly referred to as the "full assignment" to the incident.

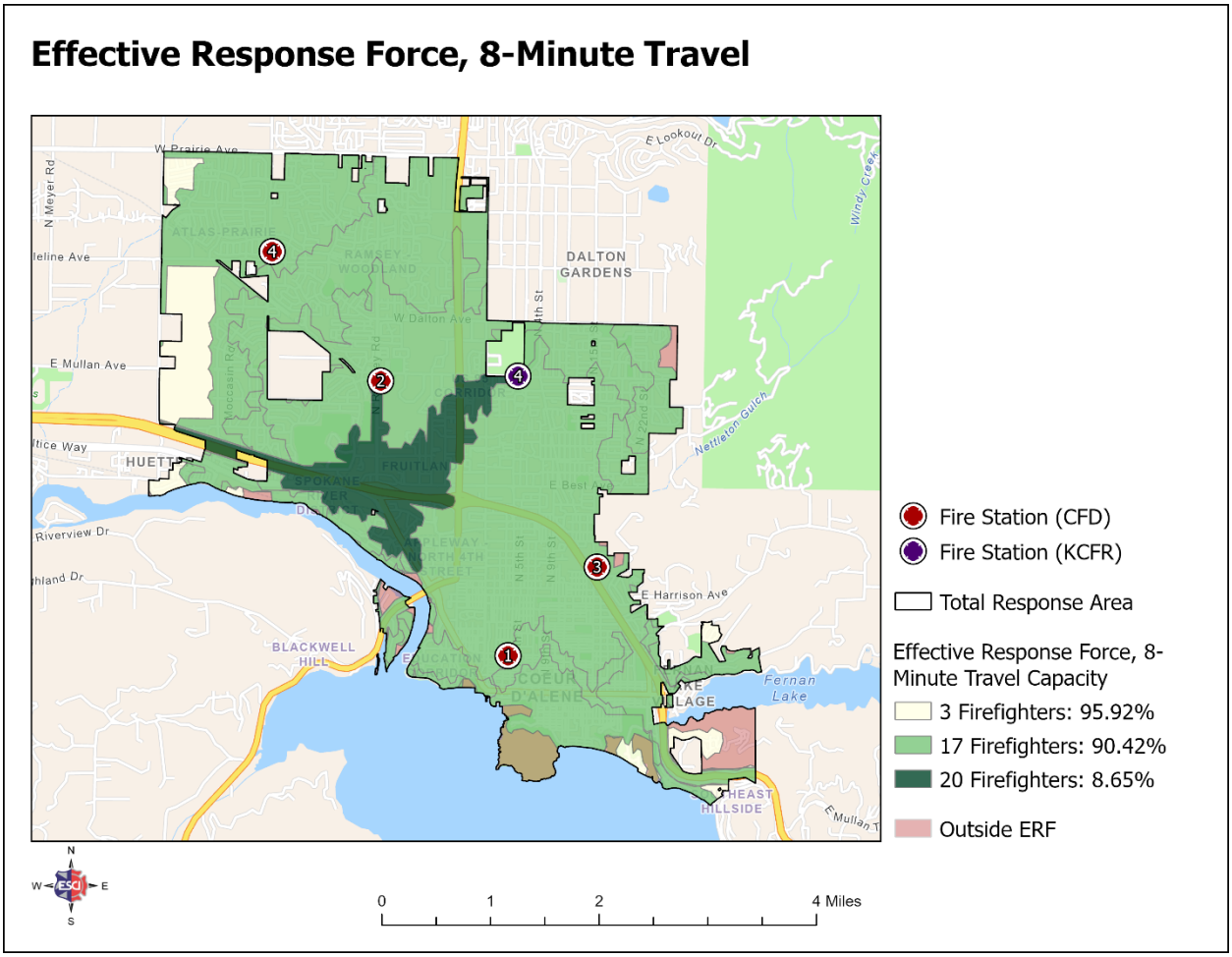
The following figure illustrates the ERF recommended through standards such as NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, as well as the Commission on Fire Accreditation International (CFAI) Standards of Cover.

Figure 32. NFPA 1710 ERF Recommendations Based on Risk

Task	Moderate Risk (Sgl. Or Dplx. Residential)	High Risk (Strip Mall or Apartment)	Extreme Risk (Multi-story or High-rise)
Command	1	2	2
Apparatus Operator	1	2	2
Handlines (2 FFs each)	4	6	4
Support Members	2	3	8
Search and Rescue	2	4	4
Ground Ladders/Ventilation	2	4	
Aerial Operator (If Deployed)	1	1	2
Initial Rapid Intervention Crew	4	4	4
Initial Medical Care Component		2	4
Building Fire Pump (If Equipped)			1
Hose Line – Floor Above Fire			2
Elevator Operations Manager			1
Incident Safety Officer			1
Interior Staging Manager			2
Member Rehabilitation			2
Vertical Ventilation Crew			4
Lobby Control			1
Total	16(17)	27 (28)	42 (43)

The following figure illustrates the number of firefighters who may arrive within 8 minutes. When responses from multiple stations overlap, the number of firefighters arriving increases.

Figure 33. CDAF 8-Minute Effective Response Force per NFPA 1710



Resource Reliability Analysis

To assess a unit's reliability in responding to incidents within its primary response area, it is essential to analyze its workload factors: the commitment factor, incident concurrency, and the first-unit-arrival percentage.

Commitment Factor

A fair measure of workload for each unit within the department is to evaluate the time assigned to incidents relative to the total time the unit is in service, known as the commitment factor. Although there are limited formal performance measures to serve as targets, in May 2016, the Henrico County (VA) Division of Fire published an article following a study of its EMS workload.[2] As a result of the study, the Henrico County Division of Fire developed a commitment factor scale for its department. The next figure summarizes the findings on commitment factors. The CDAF's leadership may use it as a basis for developing internal workload measures. These workload measures may vary based on the type of apparatus (i.e., fire engine versus transport ambulance).

Figure 34. Commitment Factors as Developed by Henrico County (VA) Division, 2016

Factor	Indication	Description
16%–24%	Ideal Commitment Range	Personnel can maintain their training requirements and physical fitness while consistently meeting response time benchmarks. Units are available to the community more than 75% of the time.
25%	System Stress	Community availability and unit sustainability are not questioned. First-due units are responding to their assigned community 75% of the time, and response benchmarks are rarely missed.
26%–29%	Evaluation Range	The community served will experience delayed incident responses. Just under 30% of the day, first-due ambulances are unavailable; thus, neighboring responders will likely exceed goals.
30%	"Line in the Sand"	Not Sustainable: Commitment Threshold—The community faces less than a 70% chance of timely emergency service, making immediate relief vital. Personnel assigned to units at or exceeding 0.3 may show signs of fatigue and burnout and may be at increased risk of errors. Required training and physical fitness sessions are not consistently completed.

[2] *How Busy Is Busy?* Retrieved from https://www.fireengineering.com/articles/print/volume-169/issue-5/departments/fireems/how-busy-is-busy.html

The following figures illustrate the commitment factors by unit. Medic 32 is the only unit with a concerning level of commitment time, although Medic 31 is approaching that mark.

Figure 35. CDAF Commitment Times (Station 1), 2020–2024

Unit	2020	2021	2022	2023	2024	Change Over Period
F3BC	2.5%	3.0%	2.7%	2.6%	2.9%	0.4%
F3L1	6.0%	6.3%	6.3%	6.3%	6.1%	0.2%
M31	19.6%	21.6%	21.3%	20.1%	21.1%	1.5%

Figure 36. CDAF Commitment Times (Station 2), 2020–2024

Unit	2020	2021	2022	2023	2024	Change Over Period
F3E2	9.8%	11.1%	11.4%	10.8%	10.9%	1.0%
M32	24.3%	25.5%	26.5%	23.6%	25.5%	1.2%

Figure 37. CDAF Commitment Times (Station 3), 2020–2024

Unit	2020	2021	2022	2023	2024	Change Over Period
F3E3	9.0%	9.5%	9.5%	9.4%	10.0%	1.0%
F3R3	0.0%	0.0%	0.1%	0.2%	0.6%	0.6%

Figure 38. CDAF Commitment Times (Station 4), 2020–2024

Unit	2020	2021	2022	2023	2024	Change Over Period
F3E4	5.0%	5.5%	6.3%	5.9%	6.7%	1.7%
M34	0.0%	0.0%	0.0%	*10.5%	*15.1%	15.1%

*Based on Medic 34 placed in service for four (4) days each week in 2023 and 2024.

Evaluation of Medic 34 In Service

Because Medic 32 and Medic 31 were approaching the evaluation range of Commitment Factors, ESCI compared the commitment factors (CFs) for Medic 32 and Medic 31 in 2024 to determine the effects when Medic 34 was in service. In this analysis, it is essential to note that the datasets used for comparison are two distinct datasets (Medic 34 in service vs. Medic 34 out of service); therefore, the time commitment of each dataset will differ from the previous time commitment factors in Figures 35–38. The datasets are fundamentally different and not directly comparable.

The following figure shows that Medic 32's CF is reduced by 5%, and Medic 31's CF is reduced by 2%. By placing Medic 34 in service 24 hours a day, seven days a week, it better positions Medic 31 and Medic 32 toward a more sustainable path, while also balancing the workload among the three medic units.

Figure 39. Medic 34 Effect on Commitment Factors

Unit	M34 In Service	M34 Not In-Service	UHU Reduction
M31	20.5%	22.6%	-2.1%
M32	24.0%	29.0%	-5%
M34	15.1%	0.0%	N/A
Hours	6,000	2,784	
UHU/Commit Time (All Incidents)			

Response Zone Coverage by Response Zone Units

Ideally, incidents within each fire station response zone (or planning zone) would receive initial services from a unit primarily responsible for that zone (usually the closest unit). Following the same concept as the commitment factor, although no formal standard exists, this should occur for more than 75% of incidents, allowing for units that may already be committed to other calls or for the first-arriving unit responding from another station. Although this is not a specific standard, it serves as a starting point for CDAF's leadership to consider when evaluating unit reliability and identifying potential resource needs. The following figure illustrates the percentage of times that the primary responsible unit for a zone was the first to arrive on a call in that zone.

Figure 40: CDAF Zone Unit First Arrival, 2020-2024

Zone	2020	2021	2022	2023	2024
Station 1	73.7%	76.3%	77.1%	76.8%	72.6%
Station 2	74.8%	75.8%	76.0%	74.8%	75.6%
Station 3	88.0%	90.6%	88.8%	87.5%	86.7%
Station 4	88.2%	90.1%	89.7%	80.6%	80.4%

Response Performance Analysis

The speed at which a unit arrives at the scene of a caller's emergency is a key factor in how they evaluate the services provided. Industry standards and best practices recommend that departments regularly monitor this performance (total response time), as well as the component benchmarks, as illustrated in the following figure.

Figure 41. Total Response Time Components

In analyzing response performance, ESCI aligns with national standards and best practices, generating percentile-based time performance metrics. Percentile measurements are a more accurate way to measure compliance with performance standards. A 90th percentile measurement means that 10% of the values are greater than the stated value, and the remaining 90% are within the stated standard. This can be used as a performance objective to determine the degree of success in achieving the goal.

As this report discusses the response performance analysis, it is essential to note that the performance of each component is not cumulative. Each is analyzed as an individual component, and the point at which the percentile is calculated exists in a set of data unto itself. Each of the following analyses only included those incidents where the response was coded as "emergency" priority.

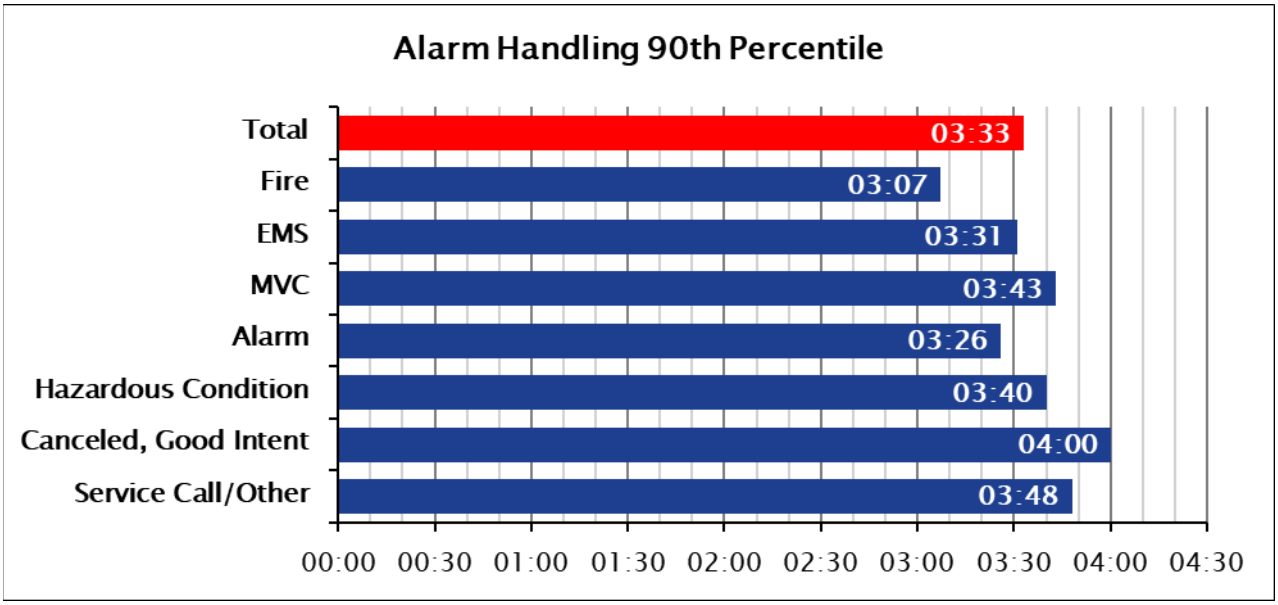
Alarm Handling Time

The time between answering the 911 call and dispatching resources is known as alarm handling time. For this measure, there is one applicable standard as illustrated in the following table.

Standard	Performance
NFPA 1225: *Standard for Emergency Services Communications* (2022 Edition)	60 seconds at the 90th percentile

The following figure illustrates the CDAF's performance in processing 911 calls. It should be noted that this analysis included a limited number of incidents, as the 911 call time was not documented within the reporting system for the majority of incidents.

Figure 42. CDAF Alarm Handling Time Performance, 2020–2024



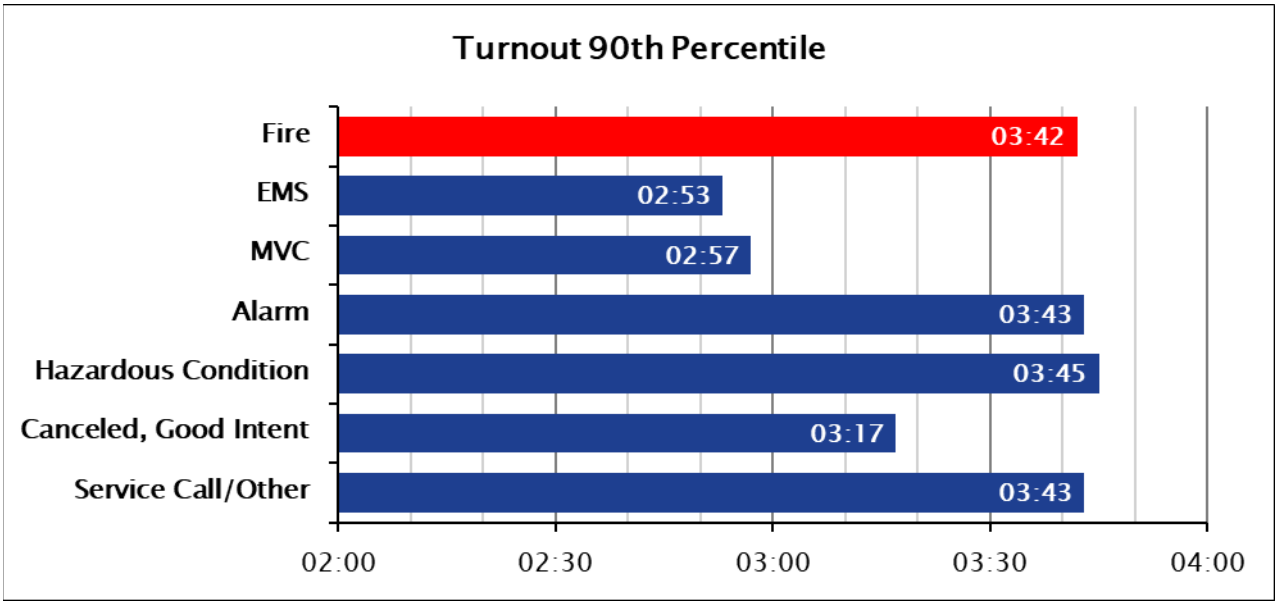
Turnout Time

The time between notifying the fire department (dispatching) and the first unit going en enroute is known as the turnout time. The following table summarizes the standard.

Standard	Performance
NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*	Fire and Special Operations Incidents 80 seconds at the 90th percentile All Other Incidents 60 seconds at the 90th percentile

The following figure illustrates the time to arrival for the first-responding units. The average performance is 3 minutes, 42 seconds. The performance ranges from 2 minutes, 53 seconds to 3 minutes, 45 seconds. The data show that improvements are needed to reduce the turnout time.

Figure 43. CDAF Turnout Time Performance, 2020–2024



Actions to Consider

As this is the first measure under the fire department's direct control, leadership may review the actions within this measure and determine whether there are areas where process changes could improve performance. These factors include:

- Systems used to notify personnel of an incident.
- Station design as it relates to the movement of personnel from living quarters to the apparatus bay.
- Personnel adherence to department policies and acting with appropriate speed toward the apparatus.
- Time required to don protective equipment before responding.
- Moving equipment between apparatus when units are cross-staffed.
- Time from starting the apparatus until the radio system is capable of transmitting or the mobile data terminal can transmit data.

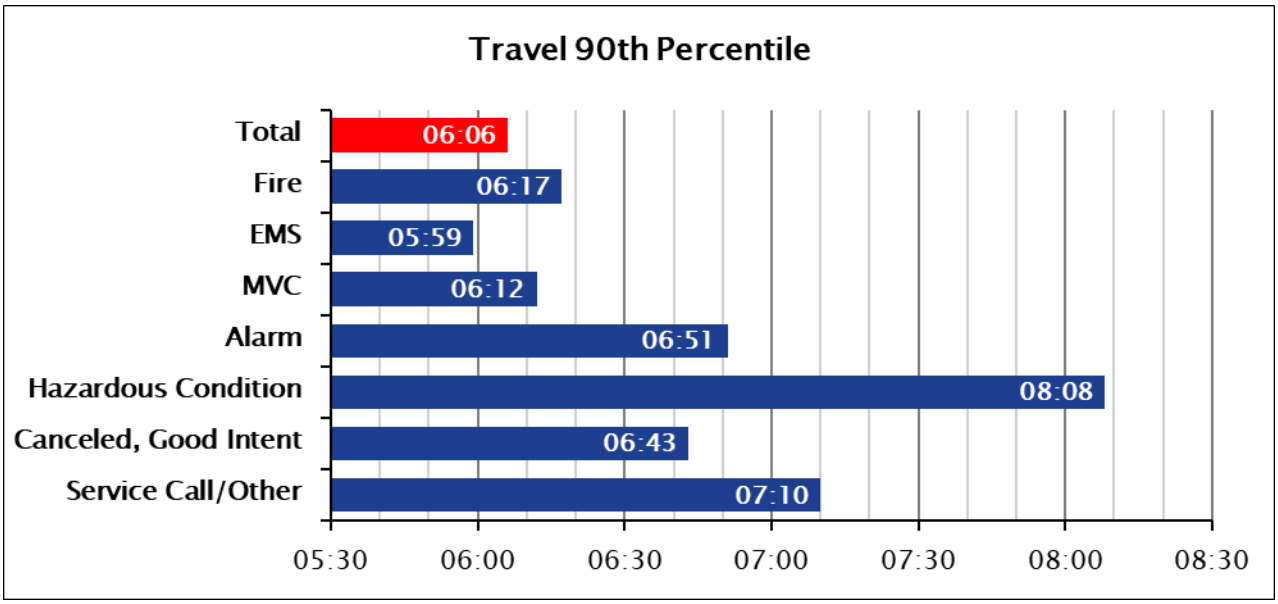
Travel Time

The time between the apparatus moving toward the emergency scene and its arrival is known as travel time. For this measure, there is one applicable standard as illustrated in the following table.

Standard	Performance
NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*	4 minutes at the 90th percentile

The following figure illustrates the travel time for the first-responding units. The recommended travel time is 4 minutes, and the data indicate an average performance of 6 minutes, 6 seconds. The spread in travel time is significant, ranging from 5 minutes, 59 seconds to 8 minutes, 8 seconds. Travel time is a function of the road network, distribution of fire stations, and traffic congestion. Data entry errors may contribute to the spread in travel times.

Figure 44. CDAF Travel Time Performance, 2020–2024



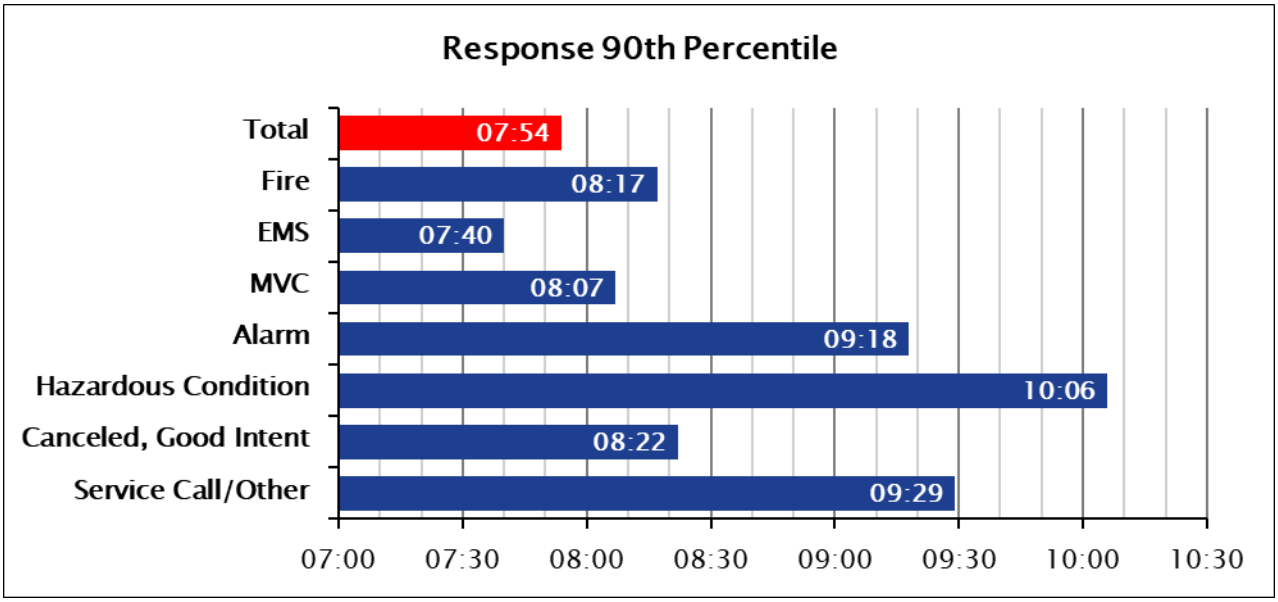
Response Time

The time between dispatching units and their arrival at the emergency scene is known as response time. For this measure, there is no specific applicable standard. However, by combining the individual component standards, the table below illustrates the expected performance.

Standard	Performance
Turnout Time	Fire and Special Operations Incidents 80 seconds at the 90th percentile All Other Incidents 60 seconds at the 90th percentile
Travel Time	4 minutes at the 90th percentile
Combined	Fire and Special Operations Incidents 5 minutes, 20 seconds at the 90th percentile All Other Incidents 5 Minutes at the 90th percentile

The following figure shows the response times of the first-responding units.

Figure 45. CDAF Response Time Performance, 2020–2024



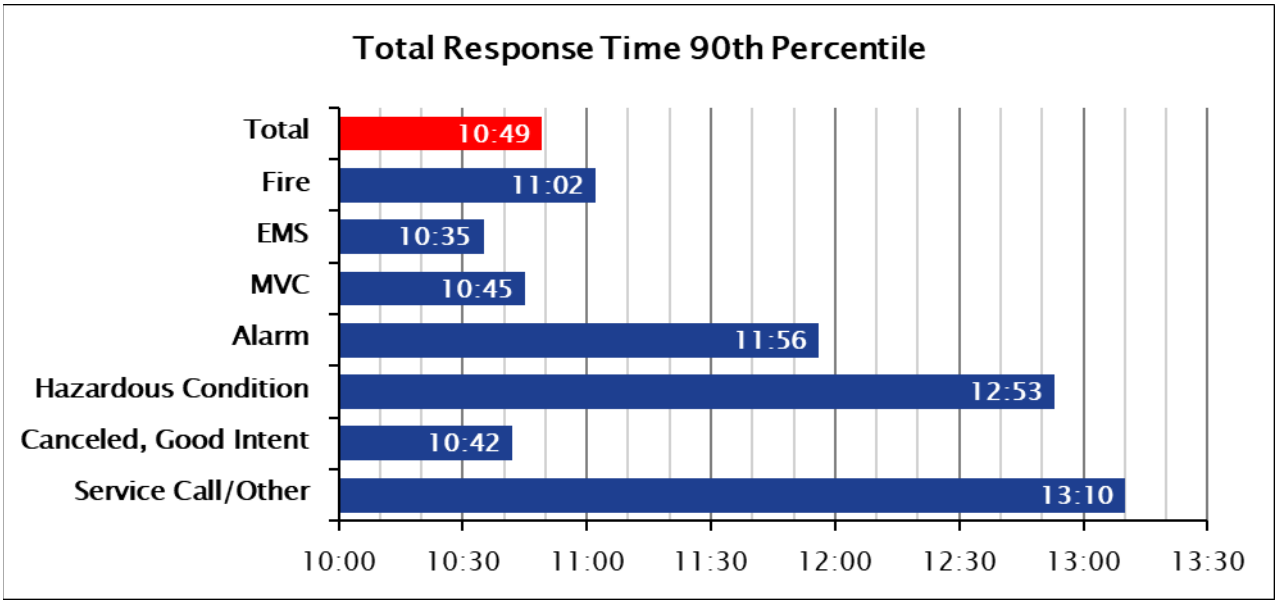
Total Response Time

The time between answering the 911 call and arriving at the emergency scene is known as the total response time. For this measure, there is no specific applicable standard. However, by combining the individual component standards, the table below illustrates the expected performance.

Component	Performance
Alarm Handling Time	60 seconds at the 90th percentile
Turnout Time	Fire and Special Operations Incidents 80 seconds at the 90th percentile All Other Incidents 60 seconds at the 90th percentile
Travel Time	4 minutes at the 90th percentile
Combined	Fire and Special Operations Incidents 6 minutes, 20 seconds at the 90th percentile All Other Incidents 6 Minutes at the 90th percentile

The following figure illustrates the total response time for the first-responding units.

Figure 46. CDAF Total Response Time Performance, 2020–2024



Mutual & Automatic Aid

Fire departments throughout the nation enter into agreements with neighboring agencies to share resources. Within an automatic aid agreement, resources from all agencies are included in an initial dispatch to the incident. Under a mutual aid agreement, outside agency resources are dispatched only upon the primary agency's verbal request through the dispatch center.

The following figure illustrates the agreements currently in place for the CDAF.

Figure 47. Automatic & Mutual Aid Agencies

Agency	Agreement Type
Kootenai County Fire and Rescue (KCFR)	Mutual
Northern Lakes Fire District (NLFD)	Mutual

As with other information, the use of automatic and mutual aid is documented within the system for each response. The following figure illustrates the use of automatic and mutual aid during the study period.

Figure 48. CDAF Aid Given/Received, 2020–2024

Description	2020	2021	2022	2023	2024
Mutual Aid Given	254	277	240	223	277
Mutual Aid Received	83	109	102	150	277

Community Risk Analysis

Vulnerable Community Data

According to Esri demographic datasets, Coeur d'Alene is a growing community with a projected increase in total households from 25,290 in 2024 to 27,561 by 2029, reflecting steady residential expansion. The city's 2024 population density of 3,444 people per square mile increases during daytime hours to 4,291, with an estimated population of 73,908 persons, likely due to commuting patterns and regional employment hubs.

The median household income is $71,125, indicating a moderately affluent population. However, 10% of households fall below the poverty level, and 3% receive public assistance, highlighting pockets of economic vulnerability. Twenty-seven percent (27%) of households include individuals with disabilities, and 1% of households lack access to a vehicle, which may influence transportation and accessibility planning.

Housing in Coeur d'Alene is predominantly owner-occupied (58%), with 42% renter-occupied and a vacancy rate of 6%. Notably, 33% of homes were built before 1980, and 53% of these homes use gas appliances, indicating a substantial need for carbon monoxide alarms in the older housing stock.

Regarding the population most vulnerable to emergencies (medical and fire), 21% of the population is 65 years of age, with the state average at 17%, and 10% is school-aged (grades 1–8). Of the residents under age 65, 9% have no health insurance.

Community Land-Use Regulations

According to the City of Coeur d'Alene's Planning Director, the area of impact for Coeur d'Alene is relatively limited, as the city has largely reached its development capacity. City planners are actively working to reduce designated growth areas within traditional city impact zones, intentionally steering clear of expanding into the eastern hills due to high infrastructure costs, heightened fire hazards, landslide potential, and significant challenges in providing essential services.

A consensus in the City of Coeur d'Alene is that future expansion will focus on infill and greenfield development, particularly in the Coeur Terre area, as well as on annexing the remaining pockets on the city's periphery. Although it is currently working internally on the new Area of City Impact (ACI), the direction thus far has been to reduce its size, with the western edge remaining largely unchanged.

Recent agenda packets and planning documents from the City of Coeur d'Alene reveal that the Planning and Zoning Commission is actively engaged in implementing and refining the City's 2022–2042 Comprehensive Plan, titled "Envision Coeur d'Alene." This strategic plan, developed over two years with input from City staff, consultants, and community stakeholders, guides future growth and development across 17 key planning elements required by Idaho law, including land use, transportation, and economic development.

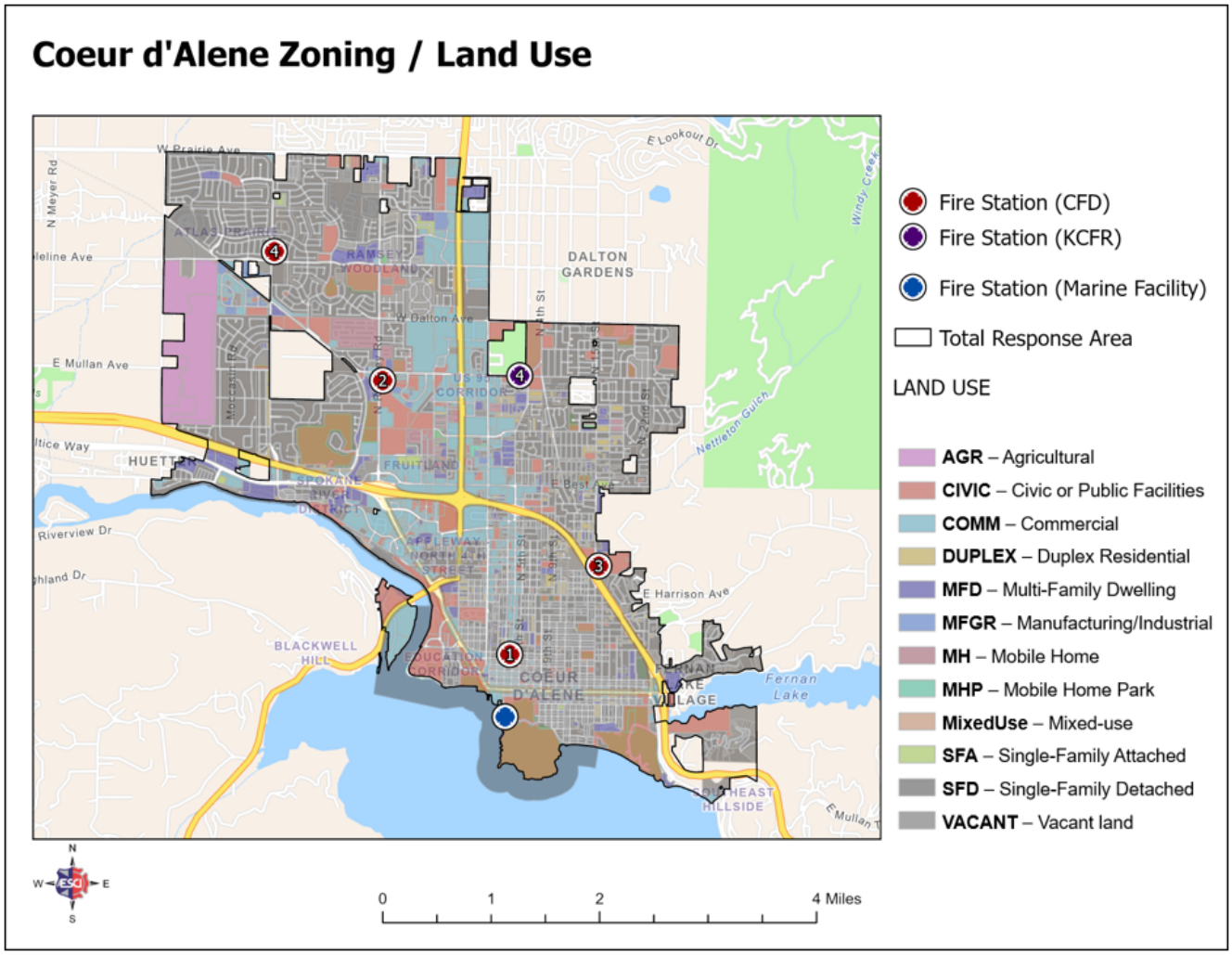
Recent meetings have focused on code amendments and land-use scenario comparisons, particularly regarding transportation impacts and economic viability. Public participation remains central to the process, with opportunities for comment and appeal built into each decision cycle.

The City of Coeur d'Alene is revising its planning and zoning policies to promote accessory dwelling units (ADUs) and address housing shortages. It now offers free, pre-approved ADU plans for single-family lots, subject to an 800-square-foot size limit, owner-occupancy requirements, parking regulations, and compliance with zoning and short-term rental rules.

Another priority is increasing residential density in existing neighborhoods through infill development, such as duplexes, townhomes, and small apartments, and through updated design standards and changing setback requirements. The City of Coeur d'Alene is also developing revitalization plans for major corridors, incorporating mixed-use zoning and pedestrian-friendly features to enhance economic growth and community health.

On the following page, Figure 49 shows its zoning/land-use areas. Significant areas of the city are zoned for commercial development, predominantly along Highway 95. The downtown business district is currently experiencing higher density and high-rise development. The continued commercial development and higher density lead to slower traffic, which, in turn, impacts the fire department's response times.

Figure 49. Coeur d'Alene Zoning/Land-Use Map



The City of Coeur d'Alene presents a diverse building risk profile across several major categories, each contributing uniquely to its total built environment of approximately 52.3 million square feet. Residential buildings account for 64.3% of the total square footage, with over 33.6 million square feet spread across 16,512 structures. This category includes single-family dwellings, multi-family units, manufactured homes, nursing homes, dormitories, and temporary lodging, indicating a substantial concentration of housing-related risk. It is worth noting that nursing homes, assisted living centers, and dementia care facilities have a significant impact on EMS services.

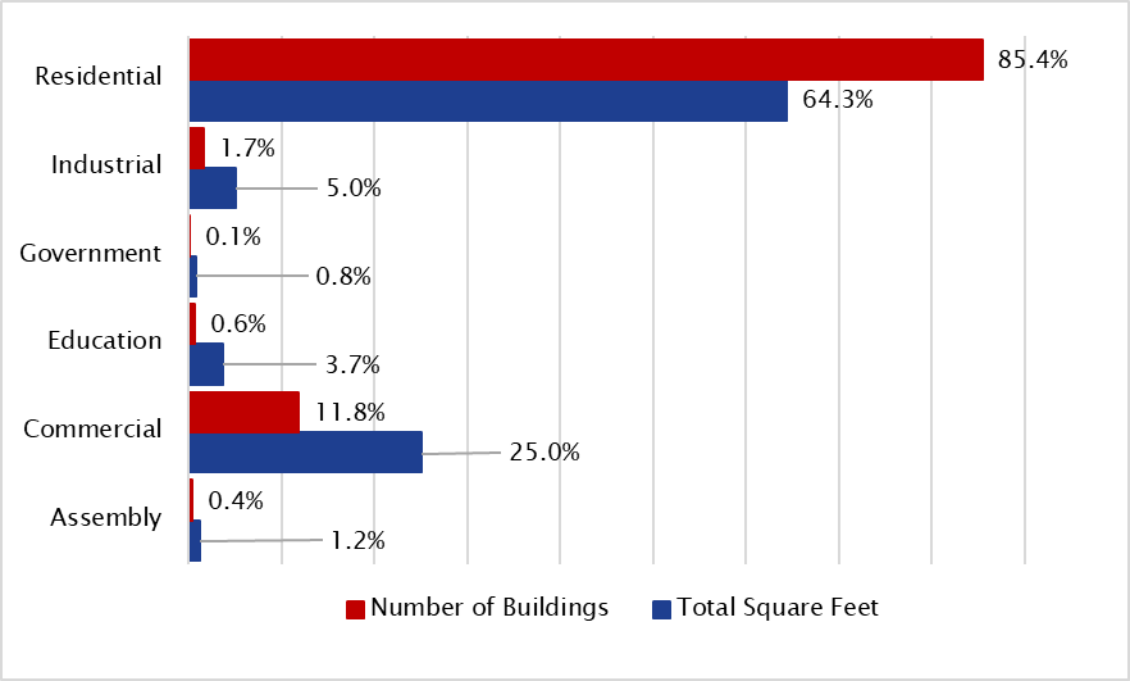
Commercial buildings represent the second-largest category, accounting for 25% of the total area and totaling 13.1 million square feet across 2,284 buildings. This category of buildings encompasses retail trade, medical offices, entertainment venues, professional services, and hospitals, representing a substantial portion of the city's economic and service-related infrastructure. Industrial structures make up 5% of the total square footage, totaling 2.6 million square feet across 321 buildings. These include heavy and light industrial facilities as well as metals and minerals processing sites, which may pose specialized risks due to their operational nature.

Educational buildings account for 3.7% and total nearly 1.93 million square feet across 115 facilities, including pre-K through 12 schools, colleges, and other educational institutions. Assembly buildings, including community centers, religious facilities, and indoor arenas, account for 1.2% of the total area, spanning 606,950 square feet across 73 buildings. These spaces often serve as gathering points during emergencies, making their structural integrity and accessibility crucial.

Finally, government buildings account for 0.8% of the total square footage, encompassing 419,820 square feet across 28 structures. These include municipal, county, and federal agencies, as well as emergency response facilities and general services, which are essential for coordination and public safety during crises.

The following page, Figure 50, provides a graphical comparison of the percentage of buildings versus total square footage by each class within the community. In some building categories, the percentage of square footage to protect may be higher than the number of buildings. This factor particularly applies to industrial and commercial buildings in Coeur d'Alene.

Figure 50. Comparison of Percentage of Buildings versus Square Feet



Fire protection resource planning involves considering worst-case scenarios and developing mitigation strategies to address potential risks and hazards. Resource assignments are sometimes based on the amount of fire flow required for the building. Using USA Structures data, the following figure shows the largest buildings by type, square footage, and fire flow, assuming the buildings are not sprinklered. Additionally, it shows the fire flow assuming the building is fully sprinklered. Both values are provided, as no data is available on which buildings are sprinklered.

Figure 51. Largest Building by Type: Square Footage & Fire Flow

Building Type	Building Square Feet	Fire Flow Non-Sprinklered	Fire Flow Sprinklered
Assembly	50,811	16,937	4,234
Commercial	343,672	114,557	28,639
Education	202,192	67,397	16,849
Government	80,793	26,931	6,733
Industrial	142,389	47,463	11,866
Residential	66,161	22,054	5,513

Natural & Manmade Hazards

The 2024 Kootenai County Emergency Operations Plan Hazard Risk Ranking identifies the top five community risks. The event risk score is calculated as the probability factor multiplied by the sum of the weighted impact factors. Impact factors include historical frequency, potential severity to the population and infrastructure, and community concern. These factors help determine overall risk and inform preparedness strategies.

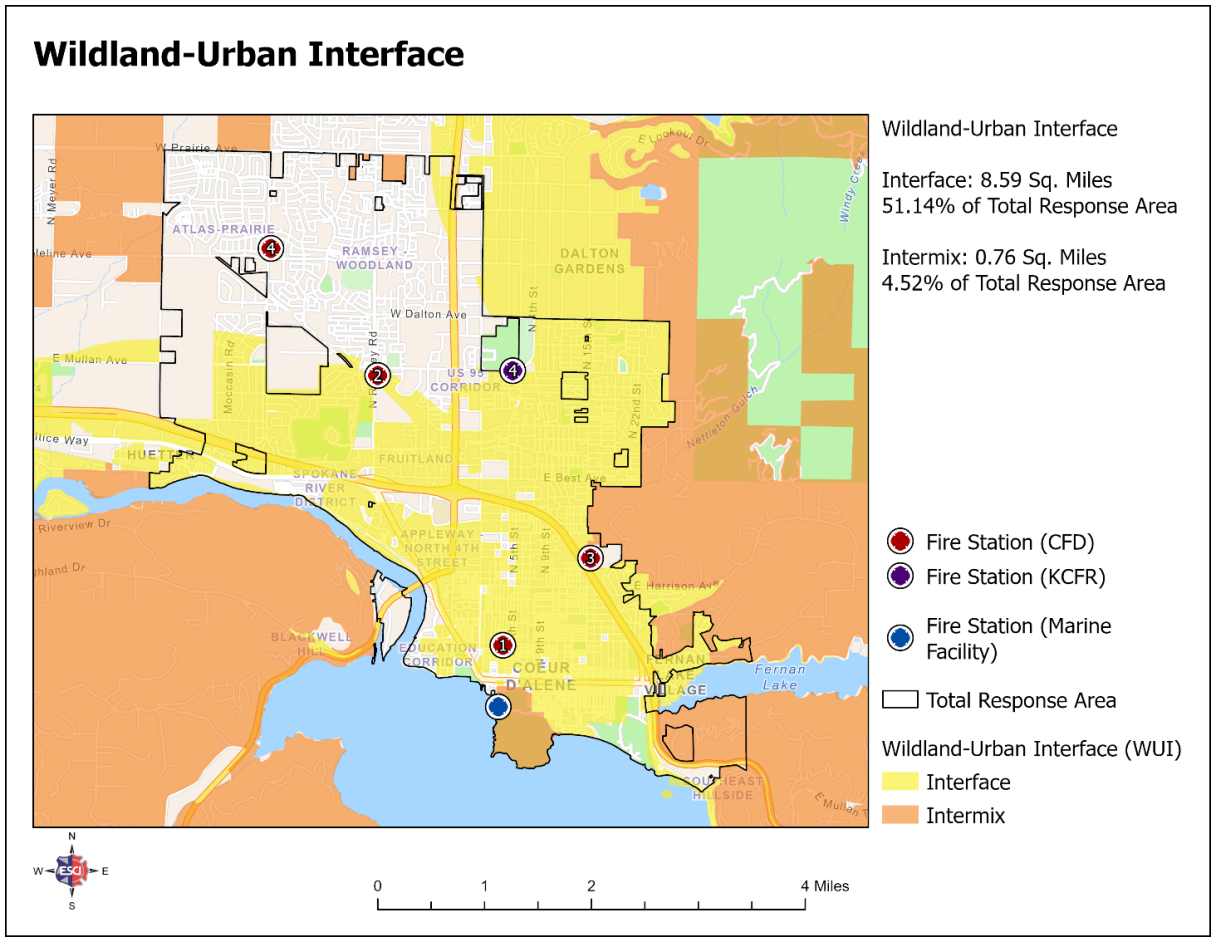
Wildfire (Score 72)

Wildfires are identified as the most significant threat to the region due to Kootenai County's extensive wildland–urban interface and intermix zones. Dry summers, dense forests, and increasing development near wildlands heighten the risk. The interface zone is the area where urban or suburban development directly abuts wildland vegetation.

The intermix zone is characterized by the scattering of structures throughout wildland vegetation, with no clear boundary between developed areas and natural ones. Unpredictable fire behavior necessitates a large number of firefighters, specialized equipment, and mutual aid, all of which demand coordination among agencies. Emergency services must oversee evacuations, protect infrastructure, and maintain communication, often resulting in disruptions to routine operations and staff fatigue due to long hours.

The following page, Figure 52. WUI Interface and Intermix Zones illustrate the identification of interface and intermix zones within and adjacent to Coeur d'Alene. This map, hosted on Esri's platform, was developed in collaboration with the United States Forest Service and the United States Fire Administration.

Figure 52. WUI Interface and Intermix Zones



Wildfires often exceed a local jurisdiction's capacity, requiring agencies to obtain assistance from within their county and from adjacent counties through the use of automatic and mutual aid agreements. In such cases, the State is asked for support, after which it assesses the situation and dispatches regional resources, and may also request help from the Federal Government. To initiate the request when local resources are exhausted, Idaho Code sec. 46-1011(1) dictates that only a Mayor or the Chairman of the County Commissioners can officially declare a local disaster emergency in their area. Once declared, the emergency status can last up to 7 days unless the local government board agrees to extend it. The declaration must be made public promptly and filed with the County Recorder to take effect. [3]

[3] Section 46-1011 - Idaho State Legislature

Winter Weather (Score 60)

Heavy snow, ice storms, and extreme cold pose a recurring hazard that can disrupt transportation, utilities, and emergency services. Major accidents can occur on freeways, highways, and the secondary street network. Snow-covered roads and icy conditions delay response times and complicate access to emergency scenes, while freezing temperatures challenge equipment reliability and personnel endurance. EMS calls surge due to cold-weather-related injuries and illnesses, and staffing becomes more difficult as travel and fatigue take their toll.

Flooding (Score 54)

Particularly in areas near rivers, lakes, and low-lying zones, flooding is a persistent concern. Kootenai County actively participates in the National Flood Insurance Program and has implemented floodplain management strategies. Flooding is a significant issue in Coeur d'Alene due to its proximity to Lake Coeur d'Alene and the Spokane River. The CDAF manages emergencies like water rescues, evacuations, and medical incidents. Floodwaters can block roads and damage infrastructure, limiting access for response teams. As a result, fire crews must use boats, high-clearance vehicles, and protective gear to access incident scenes and operate safely.

Windstorms (Score 51)

High winds can cause widespread damage to infrastructure, trees, and power lines. Windstorms pose significant challenges for Coeur d'Alene's emergency services, particularly the CDAF, which must respond promptly to incidents such as downed power lines, fallen trees, damaged buildings, and blocked roads. These events can hinder access and create hazards for both responders and the public.

During windstorms, emergency calls increase, covering a range of issues, from electrical shorts that cause fires to injuries from flying debris. Disrupted communication systems and power outages further complicate operations, requiring backup plans. Secondary dangers, such as wildfires or gas leaks, often arise and demand swift action in collaboration with other agencies.

Cyber Disruption or Attack (Score 41)

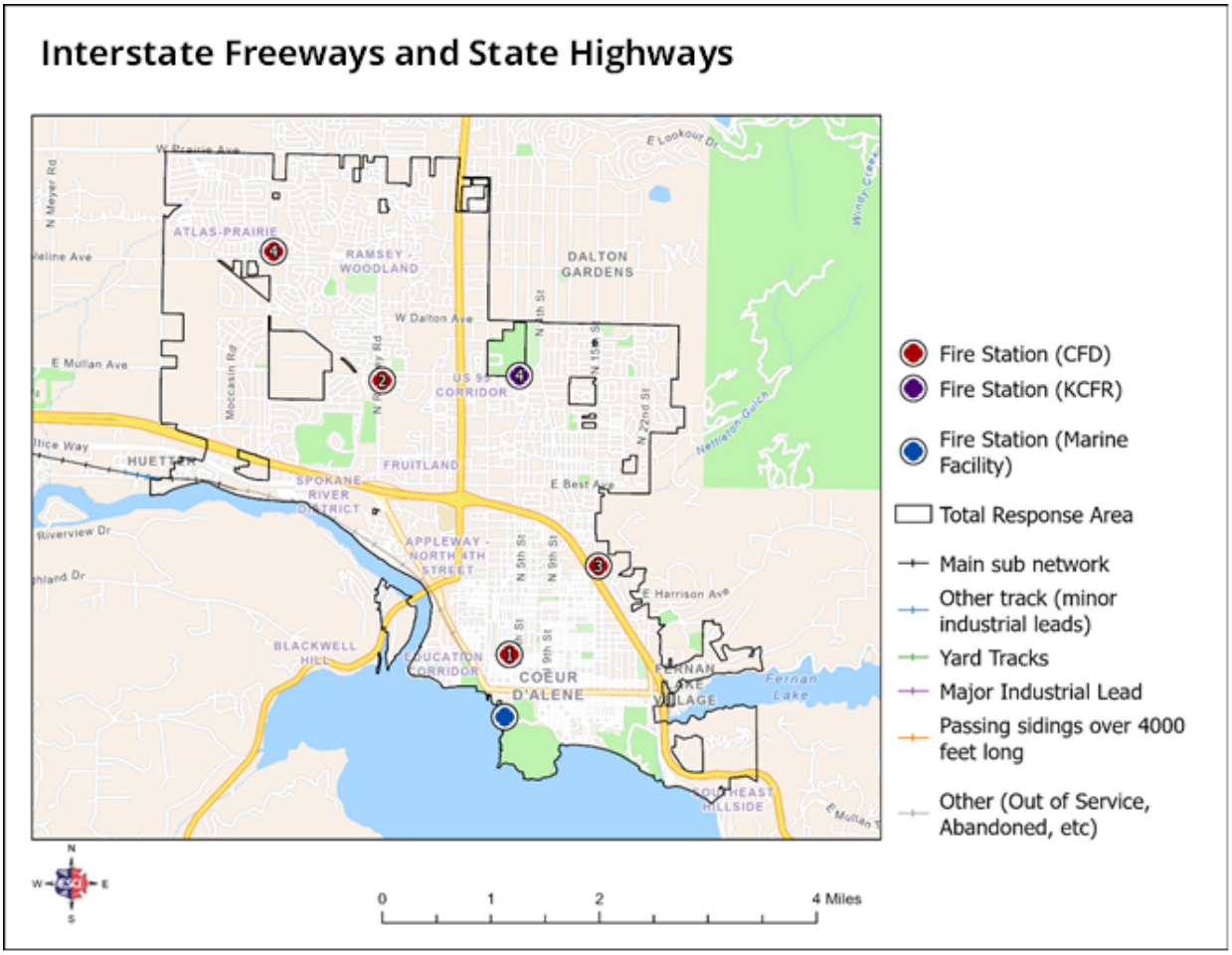
Growing human-caused threats, such as cyberattacks on public infrastructure, utilities, and emergency systems, are increasingly recognized in Kootenai County's hazard planning efforts.

In February 2024, the City of Coeur d'Alene experienced a significant ransomware attack, forcing officials to shut down computer networks and temporarily disrupting many municipal operations, including access to City records and non-emergency communications. Although emergency services remained available, the incident led to the breach of sensitive personal information for over 100 individuals. The City responded quickly by launching an investigation with cybersecurity experts, notifying the affected individuals, and offering complimentary identity monitoring services. After restoring its systems, the City of Coeur d'Alene strengthened its cybersecurity measures by implementing new tools, resetting passwords, and upgrading infrastructure to guard against future threats—an effort that underscores the growing risks cities face from cyberattacks.

Transportation Routes

Highways & Freeways

Interstate 90 (I-90): This is the primary east-west freeway running through Coeur d'Alene. It connects the City to Spokane, Washington, to the west and Missoula, Montana, to the east. Interstate 90 is a vital corridor for regional commerce, tourism, and daily commuting. Dangers include hazardous-material spills and high-speed collisions, especially during winter, when snow and ice reduce traction and visibility. Emergency services face challenges in quickly accessing crash sites due to traffic congestion and limited shoulder space in some areas. The following figure shows the transportation network within and adjacent to the city.



U.S. Route 95 (US-95): Running north-south, US-95 intersects with I-90 in Coeur d'Alene and continues north toward Sandpoint and the Canadian border, and south toward Lewiston and Boise. It serves as Idaho's main north-south highway. It is crucial for freight and long-distance travel, which increases the risk of multi-vehicle accidents and hazardous material spills. Emergency responders must navigate rural stretches with limited access points and variable cell coverage.

State Highway 41 (SH-41): Located just west of Coeur d'Alene, SH-41 connects Post Falls to US-95 and serves as a regional connector for local traffic and development.

Railroads

Although both railroads in the area are generally located a few miles northwest of the city, the potential for a hazardous cargo leak being carried by wind and impacting the community should be considered by leadership. In such an event, the fire department and law enforcement may need to activate evacuation or shelter-in-place notices to businesses and residents to protect the public from its effects.

Union Pacific Railroad (UP): UP operates freight rail lines that pass near Coeur d'Alene, primarily serving industrial areas and connecting to broader national rail networks. The tracks run mostly south of the city. The top five commodities that UP shipped in 2023 were fertilizer, beverages, frozen and refrigerated products, lumber and building materials, and rice, sugar, and dry food.[4] Freight trains transport hazardous materials, which pose risks of derailments, spills, and fires. Emergency services face access challenges due to fencing, remote locations, and the need for specialized training in hazardous materials (HazMat).

BNSF Railway: BNSF also has a presence in the region, with lines running through nearby Post Falls and Rathdrum. BNSF commonly ships grains and agricultural products, fuel and energy products, consumer goods and essentials, automobiles and vehicle components, and timber and forest products. These lines support regional freight movement but do not currently offer passenger service. Similar to UP, BNSF lines present risks of collisions at crossings and derailments. Coordination between local responders and railroad officials is critical, especially in industrial zones with limited infrastructure.

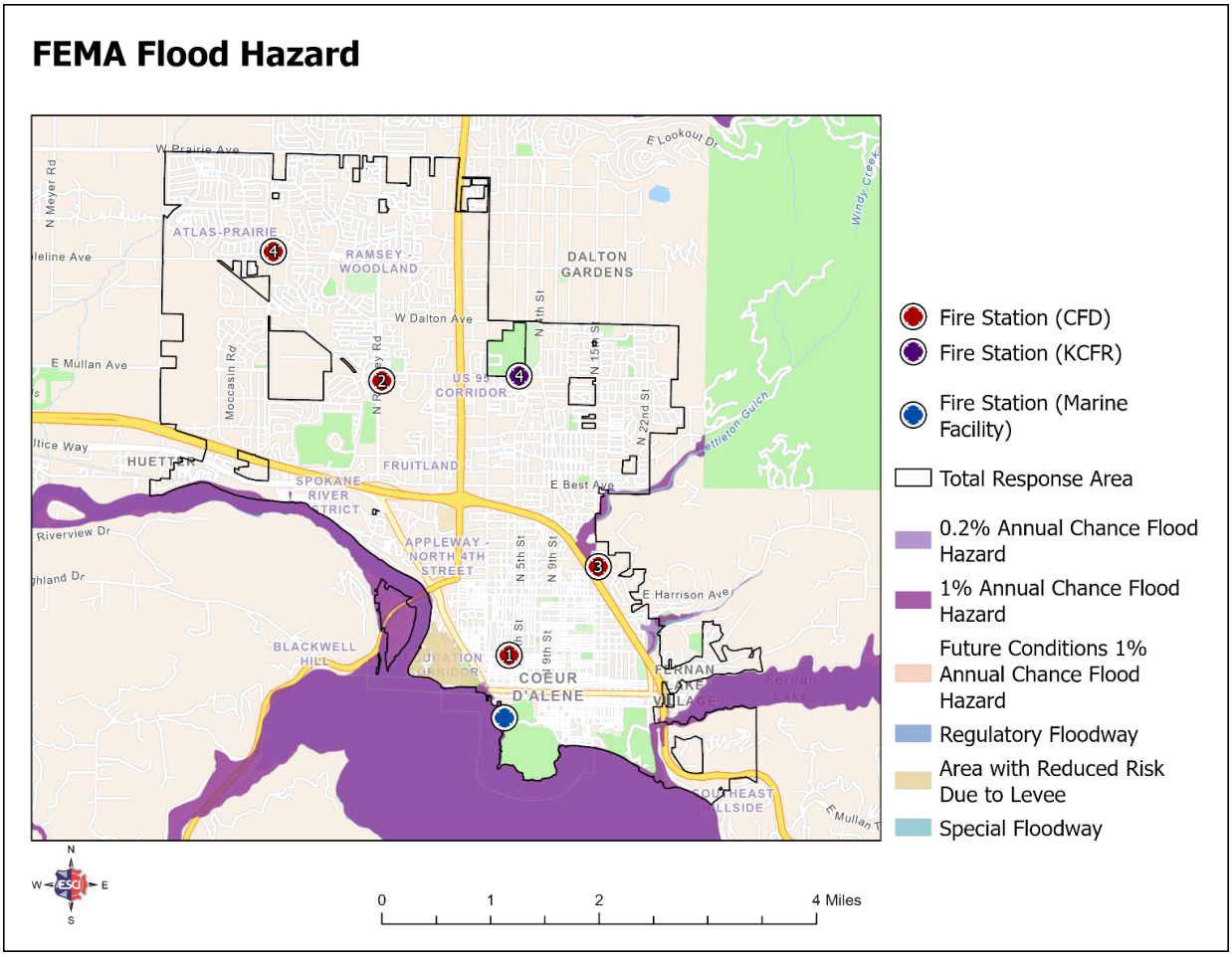
[4] pdf_idaho_usguide.pdf

Waterways

Lake Coeur d'Alene: Lake Coeur d'Alene supports recreational boating, tourism, and some limited commercial activity. The lake connects to the Spokane River, which flows westward toward Washington. Boating accidents, drownings, and sudden weather changes pose risks to both recreational users and rescue teams. The Spokane River originates from Lake Coeur d'Alene and flows west through Post Falls into Spokane. Hazards include swift currents, which can pose a danger to swimmers and boaters.

The following figure shows some incursions into the city during flood events, hampering response efforts and increasing the risk to life and property.

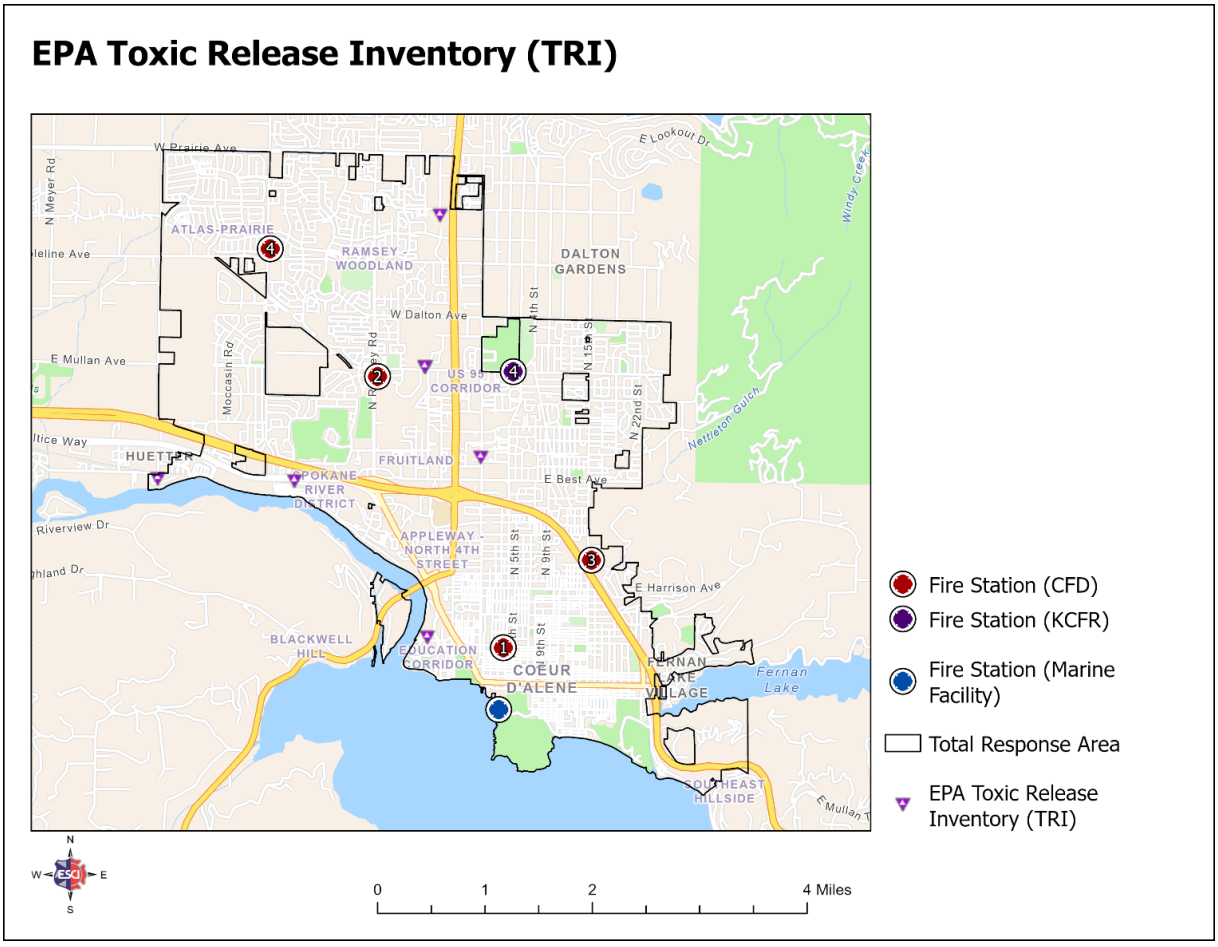
Figure 53. FEMA Flood Map



Toxics Release Inventory

The Toxics Release Inventory (TRI) provides data about toxic chemical releases and pollution prevention activities reported by industrial and federal facilities. TRI data support decision-making by communities, government, and emergency response agencies. Section 313 of the Emergency Planning and Community Right-to-Know Act (EPCRA) created the TRI Program. The TRI is publicly available Environmental Protection Agency (EPA) data reported annually by covered industry groups and federal facilities. It contains information on more than 650 toxic chemicals used, manufactured, treated, transported, or released into the environment. The following figure shows the locations of the TRI sites.

Figure 54. Toxic Release Inventory Sites



TRI Site Information

Interstate Concrete and Asphalt, located at 845 W. Kathleen Avenue, utilizes radioactive isotopes such as Cesium-137 and Americium-241 in nuclear gauges for moisture and density monitoring at temporary job sites.[5]

Advanced Input Devices, located at 600 W. Wilbur Avenue, incorporates byproduct radioactive materials in generally licensed devices under NRC regulations, likely for industrial measurement or control systems.[6]

Central Pre-Mix Site is located at 2500 W. Seltice Way and handles hazardous materials, including Portland cement (which contains hexavalent chromium), quartz (silica), fly ash, and slag cement, all used in ready-mixed concrete for construction purposes.[7]

Stimson Lumber Company Atlas Mill Site, located at 3074 W. Seltice Way, has a history of soil contamination stemming from previous mill and railroad operations. However, specific chemicals have not been identified. The site was historically used for wood processing and stockpiling, which may have involved the use of wood preservatives, solvents, and heavy metals.[8]

Deming Industries, located at 2945 N. Government Way uses anodizing chemicals, including sulfuric acid, chromic acid, and nickel compounds, to anodize aluminum and achieve corrosion resistance and a desirable aesthetic finish.[9]

North Idaho College, located at 1000 W. Garden Ave., stores various laboratory chemicals under OSHA's Laboratory Standard, including solvents, acids, bases, and organic reagents, which are used in educational science labs for teaching and research.[10]

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[5] Insp rept 30-32945/93-01 on 930504

[6] Generally Licensed Devices Containing Byproduct

[7] https://concretesupplyco.com/wp-content/uploads/2023/11/SDS_Conrete-Supply_Co.pdf

[8] Quality Assurance Project Plan

[9] https://www.demingindustries.com/

[10] https://www.nic.edu/asogm/4-environmental-safety/

Future System Demand Projections

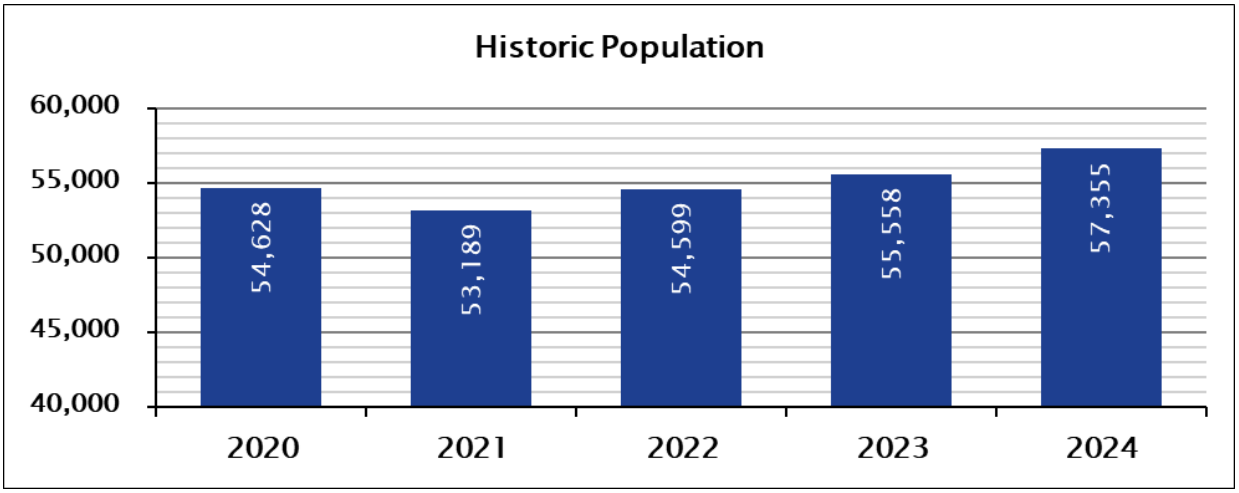
The project proceeds with an assessment of future community conditions, service demand, and fire protection risks that the CDAF can be expected to encounter. ESCI will analyze potential growth projections and interpret their impact on emergency service planning and delivery.

Population Growth Projections

Population History

Based on population trend data derived from Esri from 2024 and 2029; the Bureau of Labor Statistics, 2024; and the American Community Survey, 2018–2022; there was an increase of population within the CDAF service area of 4.99% from 2020 to 2024, as illustrated in the following figure. This results in a compounded annual growth rate of 0.98%.

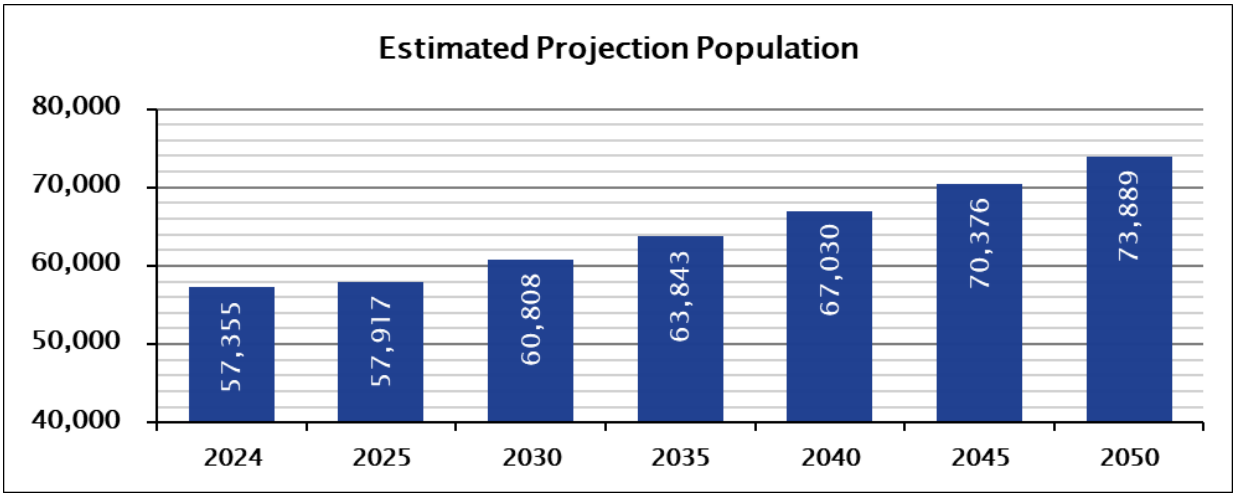
Figure 55. CDAF Population, 2020–2024



Population Projection

Using a compounded annual growth rate of 0.98%, future population growth can be theoretically projected, as illustrated in the following figure.

Figure 56. CDAF Population, 2024–2050



Metropolitan Planning

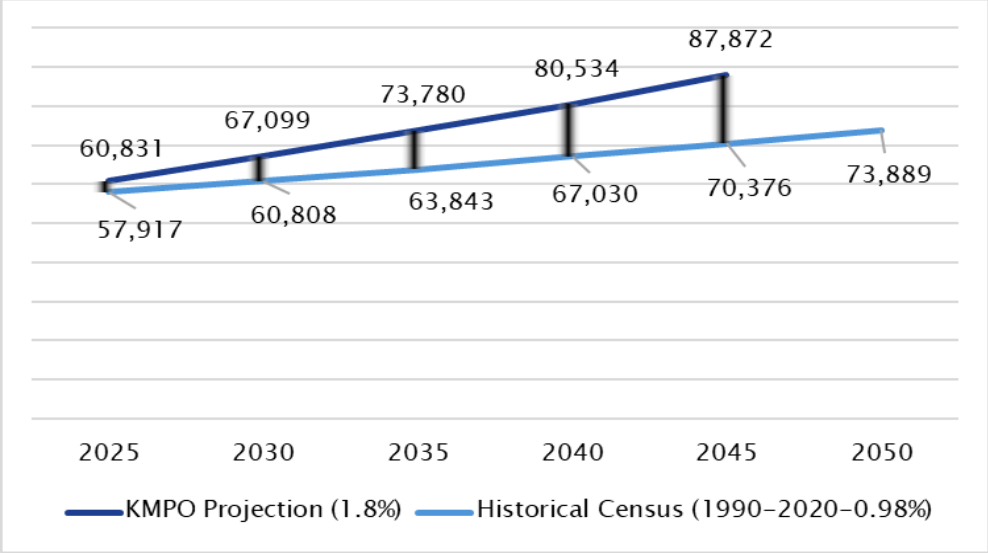
The Kootenai Metropolitan Planning Organization (KMPO) serves as the federally mandated and designated metropolitan planning organization (MPO) for all of Kootenai County. Established in 2003, KMPO was created to comply with federal requirements that took effect when the combined population of Coeur d'Alene, Hayden, and Post Falls exceeded 50,000 residents.

The KMPO population projections for 2020 to 2045 are grounded in historical population and housing data and jurisdiction-specific trends. These projections are based on U.S. Census population counts for the years 1990, 2000, 2010, and 2020, providing a solid historical foundation. Housing data, including the number of occupied units and the estimated average number of persons per household, is used to calculate population estimates by dividing the total population by the number of occupied housing units.

Growth rates are determined using rolling averages of annual growth from 1990 to 2020, ensuring a data-driven approach to forecasting. Each jurisdiction within the KMPO region—such as Coeur d'Alene, Post Falls, and Hayden—is analyzed individually to capture localized population and housing trends. The annual growth rates and dwelling unit projections are calculated to estimate future housing needs and population increases, supporting regional planning and infrastructure development.

Using the KMPO population projections, ESCI compared the organization's projections with its methodology to provide a range of population projections. The following figure illustrates the range of projections from 2025 to 2050.

Figure 57. Population Projections Contrast



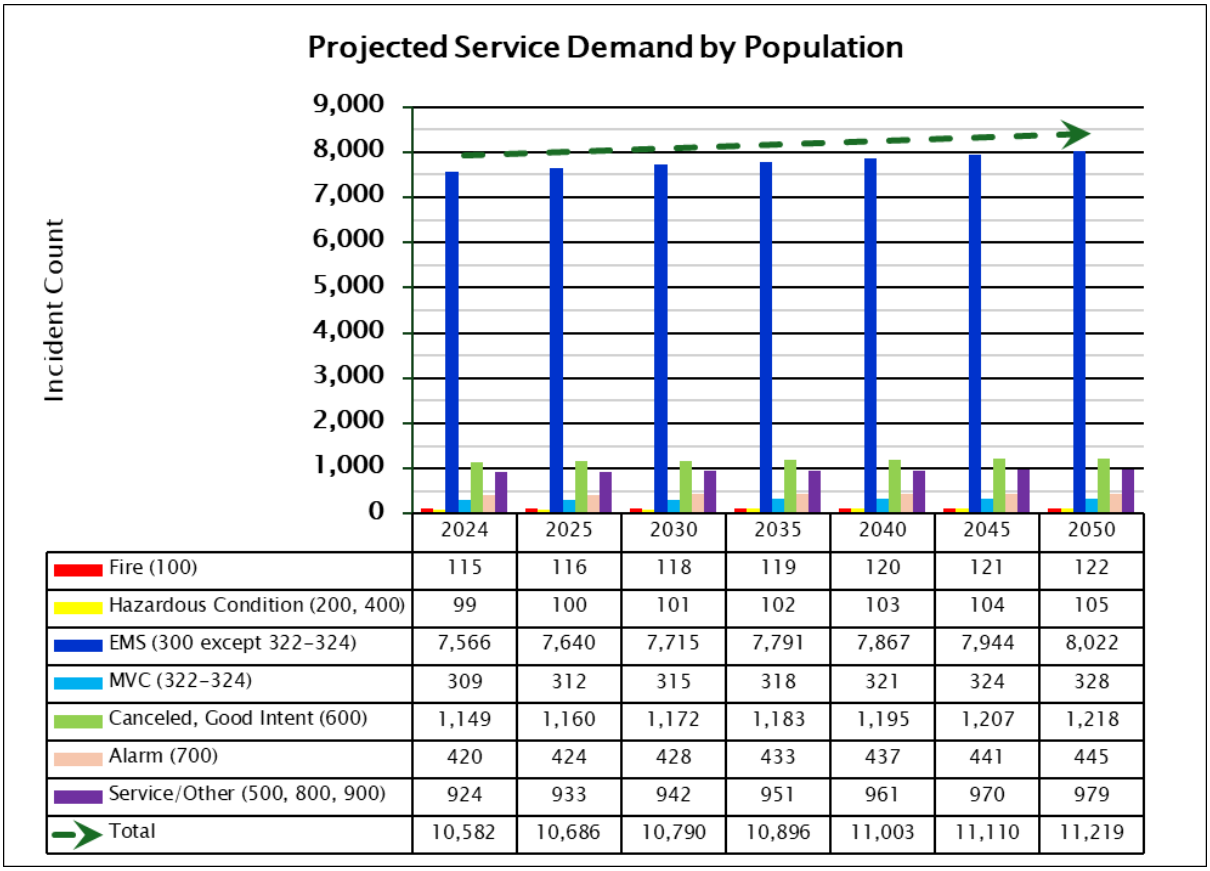
Service Demand Projections

ESCI uses two formulas to project future service levels: historical incident trends and population growth. These two trends provide upper and lower boundaries for forecasting call volumes.

Future Service Demand by Population

By evaluating the current number of incidents per 1,000 population and applying this to the projected population growth using ESCI's population projection, a lower future service demand projection is provided for the community, as illustrated in the following figure.

Figure 58. CDAF Projected Service Demand by Population Change, 2024–2050

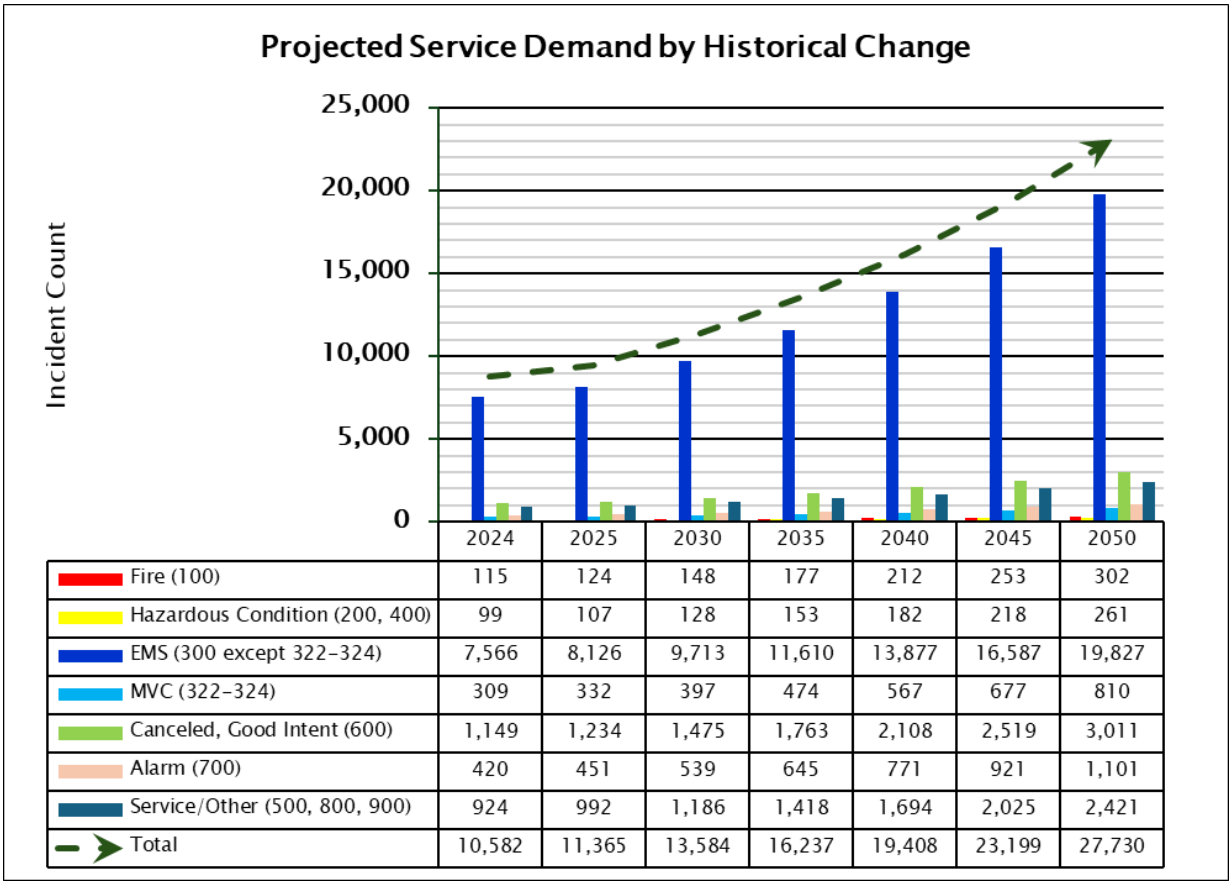


	2024	2025	2030	2035	2040	2045	2050
Fire (100)	115	116	118	119	120	121	122
Hazardous Condition (200, 400)	99	100	101	102	103	104	105
EMS (300 except 322–324)	7,566	7,640	7,715	7,791	7,867	7,944	8,022
MVC (322–324)	309	312	315	318	321	324	328
Canceled, Good Intent (600)	1,149	1,160	1,172	1,183	1,195	1,207	1,218
Alarm (700)	420	424	428	433	437	441	445
Service/Other (500, 800, 900)	924	933	942	951	961	970	979
Total	10,582	10,686	10,790	10,896	11,003	11,110	11,219

Future Service Demand by Historical Change

Experience has shown that the annual growth rate of service demand has historically been higher due to ever-increasing expectations for the fire department's expansive services, and certain demographic groups are high utilizers of the emergency response system. By applying the compounded annual growth rate (3.6%) derived from the incident type analysis, it is possible to forecast an upper boundary for future service demand within the community, as illustrated in the following figure.

Figure 59. CDAF Projected Service Demand by Historical Change, 2024–2050

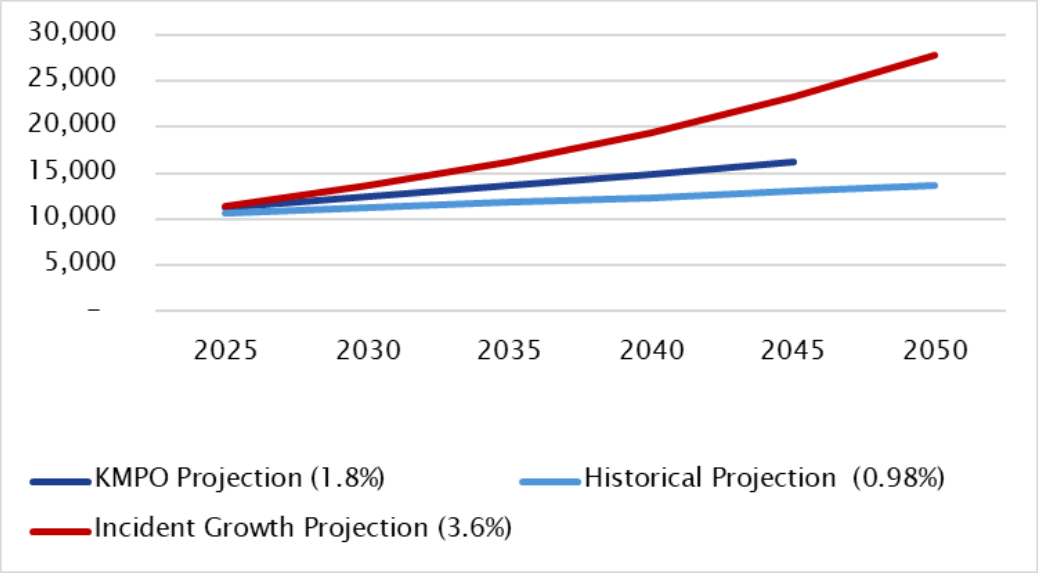


	2024	2025	2030	2035	2040	2045	2050
Fire (100)	115	124	148	177	212	253	302
Hazardous Condition (200, 400)	99	107	128	153	182	218	261
EMS (300 except 322–324)	7,566	8,126	9,713	11,610	13,877	16,587	19,827
MVC (322–324)	309	332	397	474	567	677	810
Canceled, Good Intent (600)	1,149	1,234	1,475	1,763	2,108	2,519	3,011
Alarm (700)	420	451	539	645	771	921	1,101
Service/Other (500, 800, 900)	924	992	1,186	1,418	1,694	2,025	2,421
Total	10,582	11,365	13,584	16,237	19,408	23,199	27,730

KMPO Projected Population/Service Demand

The City of Coeur d'Alene's planning relies on KMPO's population forecasts; accordingly, ESCI applied the incident-to-population ratio to KMPO's population projection to produce a projection. Additionally, the following figure illustrates the projections based on KMPO's estimates, historical population, and the incident growth methodology.

Figure 60. Incident Demand Projection Methodologies



Review of Industry Standards & Best Practices

Emergency Services Consulting International consistently grounds its evaluations and recommendations in nationally recognized industry standards to ensure consistency, safety, and operational excellence across fire and emergency services. Chief among these are the National Fire Protection Association (NFPA) standards—particularly NFPA 1710 and NFPA 1720—which define benchmarks for staffing, response times, and deployment models based on community risk and urbanization levels.

ESCI also incorporates criteria from the Insurance Services Office (ISO), which influences community fire protection ratings and insurance premiums, as well as from the Commission on Fire Accreditation International (CFAI), which emphasizes data-driven, community-focused performance assessments. These standards collectively guide ESCI's analysis of resource distribution, resource concentration—effective response force (ERF)—and critical tasking, ensuring that each agency is evaluated against benchmarks appropriate to its service environment: urban, suburban, or rural.

National Fire Protection Association

The National Fire Protection Association (NFPA), founded in 1896, is a global nonprofit organization dedicated to reducing fire-related deaths, injuries, and property loss. It publishes over 300 codes and standards that manage fire risks through building, design, and installation criteria. NFPA 1710: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*, sets the standards for career fire departments with full-time, paid firefighter staff, and includes key aspects such as:

Response Times: The initial (first) engine company should arrive within 4 minutes, a second engine company within 6 minutes, and the full first-alarm assignment (effective response force) within 8 minutes of travel time.
Staffing Levels: Specifies a minimum of four (4) firefighters per engine company and 16-17 personnel for a full first-alarm assignment to a moderate risk occupancy.
Coverage: Focuses on urban and suburban areas where career firefighters are the primary responders.

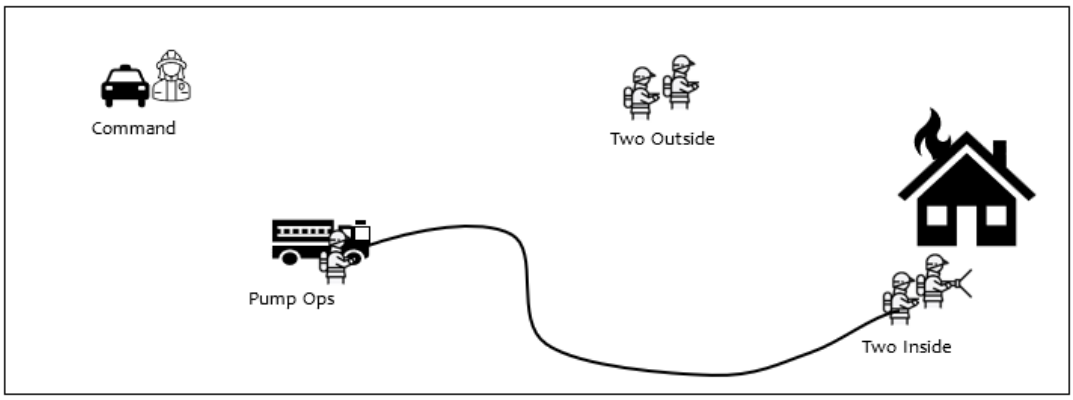
First Due (Distribution Concept)

In addition to the NFPA standard for the first-due engine travel time of 4 minutes, the Occupational Safety and Health Administration (OSHA), a federal agency, ensures workers' safe and healthy working conditions by setting and enforcing standards and providing training, outreach, education, and assistance.

It is important to understand that the "two-in/two-out" rule applies to the arrival of the first unit(s) on the scene during the initial stage of an incident. It does not address the need to assemble additional firefighters to perform other tasks to mitigate a fire or other emergency, which is referred to as the "effective response force."

The "two-in/two-out" rule is a safety standard established by OSHA specifically for interior structural firefighting. Still, it also applies to other incidents where the environment is Immediately Dangerous to Life and Health (IDLH). For example, a hazardous materials leak, a confined space rescue, or other incidents where an SCBA must be worn. This rule requires that at least two (2) firefighters enter a hazardous environment together, maintaining voice or visual contact to ensure mutual safety and protection. Simultaneously, at least two (2) additional firefighters must remain outside the hazardous area, ready to assist or initiate a rescue if needed. This law applies to the beginning phase of the incident when the first unit(s) arrive, also referred to as the first-due unit(s). In addition to the "two-in/two-out" rule, other requirements include ensuring that a Command Officer is in place and that a pump operator maintains a continuous water supply to the firefighters. These requirements are illustrated in the following figure.

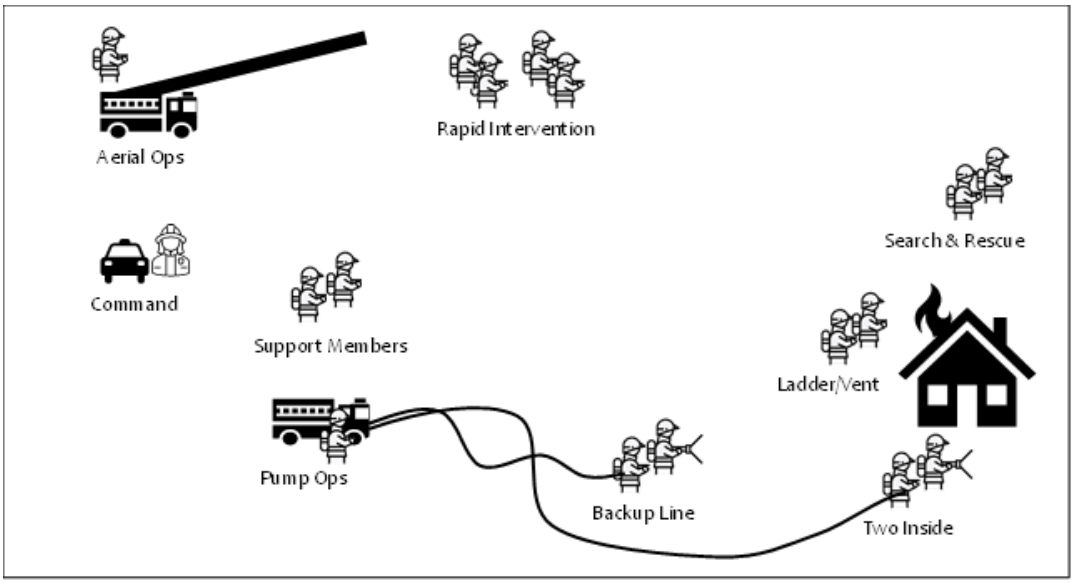
Figure 61. Initial Phase – "Two-In/Two-Out" Pictorial



This standard is crucial because it ensures that firefighters are not working alone in hazardous conditions, thereby reducing the risk of injury or death. The "two-in/two-out rule" is particularly important when the atmosphere is Immediately Dangerous to Life and Health (IDLH), such as during fires with heat and dense smoke. By adhering to this rule, fire departments can enhance the safety and effectiveness of their operations, ensuring that firefighters have the support they need to perform their duties safely and efficiently.

Fire departments with limited staffing face significant challenges in adhering to the "two-in/two-out" rule. When a fire department has only three (3) personnel on a fire truck, complying with this rule can delay the entry needed to extinguish fires, as one (1) firefighter must stay with the fire engine to perform pumping operations. The entry crew must then wait for the second engine to arrive to fulfill the two-out requirement. This delay can hamper the saving of property and lives and increase the risk to firefighter safety when they must enter a burning structure that the fire has further degraded. The following figure illustrates the NFPA 1710 Standard's recommendation for 16-17 firefighters to accomplish the concurrent tasks to extinguish a 2,500-square-foot residential fire.

Figure 62. Effective Response Force Pictorial



The following figure illustrates the various risk types identified in NFPA 1710, along with the subsequent tasks required to be completed simultaneously and sequentially for three typical community risk types.

Figure 63. NFPA 1710 Critical Tasks by Risk Type

Task	Moderate Risk (Residential Fire)	High Risk (Strip Mall or Apt. Building)	Extreme Risk (Multi-Story)
Command	1	2	2
Apparatus Operator	1	2	2
Handlines (2 FFs each)	4	6	4
Support Members	2	3	8
Search and Rescue	2	4	4
Ground Ladders/Ventilation	2	4	
Aerial Operator (If Deployed)	1	1	2
Initial Rapid Intervention Crew	4	4	4
Initial Medical Care Component		2	4
Building Fire Pump (If Equipped)			1
Hose Line – Floor Above Fire			2
Elevator Operations Manager			1
Incident Safety Officer			1
Interior Staging Manager			2
Member Rehabilitation			2
Vertical Ventilation Crew			4
Lobby Control			1
	16 (17)	27 (28)	42 (43)

Idaho Survey & Rating Bureau (ISRB)

The Idaho Survey and Rating Bureau (ISRB) sets specific spatial deployment standards for fire apparatus to ensure timely and effective emergency response. According to ISRB guidelines, engine companies should be strategically located so that the majority of areas within a community are within 1.5 miles of an engine. This proximity ensures that fire suppression resources can arrive quickly to mitigate incidents before they escalate. Similarly, ladder or truck companies—which provide specialized capabilities such as aerial operations, forcible entry, and technical rescues—should be positioned within 2.5 miles of the highest-risk areas, where large, expansive buildings and those three stories or more in height are located.

These distance-based requirements are foundational to ISO's Public Protection Classification (PPC) scoring system, which evaluates a community's fire protection capabilities and influences property insurance rates. Meeting these spatial standards is critical for achieving favorable community class ratings and maintaining public safety.

Coeur d'Alene Fire Department Response Plans

The Coeur d'Alene Fire Department has developed comprehensive response plans tailored to both EMS- and fire-related emergencies, with the primary goal of optimizing resource deployment and ensuring that adequate personnel and equipment are available to effectively mitigate the emergency.

A key component of this system is the use of Pro QA/QI EMS Dispatching, which categorizes emergencies into 109 distinct incident codes. Of these, nearly 100 codes trigger a standard response that dispatches the closest available medic unit, along with either the nearest engine or ladder company. This configuration ensures that five (5) trained personnel arrive on scene promptly, providing a robust initial response.

For the nine incident codes classified as very serious medical conditions, CDAF significantly escalates its response. These high-priority situations prompt the deployment of a Battalion Chief, a ladder company, an engine company, and a medic unit. This results in a total of nine (9) personnel on scene, reflecting the CDAF's commitment to delivering a swift and comprehensive response to critical emergencies.

Fire Type Incident Response Plans are structured around 15 distinct fire-related categories, including Automatic Fire Alarms, High-rise Fires, Wildland Fires, Vehicle/Boat Fires, Hazardous Materials, and Motor Vehicle Collisions, among others. Each category is further divided into a maximum of six priority levels that determine the initial deployment of emergency resources, known as a "First Alarm."

For instance, a residential structure fire typically triggers a response that includes a Battalion Chief, one ladder company, two engine companies, and two medic units—mobilizing a total of 14 firefighters. If the situation escalates and additional resources are needed, the Battalion Chief can request mutual aid through successive resource packages referred to as "2nd, 3rd, and 4th Alarms." Each additional alarm generally brings in another Chief Officer, two additional engine companies, and one ladder company, ensuring a scalable, efficient response tailored to the incident's severity.

Station Siting Analysis

ESCI reviewed ten fire station deployment scenarios to identify potential locations and configuration options for CDAF, to maximize coverage of community risk and incident density. Of the ten scenarios, ESCI will provide details on the five scenarios with the highest scores.

Assumptions

Four factors were evaluated in the comparative analysis: (1) Historical incidents from 2020 to 2024, which totaled 84,316 incidents across the region, with 49,214 occurring within city limits. The CDAF provides ALS ambulance coverage for the region. First-due (defined as data captured 4-minute travel time) percentages were measured against the total incident response boundary. (2) Structure count per response area, using Esri's USA Structures dataset, which identified 19,409 structures within the city limits (including commercial, industrial, residential, and other types). (3) Building square footage: the city has a total of 52,562,357 square feet. (4) The street network analysis determined each station's coverage area within specified travel times; the city encompasses approximately 17 square miles. Each scenario assumes a 4-minute travel time using Coeur d'Alene's street network. The analysis compares each station's first-due coverage when travel times are under 4 minutes.

Area of City Impact (ACI)

The City of Coeur d'Alene's future growth strategy is focused on managing expansion thoughtfully and responsibly. City Planners acknowledge that much of the area is already developed and are actively seeking to reduce the historically large areas of impact in the city, especially by avoiding new development in the eastern hills due to high costs, fire hazards, landslide risks, and challenges in extending services.

With a Comprehensive Plan adopted in 2022, efforts are underway to reduce the Area of City Impact (ACI), particularly by limiting growth on the south side of the river and in more challenging-to-serve areas. The western city boundary will largely remain unchanged. Working in partnership with the Kootenai Metropolitan Planning Organization (KMPO), the City of Coeur d'Alene projects steady population growth of 2.5% to 3% annually, a trend expected to continue over the next two decades.

Rather than pursuing broad annexation or low-density expansion, the City plans to accommodate most new residents through infill development and higher density in the downtown core area. Some of the population concentration downtown will be in mid- to high-rise structures currently under planning and construction.

Deployment Analysis Perspective

Based on the project's understanding, interviews, and evaluation of CDAFs' service delivery, as well as the organization's goals, ESCI found that the fire department has two distinctive responsibilities: one to the City of Coeur d'Alene and the other to the citizens living in the region beyond the city's boundaries.

The department is primarily responsible for fire protection, including providing first-due company response to emergencies and ladder service coverage for the city, which spans 16.8 square miles. The department is also responsible for providing ALS ambulance service to a larger region that encompasses 1,244 square miles, including the city's boundaries.

The location and distribution of facilities must be carefully considered to maximize service across the three aspects of service types. The following analysis provides data and analysis for various fire station scenarios based on:

- Fire company distribution and coverage
- Ladder Service distribution and coverage
- ALS Ambulance distribution and coverage.

The interrelated configuration of distribution and coverage is used to consider the concentration of resources for the effective response force.

Fire Protection Distribution & Coverage

The Coeur d'Alene Fire Department deploys its first-due resources from four fixed facilities strategically located across the municipality. The City of Coeur d'Alene is evaluating adding a future station to enhance response coverage. Currently, response times are sometimes extended because units may be unavailable in their primary service areas, necessitating dispatch from adjacent stations.

Three potential sites were provided to ESCI by CDAF for evaluation of future Station 5: 5A – North Ramsey Road and West Marie Avenue (AKA Sta. 5 @ Marie), 5B – West Seltice Way, near the North Idaho Centennial Trail (AKA Sta. 5 @ Riverstone); and 5C – West Seltice Way, one-quarter mile east of North Huetter Road (AKA Sta. 5 @ Huetter).

ESCI also evaluated the current station deployment with and without the utilization of KCFR Station 4, as well as the relocation of Station 2 to the south and north, using Esri GIS software to select the optimal location based on historical incident data. Ten of the scenarios, compared to the current deployment configuration, were assessed in the overall distribution analysis and are shown in the following figure.

Figure 64. ESCI Model Scenarios

Scenario	Description	Note
Scenario A	4 CDAF Station Model (Existing)	4-Station model existing deployment (baseline)
Scenario B	4 CDAF & CDAF5@Marie Site	4-Station model and move CDAF2 to Ramsey & Marie
Scenario C	4 CDAF & CDAF5@Riverstone	Add Station 5 to the existing 4-Station Model
Scenario D	4 CDAF & CDAF5@Huetter	Add Station 5 to the existing 4-Station Model
Scenario E	4 CDAF & KCFR4	4-Station model and add KCFR4
Scenario F	4 CDAF & KCFR4 & Move CDAF2@Marie	4-Station model and add KCFR4 and move CDAF2
Scenario G	4 CDAF & KCFR4 & CDAF5 Optimized	Esri Optimized Station 5 location and KCFR4
Scenario H	4 CDAF & CDAF5 Optimized	Esri Optimized Station 5 without KCFR4
Scenario I	4 CDAF & CDAF5@Riverstone & CDAF2@ Pleasant-Dalton	Add CDAF5 and move CDAF2 North
Scenario J	4 CDAF & KCFR4 & CDAF5@Riverstone & CDAF2@Pleasant-Dalton-Scenario J	Add CDAF5 and move CDAF2 and add KCFR4

In the subsequent analysis, ESCI will provide detailed data on the current deployment system and, by comparison, the five highest-ranked Scenarios: E, F, G, I, J.

Existing Distribution Coverage – Scenario A

The following map and table provide a baseline count of incidents and structures, as well as the average annual incidents based on the last five years of response data.

Figure 65. Scenario A Map (Existing Coverage)

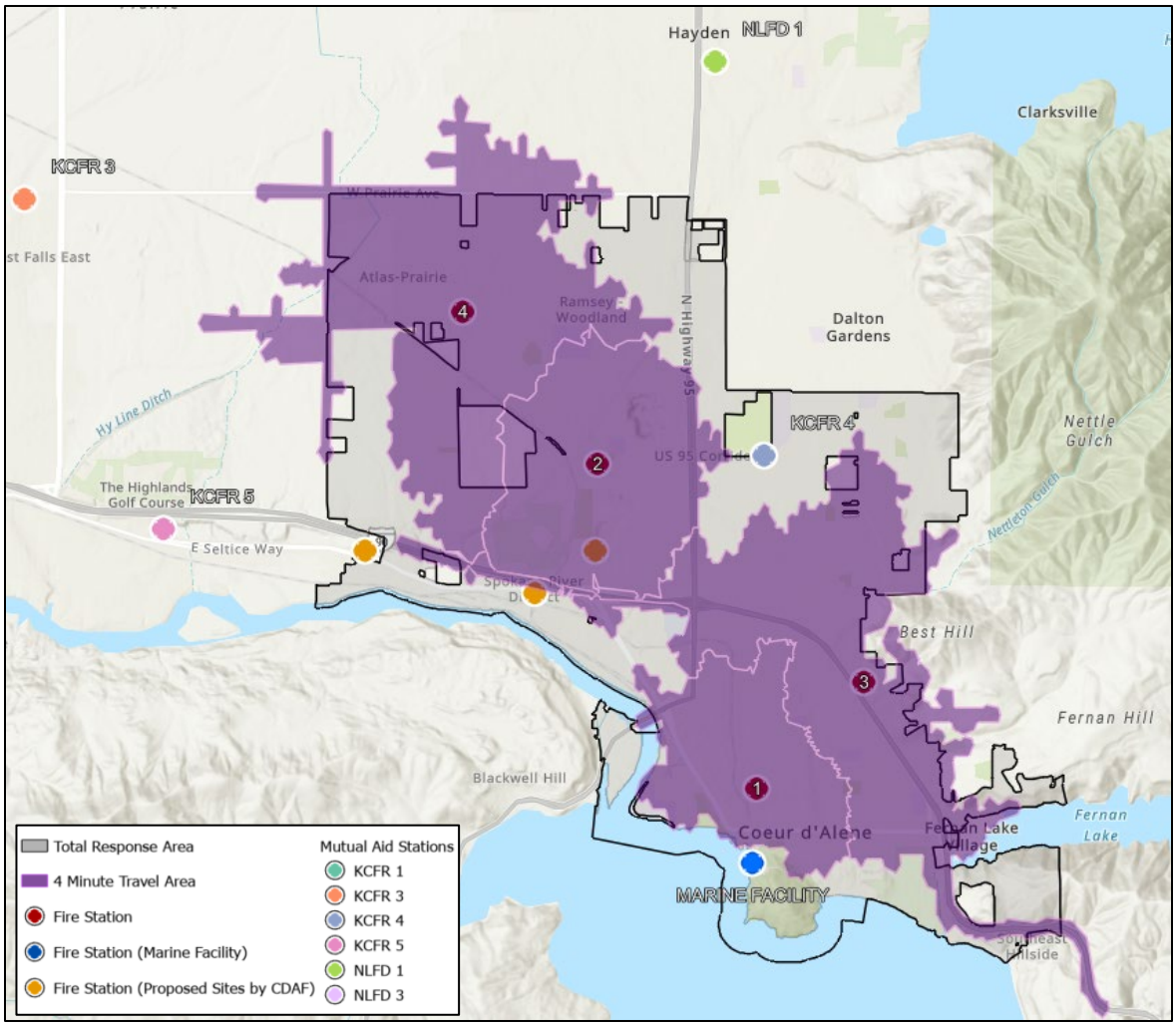


Figure 66. Scenario A – Existing CDAF Deployment Model

Scenario A Stations	5-Yr. Total	Avg. Annual Incidents	Count of Structures
CDA Station 1	11,899	2,380	3,309
CDA Station 2	11,369	2,274	2,733
CDA Station 3	21,582	4,316	5,446
CDA Station 4	8,777	1,755	4,448

Integration of KCFR Station 4

Although KCFR's Station 4 is located near the city's northeast boundary, it is considered in this analysis as part of the City of Coeur d'Alene's overall deployment strategy. This approach was taken after receiving feedback from most of the stakeholders interviewed, who believed that it would be in the best interest of the regional community to factor the station and resources into the deployment strategy.

However, concerns were also expressed about the reliability of KCFR's Station 4 for deployment. Foremost, financial constraints may soon affect staffing levels, as the S.A.F.E.R. Grant, which has been used to employ many KCFR firefighters, is set to expire. If no other revenue source is generated, a reduction in service levels may be required at KCFR Station 4.

Another concern expressed was that KCFR's service area is large—113 square miles — causing units to be unavailable due to long travel times. KCFR4's response area covers the community of Dalton Gardens and several square miles south of Coeur d'Alene. As a result, the KCFR Station 4s crew may be committed to responding to remote incidents, leaving them unavailable for a consistent, reliable response to Coeur d'Alene. In addition, crews may also be committed to training and other duties, such as covering other KCFR stations not controlled by the City of Coeur d'Alene.

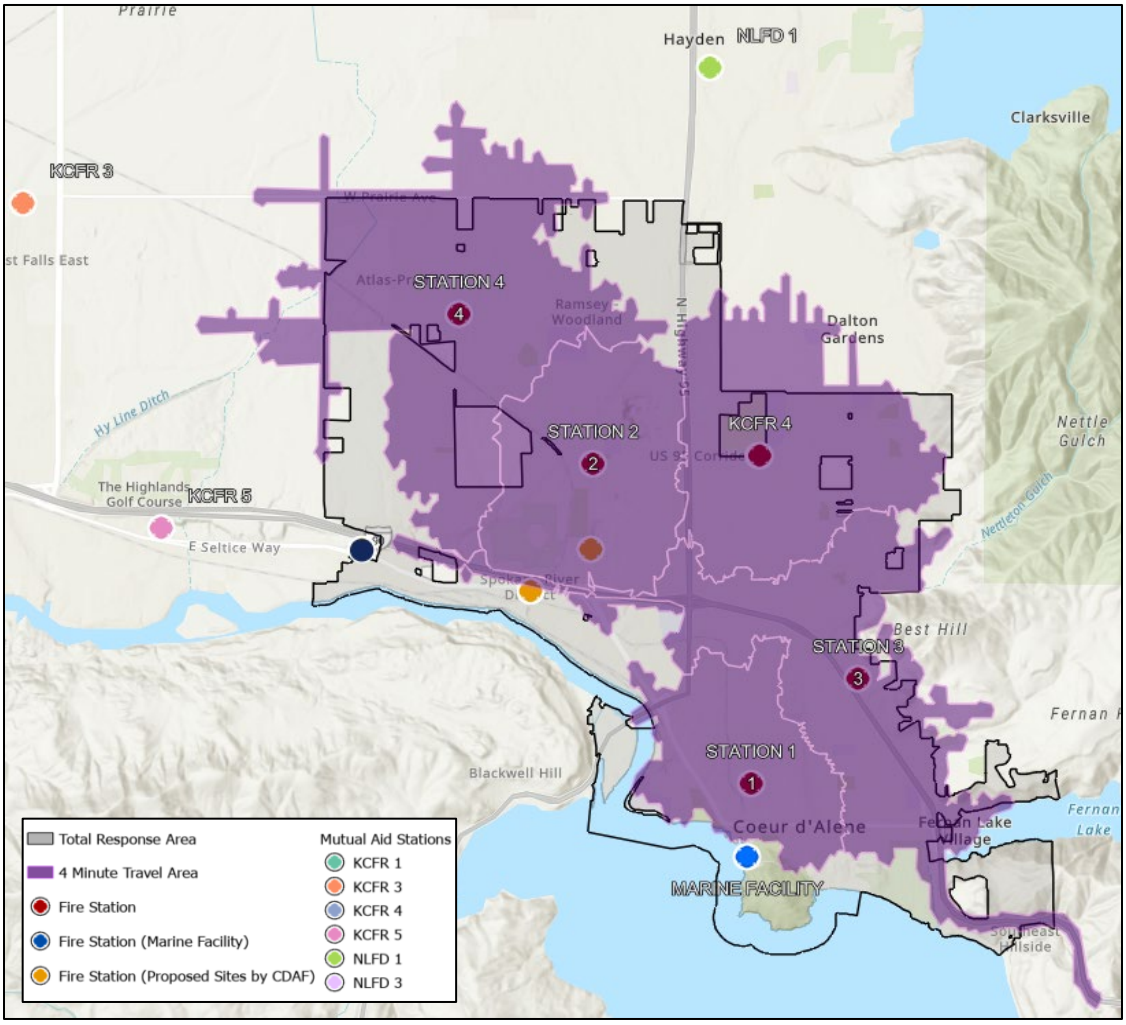
ESCI was unable to verify the value of this station and the unit's commitment factors, as the data were not part of this study or within the scope of work. It is suggested that CDAF obtain the commitment factors for KCFR Station 4 to assess its reliability for deployment within Coeur d'Alene.

Assuming KCFR Station 4 is deemed reliable for the City of Coeur d'Alene's response model, it provides key first-due coverage for northwest residents and businesses. It could also support a surge capacity for concentrating personnel for major incidents within the city. Since KCFR Station 4 is fully located within the city and staffed with full-time career personnel, not utilizing this resource through a full automatic aid agreement for initial response could be viewed as a disservice to the community.

Scenario E – Existing CDAF Including KCFR Station 4

This analysis included the four existing CDAF stations and KCFR's Station 4. The aggregate percentage coverage ranks third among the top three best scenarios. Overall, 71% of the incidents are captured within the 4-minute first-due response zones, and 91% of the structures are within that travel distance. In this scenario, KCFR Station 4 plays a key role in responding to and covering the northeastern portion of the city, potentially responding to 15% of the incidents first. The figure below depicts the KCFR 4 Station's response boundary, which can reach a significant part of the city from a first-due perspective.

Figure 67. Scenario E Map (KCFR4)



The following figure provides a detailed count of incidents and structures, along with the workload context for each station, by showing the average annual incidents over the last five years of response data.

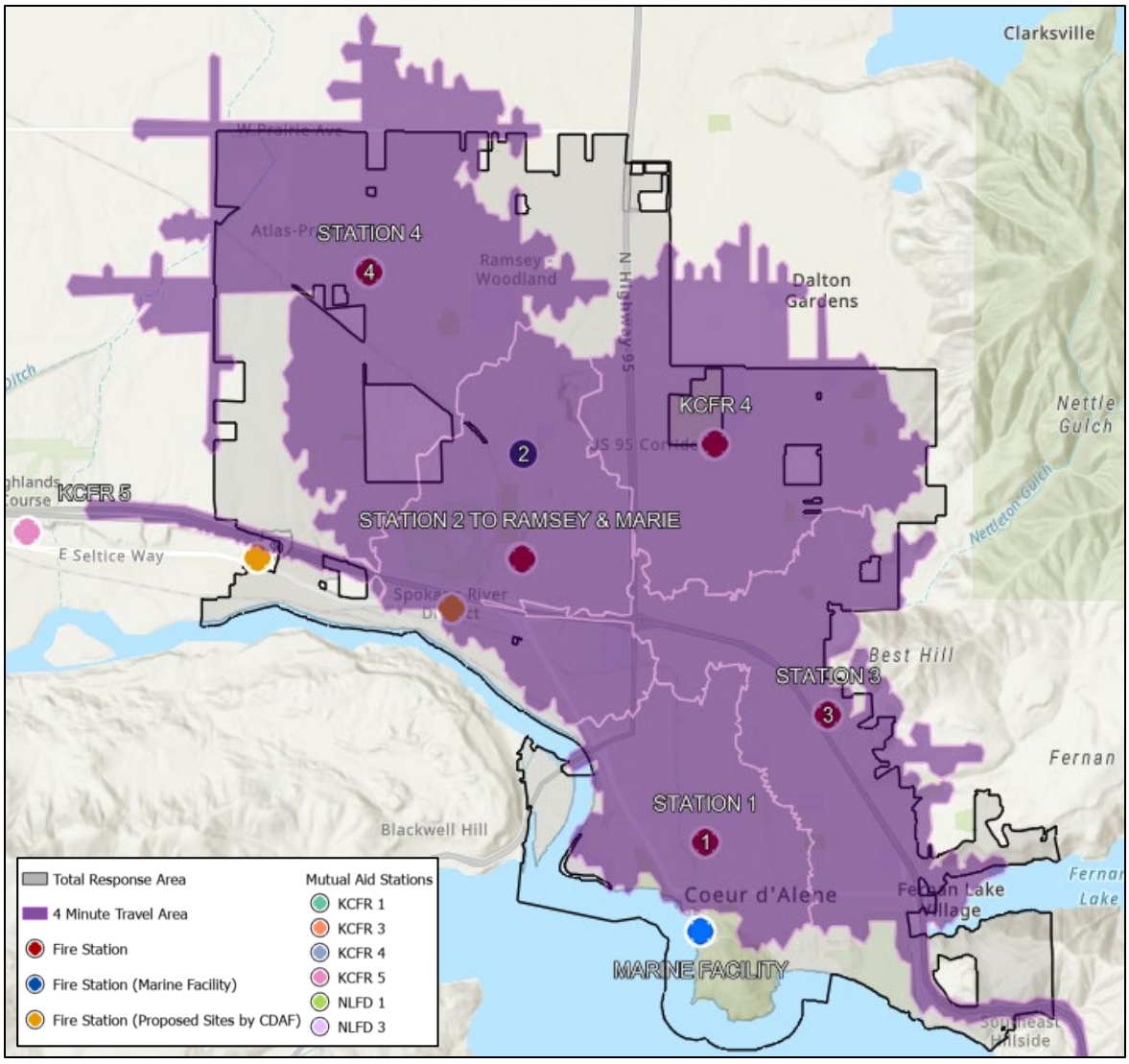
Figure 68. Scenario E – Existing CDAF Including CKFR Station 4

Scenario E Stations	5-Yr. Total	Avg. Annual Incidents	Count of Structures
CDAF Station 1	11,899	2,380	3,308
CDAF Station 2	10,347	2,069	2,649
CDAF Station 3	16,586	3,317	4,322
CDAF Station 4	8,777	1,755	4,448
KCFR Station 4	12,637	2,527	2,921

Scenario F – CDAF 1,3,4; KCFR4; Move CDAF2

The City of Coeur d'Alene has passed a bond to remodel or replace Station 2; therefore, ESCI evaluated the potential relocation of the station to determine whether it could better serve the community at various sites. This analysis assumed the existing locations of CDAF Stations 1, 3, and 4, as well as KCFR Station 4, but relocates Station 2 to the intersection of Ramsey and Marie. This option ranks second among the other scenarios, with 83% of incidents covered within 4-minute response zones and 92% of structures protected, depicted in the following figure.

Figure 69. Scenario F Map (Relocate Station 2 South & KCFR4)



The following figure provides a detailed count of incidents and structures, along with the workload context for each station, by showing the average annual incidents over the last five years of response data.

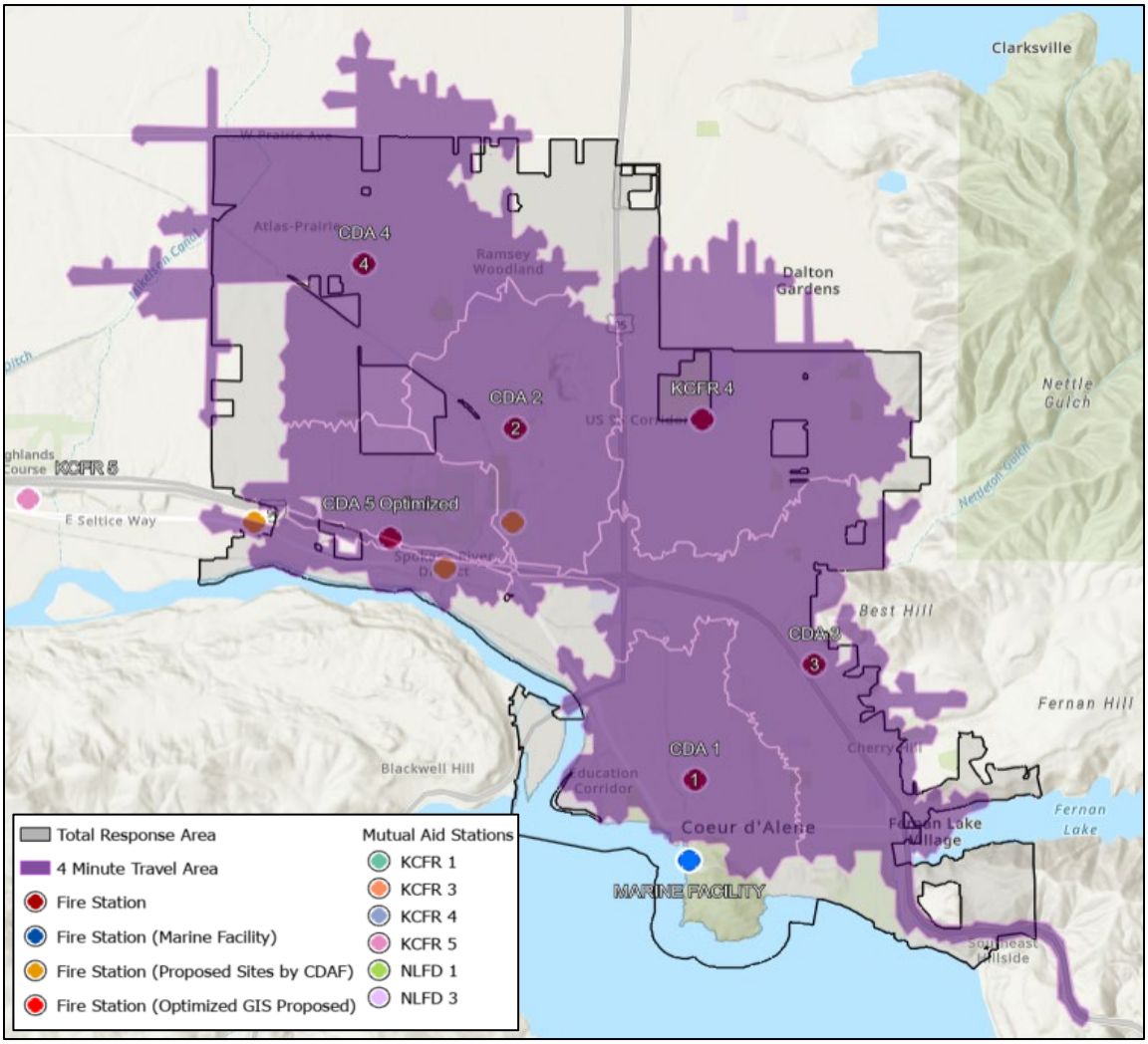
Figure 70. CDAF 1,3,4; KCFR4; Move CDAF2

Scenario F Stations	5-Yr. Total	Avg. Annual Incidents	Count of Structures
CDAF Station 1	11,831	2,366	3,267
CDAF Station 2 (Moved)	22,607	4,521	2,835
CDAF Station 3	13,595	2,719	4,093
CDAF Station 4	9,240	1,848	4,686
KCFR Station 4	12,664	2,533	2,989

Scenario G – CDAF 1, 2, 3, 4; Optimized CDAF5 & KCFR 4

This analysis included the existing locations of CDAF Stations 1, 2, 3, and 4, as well as KCFR Station 4. It also involved programming the GIS software to select the best location for Station 5, aiming to capture the greatest number of incidents. Seventy-five percent of incidents are captured within the 4-minute first-due response zones, and 93% of the structures are within these zones, as shown in the following figure.

Figure 71. Scenario G Map (Optimized Station 5 & KCFR4)



For this scenario, the following figure provides a detailed count of incidents and structures, along with the workload context for each station, by showing the average annual incidents over the last five years of response data.

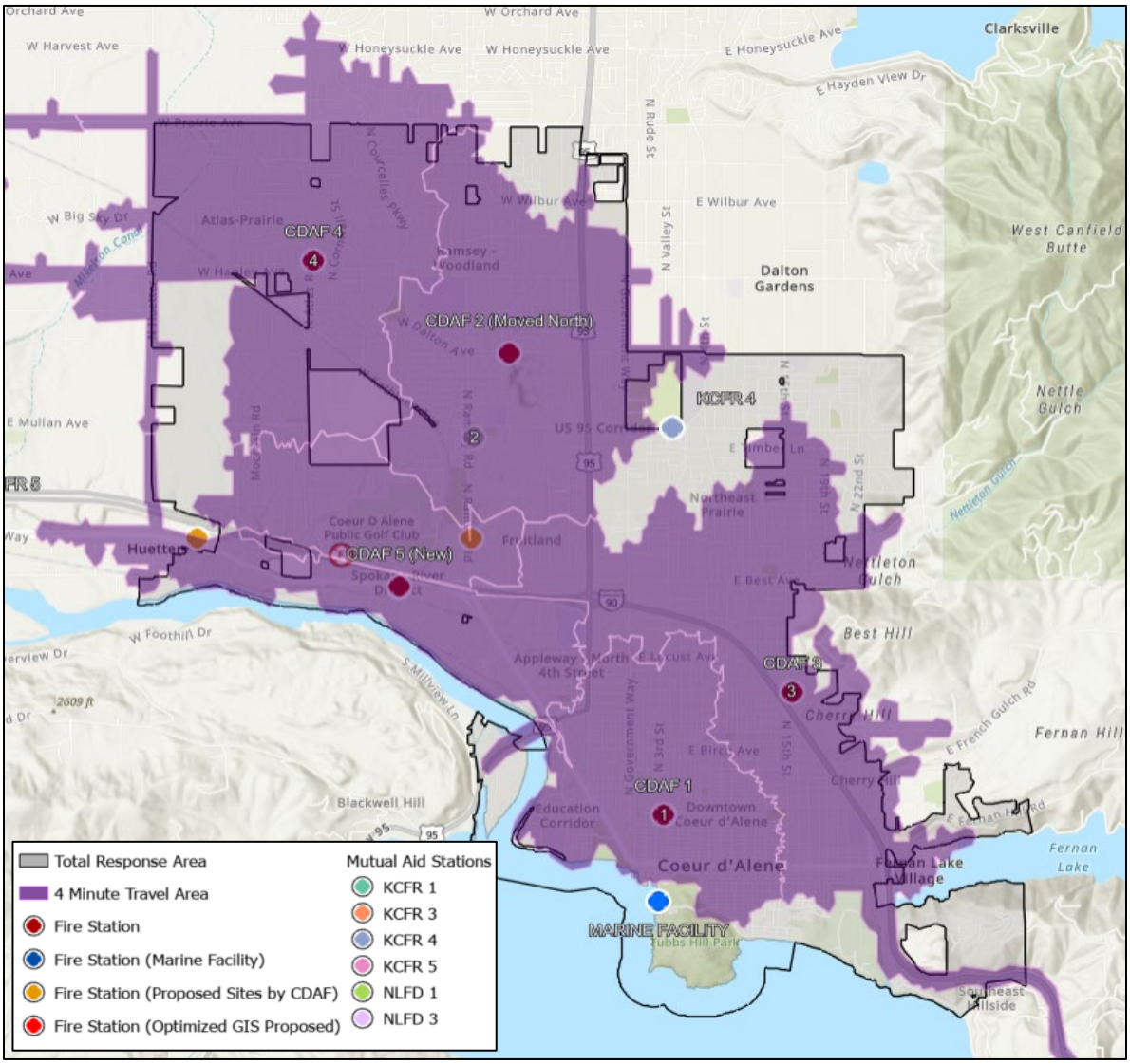
Figure 72. CDAF 1, 2, 3, 4; Optimized CDAF5 & KCFR 4

Scenario G Stations	5-Yr. Total	Avg. Annual Incidents	Count of Structures
CDAF Station 1	12,029	2,406	3,335
CDAF Station 2	8,293	1,659	2,300
CDAF Station 3	16,370	3,274	4,260
CDAF Station 4	8,203	1,641	3,980
KCFR Station 4	12,633	2,527	2,918
CDAF Station 5 (Optimized)	6,089	1,218	1,303

Scenario I – CDAF 1, 3, 4; CDAF2>North & CDAF5 @ Riverstone

This analysis included the existing locations of CDAF Stations 1, 3, and 4, relocating Station 2 north, and adding Station 5 at the Riverstone site. Eighty-three percent of the incidents are captured within the 4-minute first-due response zones, and 89% of the structures are captured, as shown in the following figure.

Figure 73. Scenario I Map CDAF 1, 3, 4; CDAF2>North & CDAF5@Riverstone)



The following figure provides a detailed count of incidents and structures, along with the workload context for each station, by showing the average annual incidents over the last five years of response data.

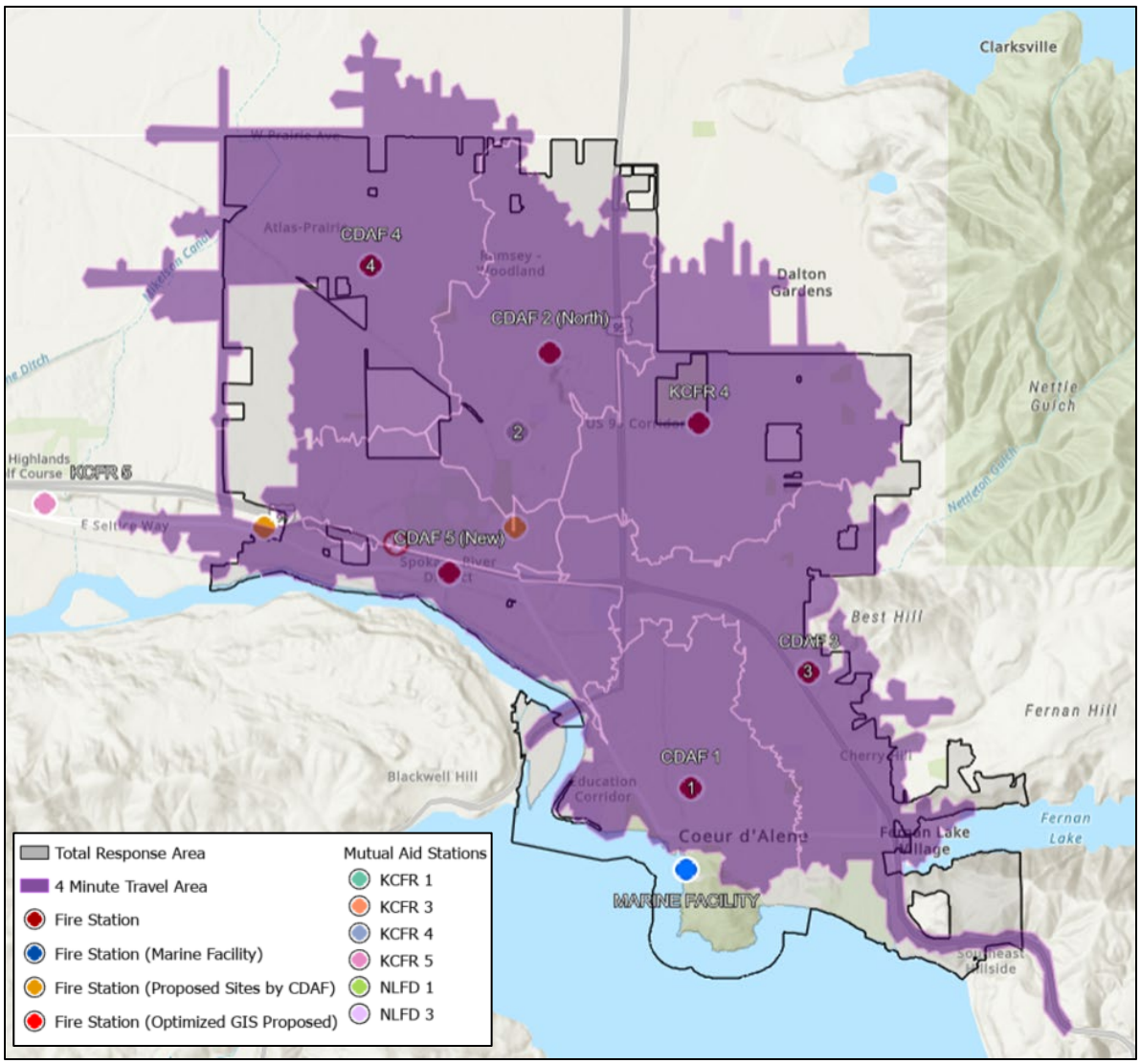
Figure 74. CDAF 1, 3, 4; CDAF2>North & CDAF5@Riverstone

Scenario I Stations	5-Yr. Total	Avg. Annual Incidents	Count of Structures
CDAF Station 1	12,866	2,573	3,657
CDAF Station 2 North @ Pleasant-Dalton	12,590	2,518	3,198
CDAF Station 3	20,331	4,066	5,183
CDAF Station 4	6,877	1,375	3,533
CDAF Station 5 @ Riverstone Site	17,017	3,403	1,761

Scenario J – CDAF 1, 3, 4; CDAF2>North & CDAF5 @ Riverstone & KCFR4

This analysis included the existing locations of CDAF Stations 1, 3, and 4, KCFR Station 4, the relocation of Station 2 north, and the addition of Station 5 at the Riverstone site. Eighty-seven percent of the incidents are captured within the 4-minute first-due response zones, and 98% of structures are captured, as shown in the following figure.

Figure 75. Scenario J Map CDAF2>North & CDAF5@Riverstone & KCFR4



The following figure provides a detailed count of incidents and structures, along with the workload context for each station, by showing the average annual incidents over the last five years of response data.

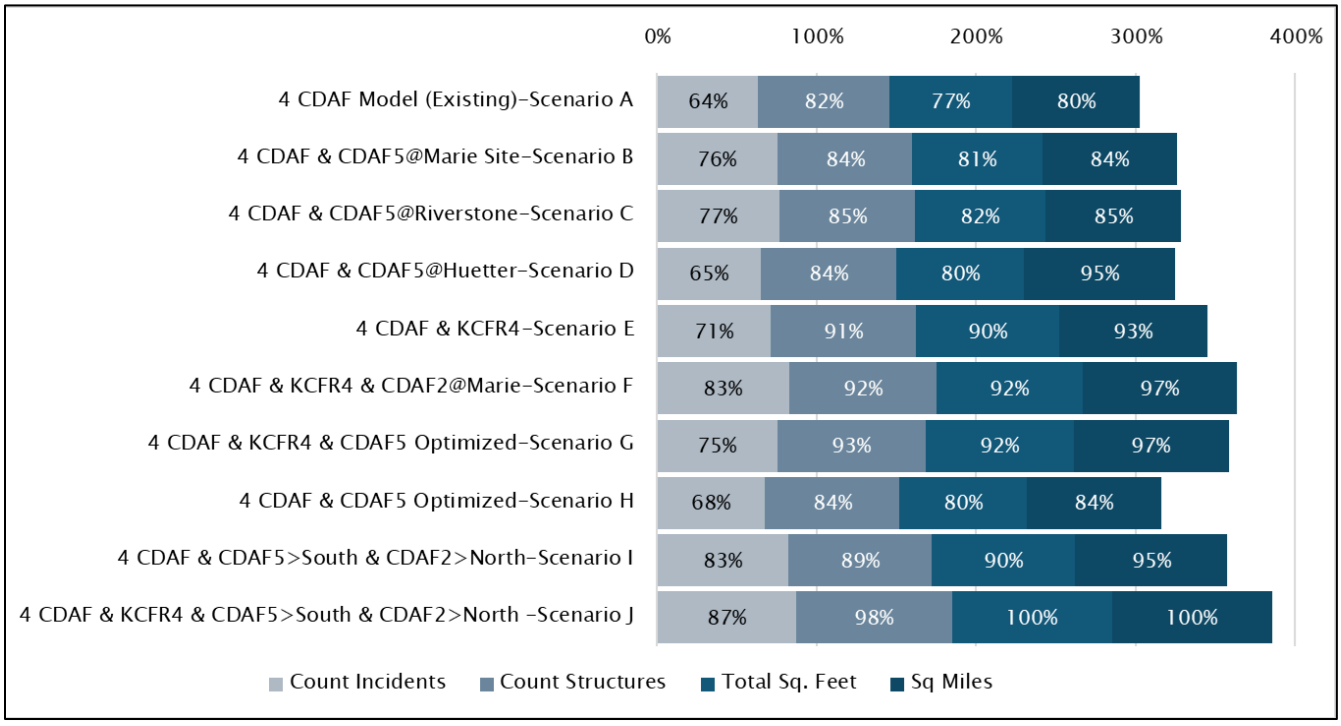
Figure 76. CDAF 1, 3, 4; CDAF2>North & CDAF5@Riverstone & KCFR4

Scenario J Stations	5-Yr. Total	Avg. Annual Incidents	Count of Structures
CDAF Station 1	12,863	2,573	3,657
CDAF Station 2 North @ Pleasant-Dalton	7,602	1,520	2,776
CDAF Station 3	15,318	3,064	4,031
CDAF Station 4	6,878	1,376	3,534
CDAF Station 5 @ Riverstone Site	16,892	3,378	1,756
KCFR Station 4	14,169	2,834	3,179

Summary of General Distribution

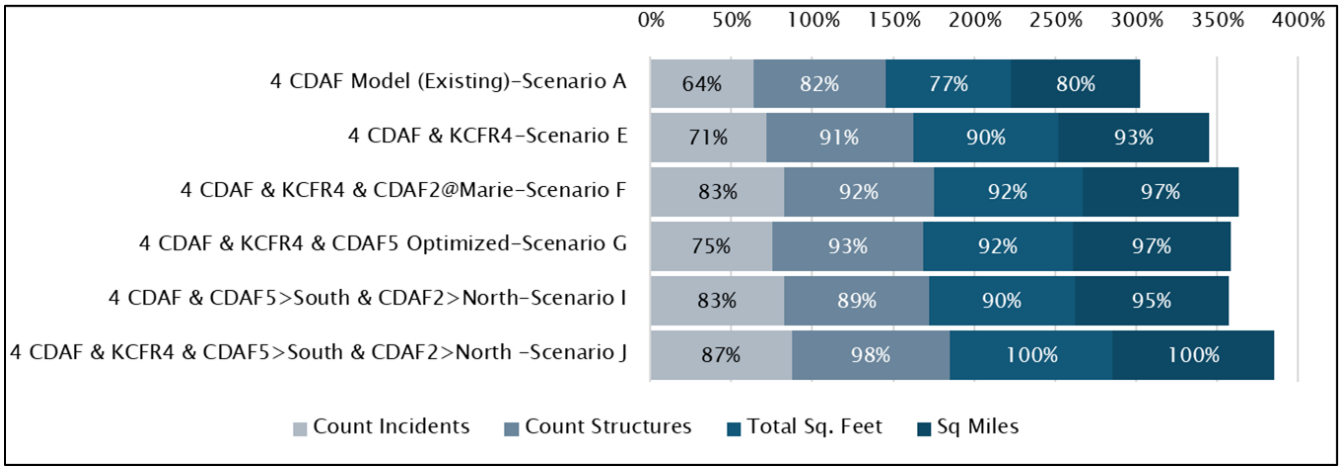
For each scenario analysis, the raw data collected for each first-due response zone were aggregated into percentages to normalize the data for comparison. Each factor was weighted evenly and is presented in the following figure to show the cumulative comparison of each scenario's factors.

Figure 77. Scenario Overview of Coverage Percentages



The cumulative scores reveal the scenarios that provide the greatest coverage, as shown in the following figure. Five scenarios stand out and will be discussed in further detail in the following discussion.

Figure 78. Highest Ranking Scenarios



Ladder Truck (Aerial) Distribution & Coverage

Idaho Survey & Rating Bureau (ISRB) Standards

The Idaho Survey and Rating Bureau uses the Fire Suppression Rating Schedule (FSRS), published by the Insurance Services Office (ISO). This schedule provides its inspectors with guidance on fire protection standards for communities. Individual ladder truck capability should be provided for response areas where communities have five or more buildings that are higher than three stories or a structure requiring a fire flow exceeding 3,500 gallons per minute (GPM), or a combination of both. Also, according to the ISO standard:

> [A] fire protection area needs a ladder/service company in an existing fire station when that station serves 50% or more of a standard response district, not within 2.5 road miles of other ladder/service companies. A standard response district is a built-upon area with a creditable water supply (as defined in Section 201A3) within a response distance of 21/2 road miles.[11]

Ladder Truck or Service Company

A ladder truck is a fire apparatus equipped with a ladder for aerial functions such as:

- Reaching high places like the upper floors of buildings and providing elevated water streams.
- Carrying out search and rescue operations, such as rescuing people from windows or roofs.
- Ventilating buildings by breaking windows or cutting holes in roofs.
- Carrying additional tools, such as axes, saws, and fans, for forcible entry.

Partial credit from ISO may be achieved through the deployment of a "Ladder Service," typically a heavy rescue apparatus without an aerial device but equipped with ladder truck equipment and capable of providing ladder support functions on the fireground.

[11] Fire Suppression Rating Schedule (ISO), Section 540.

National Fire Protection Association (NFPA) Standards

The NFPA 1710 standard specifies that ladder companies should be strategically located to ensure their arrival within 8 minutes. Each ladder company should have at least four (4) firefighters [or five (5)] for aerial operations in high-risk areas and provide timely responses, particularly in areas where building height and density require aerial capabilities.

High-hazard occupancies (e.g., high-rise buildings, hospitals, large industrial sites) should have two ladder companies as part of the initial response, along with multiple engine companies and Chiefs, totaling 43 or more firefighters on scene. High-hazard scenarios demand multiple aerials for simultaneous operations (such as rescue and elevated water streams).

National Fire Protection Association's Fire Protection Handbook

This comprehensive reference provides recommendations on fire department capabilities and aligns with many NFPA deployment standards. For instance, the NFPA Fire Protection Handbook (20th Ed.) recommends that:

- High-hazard occupancies (e.g., hospitals, high-rises) should have at least two ladder trucks (or equivalent aerial devices) respond on the first alarm.
- Medium-hazard occupancies (apartments, offices) should have at least one ladder truck in the initial response.
- Low-hazard occupancies (typical residential homes) also should have one ladder truck respond, even if the probability of needing its full capability is lower. These guidelines reinforce that a ladder truck is essential for all types of structure fires, with the number of ladders adjusted based on risk.

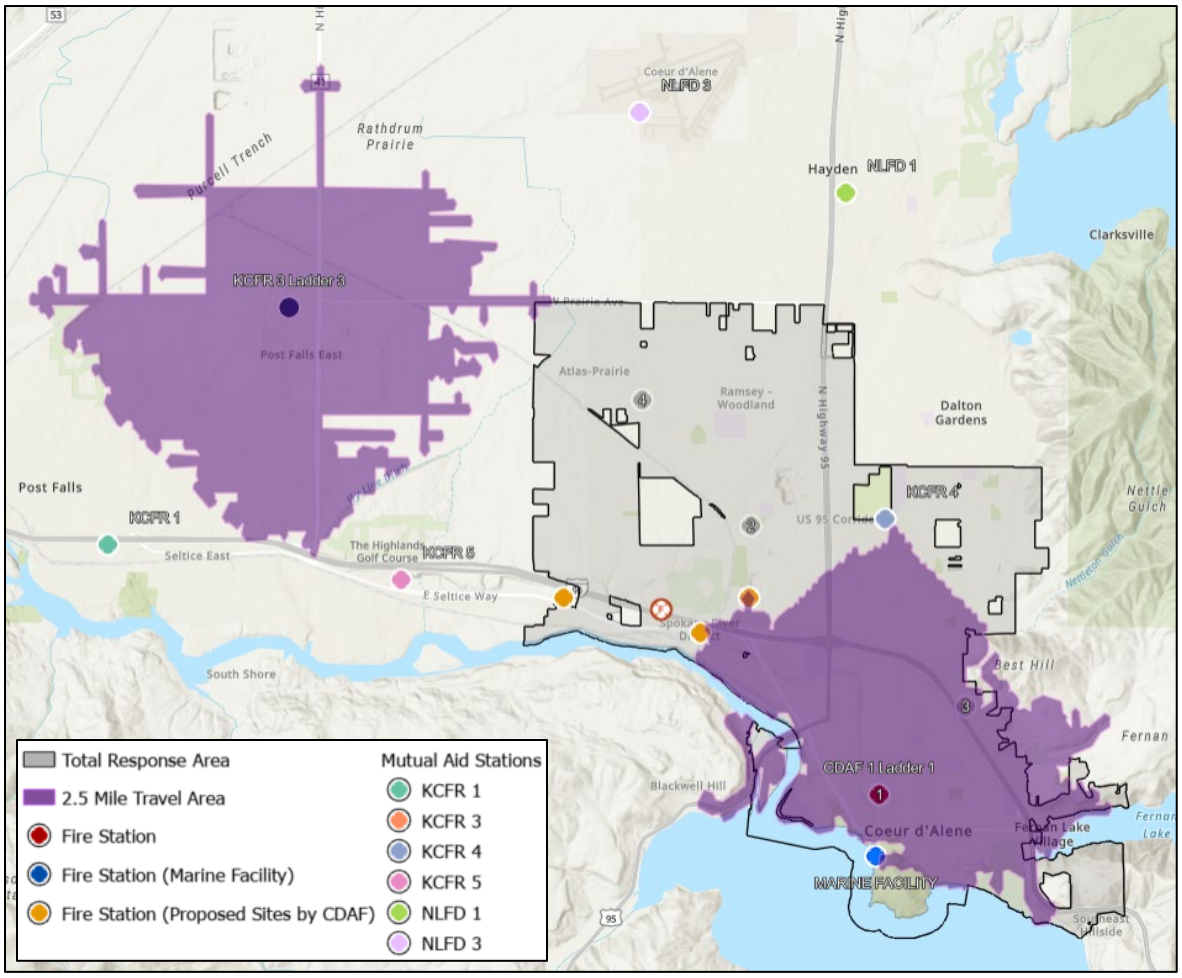
NFPA provides baseline standards for deploying ladder trucks (staffing, timing), and ISO provides quantitative criteria for when and where a department should deploy them based on community risk. Together, they form the foundation of national best practices.

In the subsequent analysis, ESCI will provide detailed data on the current deployment system and, by comparison, the three scenarios: B, C, and D.

Scenario A – Current Ladder Service – 2.5-Mile

The following figure and table show coverage data and the 2.5-mile travel distance for ladder service for CDAF's single ladder company, assigned to Station 1, and the next closest ladder company, operated by KCFR, assigned to Station 3. CDAF Ladder 1 covers 7 square miles of the city, or 39% of the built-up area, leaving 61% of the city uncovered. KCFR Ladder 13 cannot reach the city within the 2.5-mile standard. From an ISO rating perspective only, little benefit to the City of Coeur d'Alene's rating would be derived from mutual aid with KCFR's ladder truck.

Figure 79. Existing Ladder Service – 2.5-Mile Standard

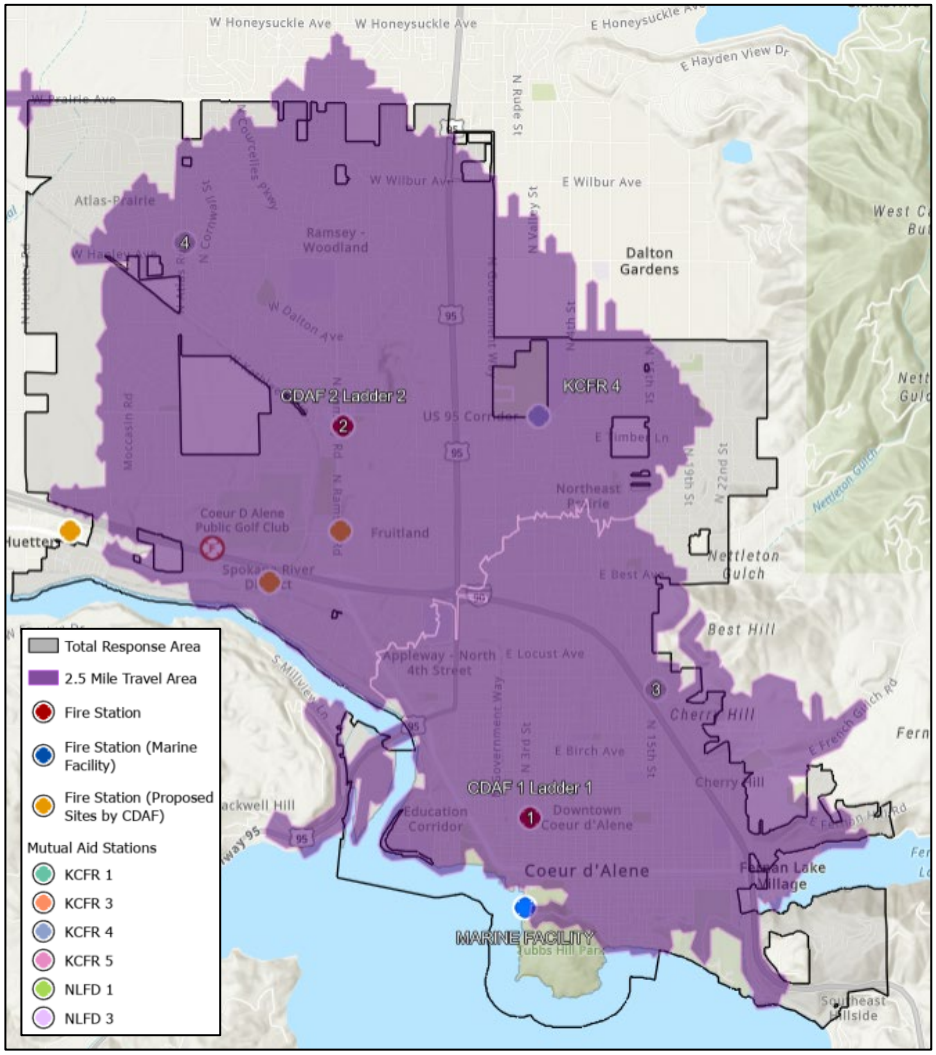


Sum of Sq. Miles	5-Yr. Total Fire Incidents	Count of Structures	Total Footage
7.32	9,605	8,690	21,863,737

Scenario B – New Ladder CDAF2 (Existing Site) – 2.5-Mile

To obtain better ladder company coverage of the built-upon area of Coeur d'Alene, ESCI modeled a second ladder truck assigned to existing Station 2 using the ISRB standards. The following figure shows that approximately 80% of the city area would receive ladder coverage. Most importantly, the coverage of commercial development along N. Highway 95 would be improved. In addition, the following table provides comparative data.

Figure 80. Future Ladder Coverage 2.5-Mile Standard (Station 2)

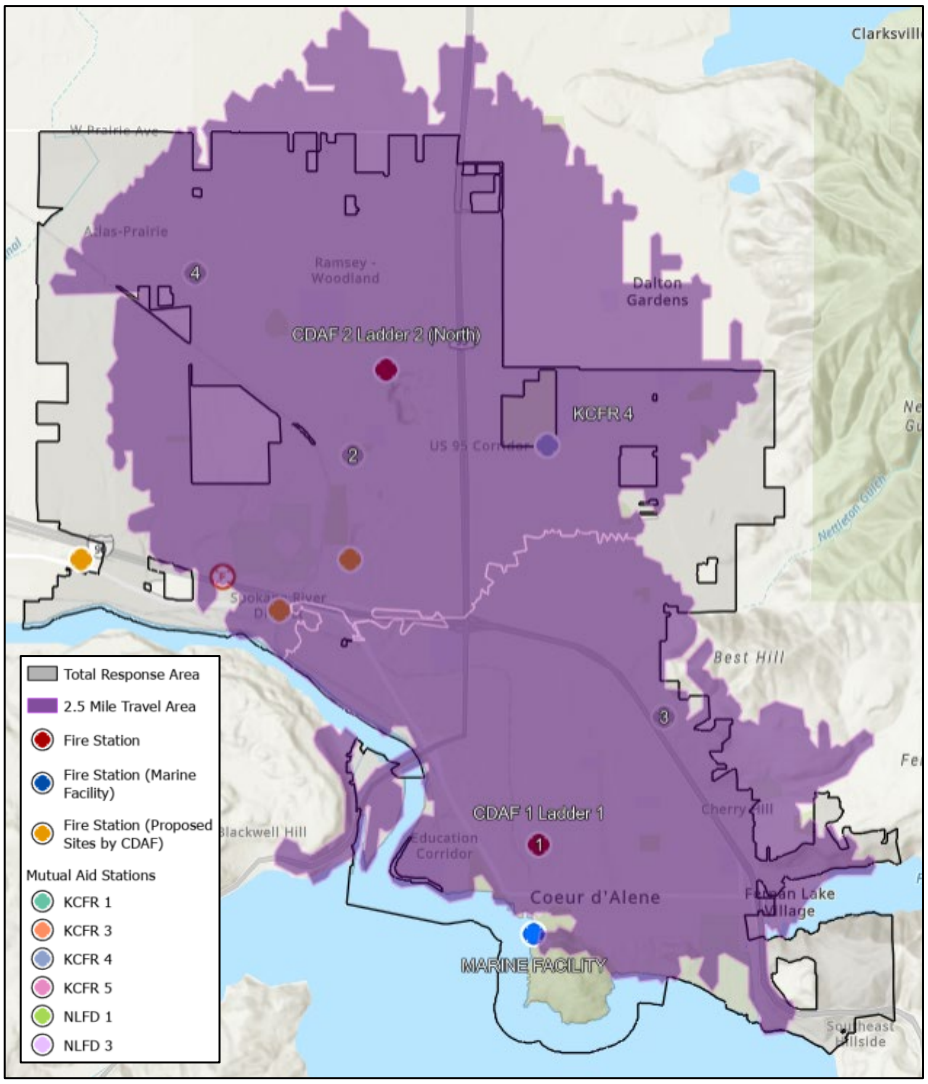


Sum of Sq. Miles	5-Yr. Total Fire Incidents	Count of Structures	Total Footage
11.53	12,166	18,414	44,848,486

Scenario C – New Ladder Service CDAF2 (North Site) – 2.5-Mile

Alternatively, ESCI modeled a second ladder truck assigned to the northern site, located near the intersection of North Dalton Avenue and North Pleasant Way. The following figure and subsequent data table show that approximately 76% of the city area would receive ladder coverage. Again, coverage of commercial development on N. Highway 95 would be well served with ladder service.

Figure 81. Future Ladder Coverage 2.5-Mile Standard (Station 2 North)

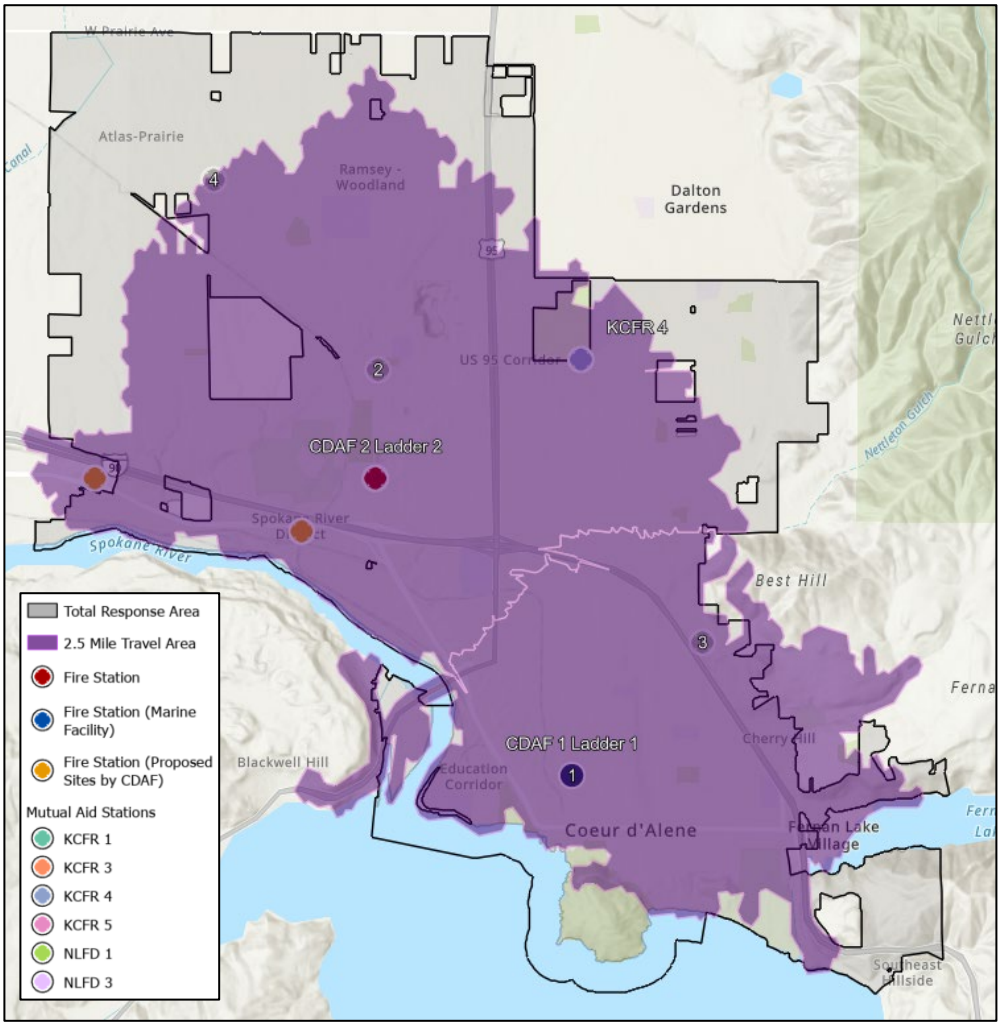


Sum of Sq. Miles	5-Yr. Total Fire Incidents	Count of Structures	Total Footage
15.19	15,263	16,916	46,786,885

Scenario D – New Ladder Service CDAF2 (South Site) – 2.5-Mile

Alternatively, ESCI modeled a second ladder truck assigned to existing Station 2. The following figure and data table show that approximately 69% of the city area would receive ladder coverage. Coverage of commercial development on N. Highway 95 would be mostly covered, except for the north end to the city boundary.

Figure 82. Future Ladder Coverage 2.5-Mile Standard (Station 2 South)

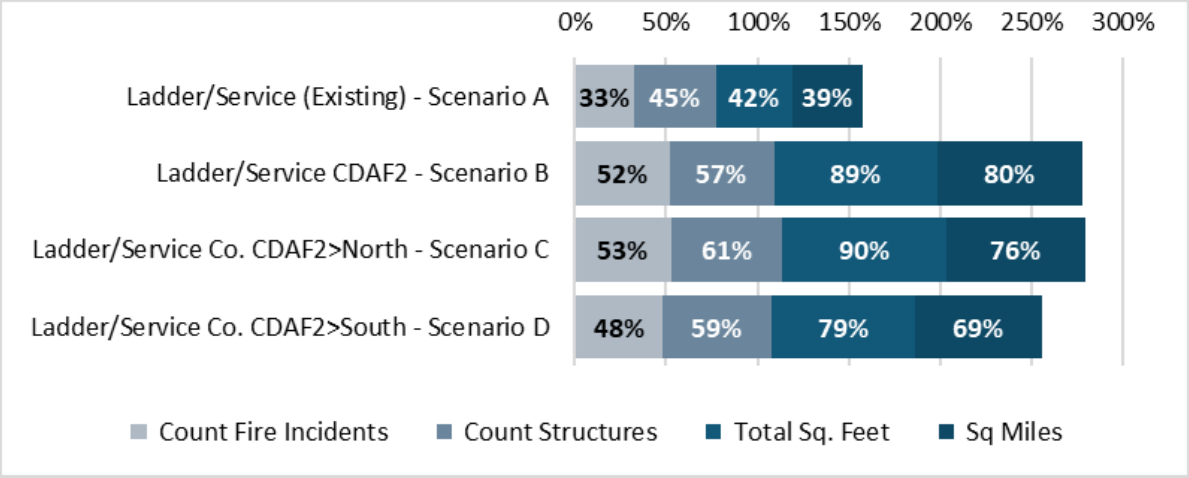


Sum of Sq. Miles	5-Yr. Total Fire Incidents	Count of Structures	Total Footage
13.2	14,233	17,430	41,599,238

Summary of Ladder Truck Coverage

The current coverage of ladder company services is inadequate in the northern portion of the city. The following figure illustrates the cumulative factors for the four scenarios, showing that adding a ladder to any of scenarios B, C, or D provides a significant improvement in ladder protection for the city. There are nominal differences between the three locations, and any site would provide acceptable coverage for the city.

Figure 83. Ladder Company Summary Score



EMS Deployment

The Kootenai County Emergency Medical Services System (KCEMSS) is a collaborative network that delivers both basic life support (BLS) and advanced life support (ALS) ambulance services throughout Kootenai County. This system includes partnerships with several local fire departments and EMS providers, such as:

- Kootenai County Fire & Rescue
- Coeur d'Alene Fire Department
- Northern Lakes Fire District
- Spirit Lake Fire Protection District
- Timberlake Fire Protection District
- Hauser Lake Fire Protection District

The Coeur d'Alene Fire Department provides advanced life support (ALS) ambulance service across the city and Kootenai County. In 2023, the department expanded its capabilities by introducing a third ALS ambulance, Medic 34, which operates 24 hours a day, 4 days a week, and is assigned to Station 4 on Atlas Road and Hanley Avenue. This addition of Medic unit service was intended to reduce the growing service demand on the department's two existing resources.

Service Deployment Guidelines

The Kootenai County 911 Communications Center utilizes ProQA software, which assists 911 dispatchers in quickly and accurately assessing medical emergencies and determining the appropriate response. It works by guiding dispatchers through a series of structured questions based on the caller's description of the emergency. These questions help categorize the situation by chief complaint and assign a determinant code that reflects the call's severity and urgency. The determinant code severity is classified as follows:

- Ω (Omega): Non-emergency; often handled by referral or advice.
- A (Alpha): Minor issues; no lights and sirens needed.
- B (Bravo): Moderate concern; may need a basic response.
- C (Charlie): Potentially serious; ALS may be needed.
- D (Delta): Serious, life-threatening, but not in cardiac arrest.
- E (Echo): Immediately life-threatening, such as cardiac or respiratory arrest.

This system ensures that the right level of care and the optimal number of resources are dispatched efficiently, thereby improving outcomes and promoting efficient resource management. The Coeur d'Alene Fire Department typically dispatches an ALS ambulance and an engine company to most serious incidents, except for incidents classified as Omega or Alpha. The resource allocation is designed to ensure adequate staffing for simultaneous patient care, evacuating patients from upper or lower floors, and lifting and moving heavy patients.

Commitment Factor

The commitment factor is a measure of how busy each unit (ambulance, engine, ladder, etc.) is throughout the year. Typically, the commitment factor is also known as unit-hour utilization (UHU). This workload metric measures the percentage of a unit's shift when it is unavailable. The calculation is based on the yearly hours available divided by the hours each unit was committed to incidents.

Figure 84. Unit Commitment Factors

Station	Unit	2020	2021	2022	2023	2024	Change over Study Period
Station 4	CDAF-M34	0.0%	0.0%	0.0%	*10.5%	*15.1%	15.1%
Station 4	CDAF-E4	5.0%	5.5%	6.3%	5.9%	6.7%	1.7%
Station 3	CDAF-E3	9.0%	9.5%	9.5%	9.4%	10.0%	1.0%
Station 3	CDAF-R3	0.0%	0.0%	0.1%	0.2%	0.6%	0.6%
Station 2	CDAF-M32	24.3%	25.5%	26.5%	23.6%	25.5%	1.2%
Station 2	CDAF-E2	9.8%	11.1%	11.4%	10.8%	10.9%	1.0%
Station 1	CDAF-M31	19.6%	21.6%	21.3%	20.1%	21.1%	1.5%
Station 1	CDAF-L1	6.0%	6.3%	6.3%	6.3%	6.1%	0.2%
Station 1	CDAF-BC	2.5%	3.0%	2.7%	2.6%	2.9%	0.4%

*Based on Medic 34 placed in service for four (4) days each week in 2023 and 2024.

Analysis Assumptions

To ensure consistent comparative analysis across scenarios, ESCI found that the region served by CDAF experienced approximately 66,835 EMS incidents over the five years from 2020 to 2024. This total comprises all classifications of EMS Incidents, Motor Vehicle Incidents, Service Calls, and Other incidents.

It is understood that Station 4's medic unit is currently in service 4 days a week on a 24-hour basis, and the data and mapping assume a 7-day-a-week response model. For the comparative analysis of preferred station locations, ESCI assumes the presence of a full-time medic unit in Station 4. A separate analysis of the impact of the part-time Medic 34, presented earlier in this report in the section "Evaluation of Medic 34 In Service," demonstrates a positive effect on the commitment factors of Medics 31 and 32.

Percentages for each scenario are based on EMS incident volume within a 4-minute travel time. This analysis method should not represent the system's entire response model. ESCI is using this metric to provide the comparative analysis and identify the optimal deployment locations for the medic units.

NFPA 1710 states that an ALS unit should arrive at an emergency medical incident within 8 minutes, provided that a first responder with an AED or BLS unit arrives within 4 minutes. Engine companies in Station 3, and at times Station 4, serve this purpose in their first-due area. If a BLS unit does not deploy or arrive within the 4-minute travel time, the standard requires the ALS unit to arrive within that time instead. In addition, the standard requires that at least two (2) members be trained at the EMT-Paramedic level and two members trained at the EMT-Basic level, arriving within the travel time standard.

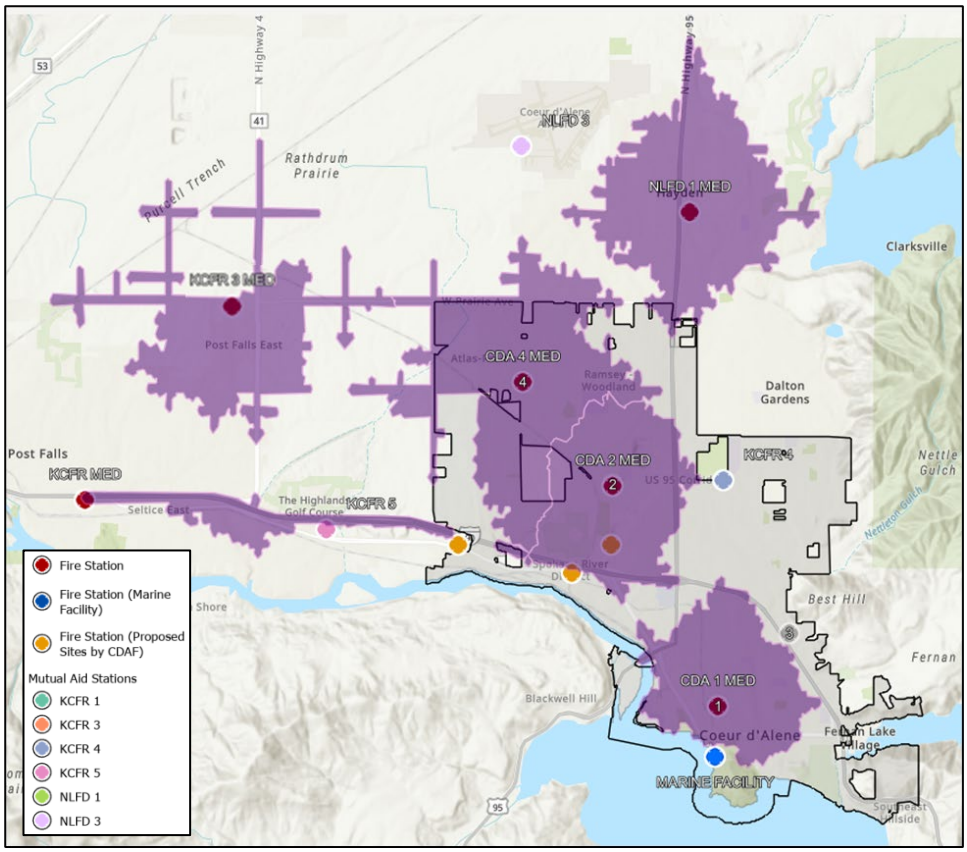
The Coeur d'Alene Fire Department achieves this standard by deploying four first-due engine or ladder companies, each staffed with a paramedic and EMTs, to meet the 4-minute travel standard, followed by 2.5 ALS ambulances, each staffed with one paramedic and one EMT, arriving within 8 minutes.

In the subsequent analysis, ESCI will provide a detailed comparison with the current deployment system and of six scenarios: B, C, D, E, F, and G.

EMS Scenario A – Existing Deployment

The EMS deployment system and the following analysis are based on a regional approach. The analysis included ALS ambulances assigned to KCFR Stations 1 and 3, Northern Lakes Fire Department Station 1, and CDAF's three ALS ambulance units: Stations 1, 2, and 4. EMS-related incidents were included in the analysis. The following figure shows a 4-minute travel time (distribution) for each medic unit station assignment, and the table provides the percentage of coverage for each medic unit.

Figure 85. EMS Scenario A Deployment Map (Existing)



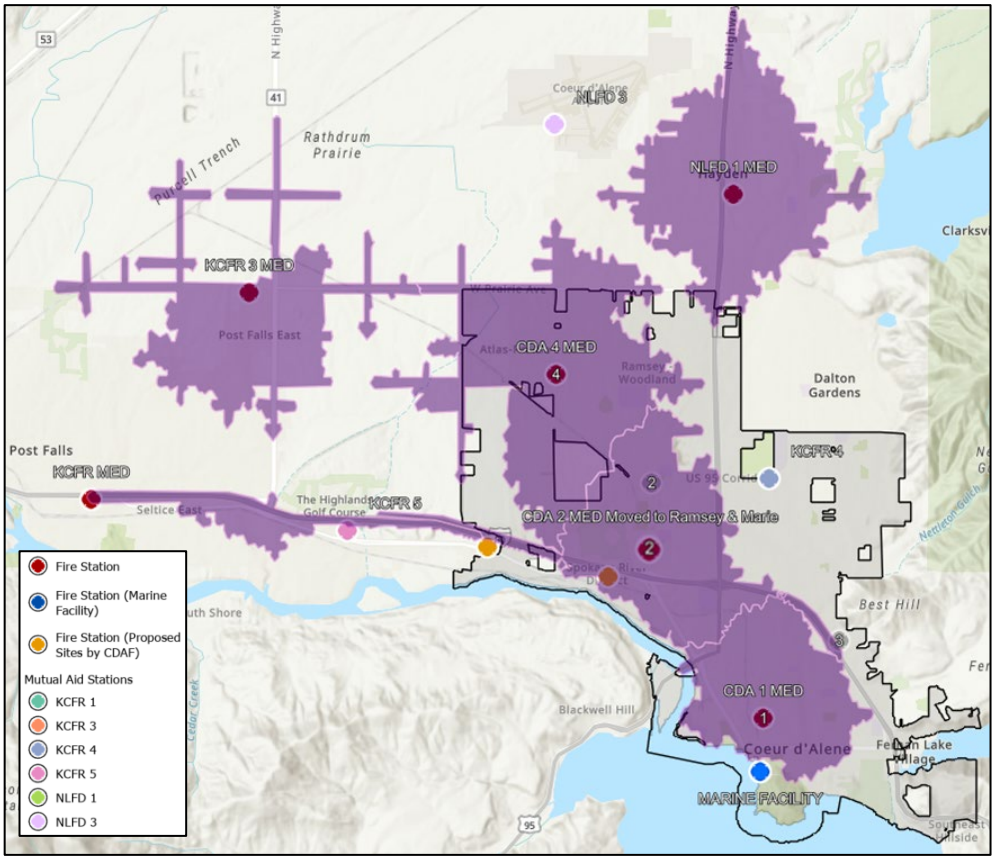
Station	% By Station
CDAF Station 1 Medic Unit	18%
CDAF Station 2 Medic Unit	15%
CDAF Station 4 Medic Unit	10%

The preceding data shows the percentage of EMS incidents within a 4-minute travel time for CDAF's medic units. The KCFR and NLFD medic units collectively capture 3.7% of the remaining EMS incidents within the 4-minute travel time boundary.

EMS Scenario B – Move Station 2 Medic Unit to Ramsey & Marie

In this scenario, Station 2 was relocated to Ramsey and Marie with the assigned medic unit, and the overall station deployment scenarios were analyzed. The following figure shows a 4-minute travel time for each medic unit station assignment, again followed by the coverage data.

Figure 86. EMS Scenario B Deployment Map



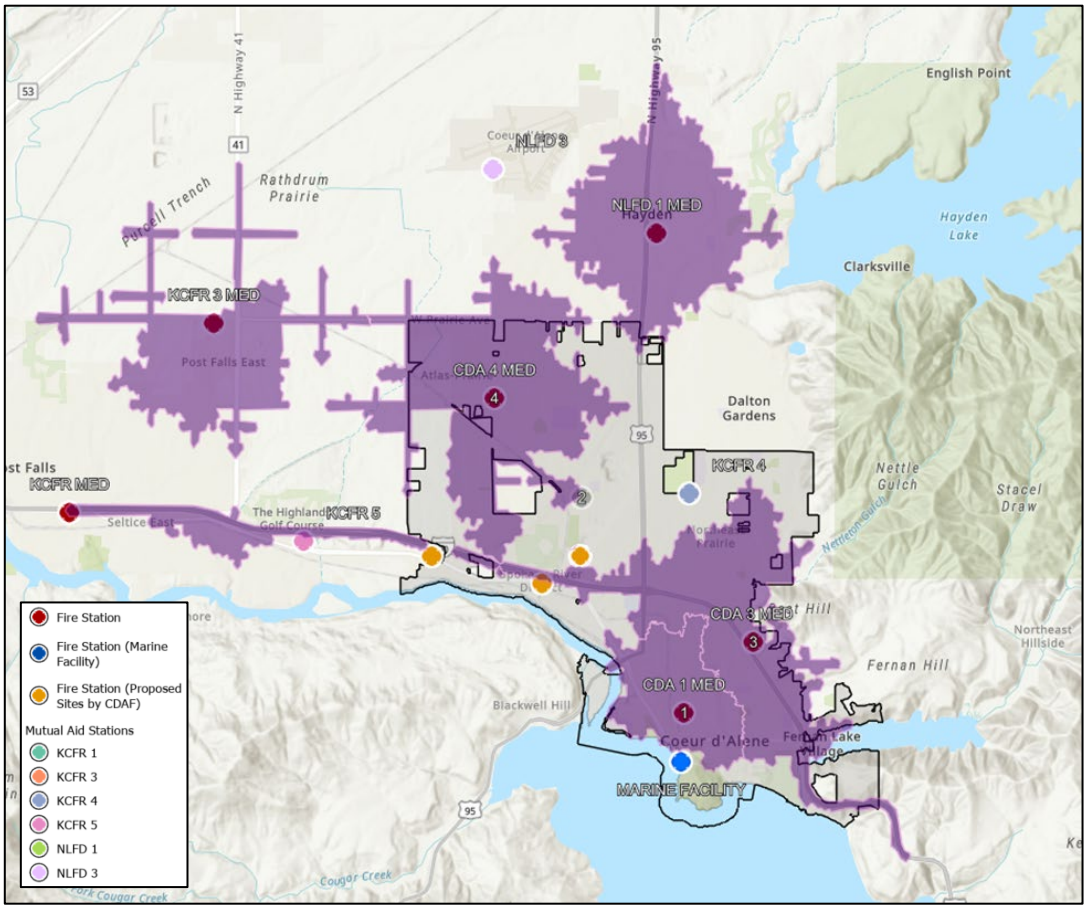
Station	% By Station
CDAF Station 1 Medic Unit	17%
CDAF Sta. 2 Medic Unit Moved to Marie	31%
CDAF Station 4 Medic Unit	11%

This scenario results in good distribution coverage of the area, with a combined travel time of 4 minutes. Thirty-one percent of incidents take place within the relocated Station 2 zone. The proportion of Station 1 incidents is reduced by 1%, from 18% to 17%.

EMS Scenario C – Move Station 2 Medic Unit to Station 3

This scenario involved ESCI reassigning the medic unit from Station 2 to Station 3. The following figure shows a 4-minute travel time for each medic unit station assignment, followed by the data table.

Figure 87. Scenario C Deployment Map



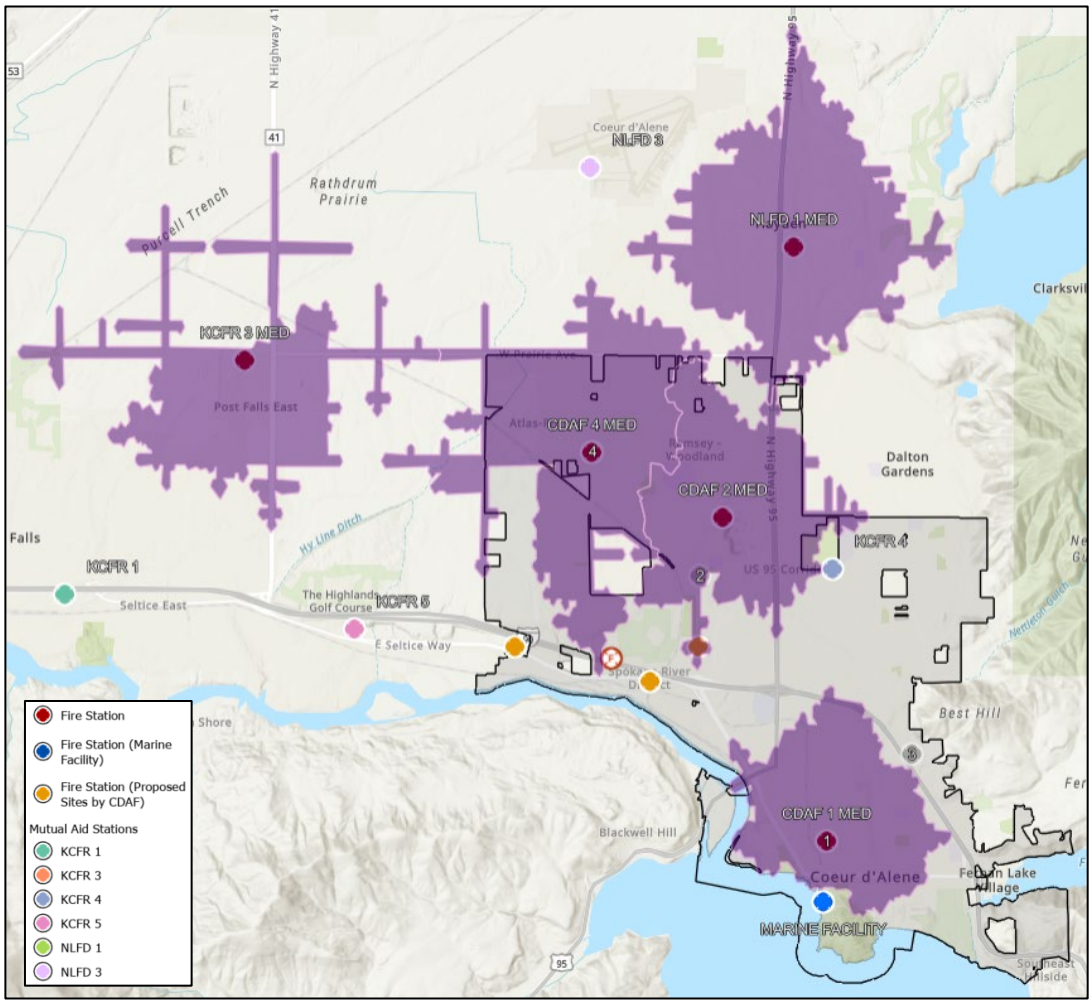
Station	% By Station
CDA Station 1 Medic Unit	14%
CDA Sta. 2 Medic Unit Moved to Sta. 3	27%
CDA Station 4 Medic Unit	12%

This scenario highlights a significant gap where the greatest incident concentration has historically occurred.

EMS Scenario D – Move Station 2 Medic Unit to Station 2 North

ESCI assessed the potential impact on EMS coverage if Station 2 were relocated to the north of its current site. The following figure and table show a 4-minute travel time for each medic unit station assignment and coverage data.

Figure 88. Scenario D Deployment Map



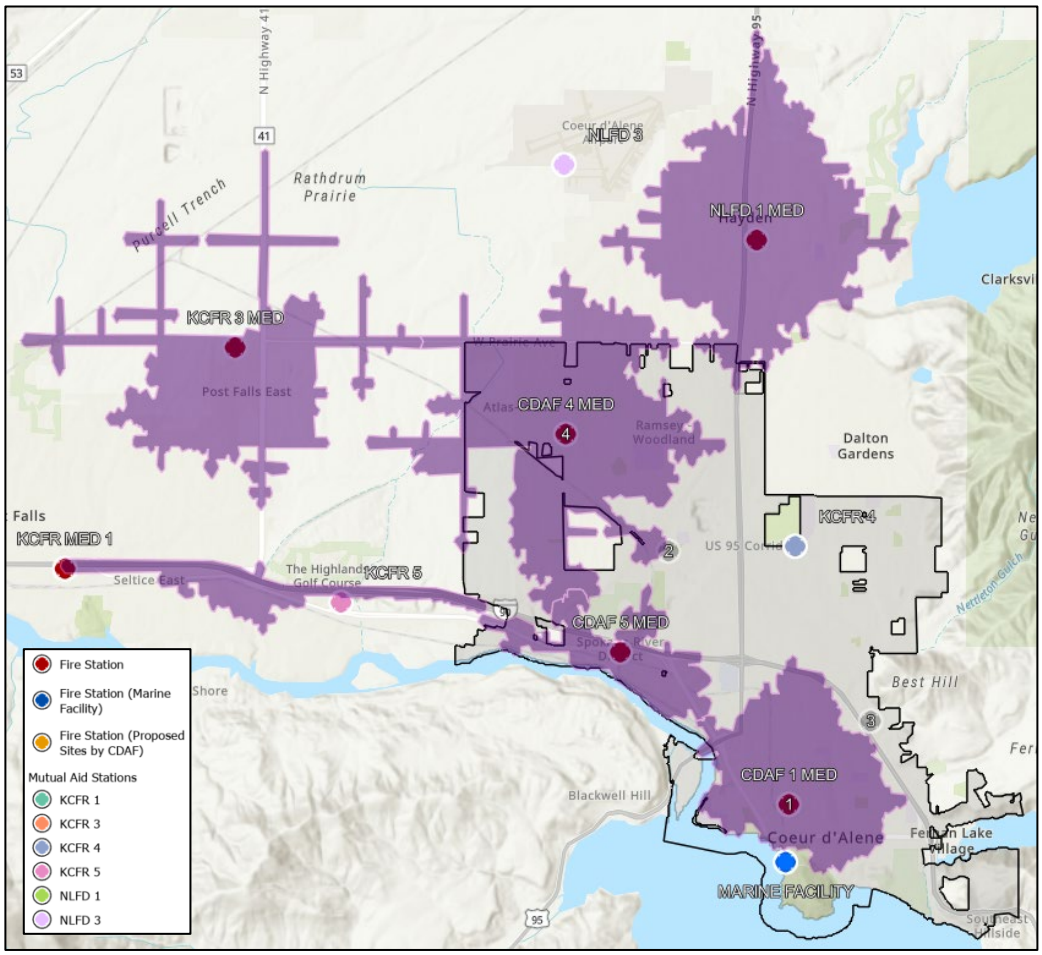
Station	% By Station
CDA Station 1 Medic Unit	18%
CDA Station 2 Medic Unit Moved to Sta. 3	15%
CDA Station 4 Medic Unit	9%

Again, this scenario highlights a gap where the greatest concentration of incidents has historically occurred.

EMS Scenario E – Move Station 2 Medic Unit to Station 5 Riverstone

ESCI assessed the potential impact on EMS coverage if Station 2 were relocated to the Riverstone site. The following figure and table show the 4-minute travel time for each medic unit station assignment and coverage data.

Figure 89. Scenario E Deployment Map

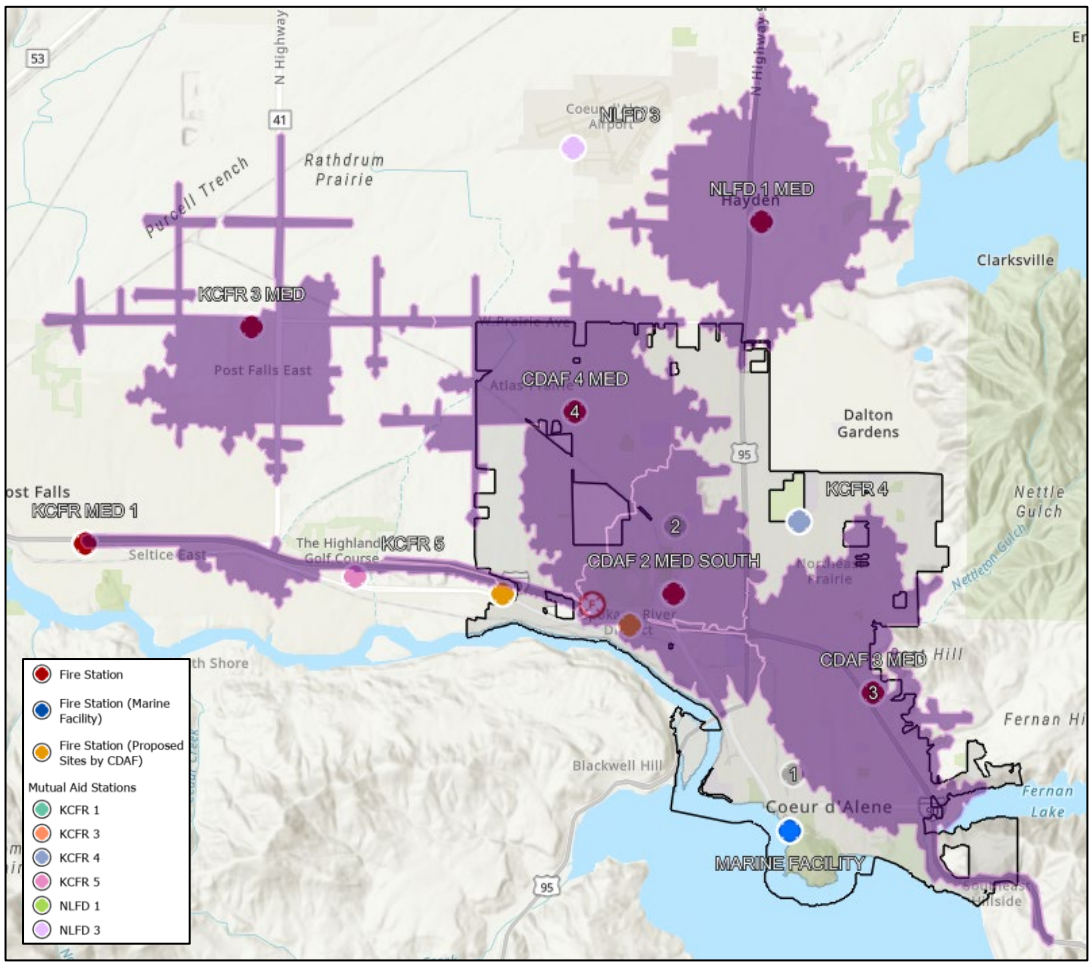


Station	% By Station
CDA Station 1 Medic Unit	18%
CDA Sta. 2 Medic Unit Moved to Station 5	10%
CDA Station 4 Medic Unit	12%

Although relocating the medic unit to the Riverstone site is central to Stations 1 and 4, it will capture a smaller share of EMS incidents than other alternatives.

EMS Scenario F –Sta. 2 Medic Unit @ South & Sta. 1 Medic Unit @ Sta. 3

ESCI assessed the potential impact on EMS coverage if Station 2 were relocated to the south of its current site. The following figure and table show a 4-minute travel time for each medic unit station assignment and coverage data.

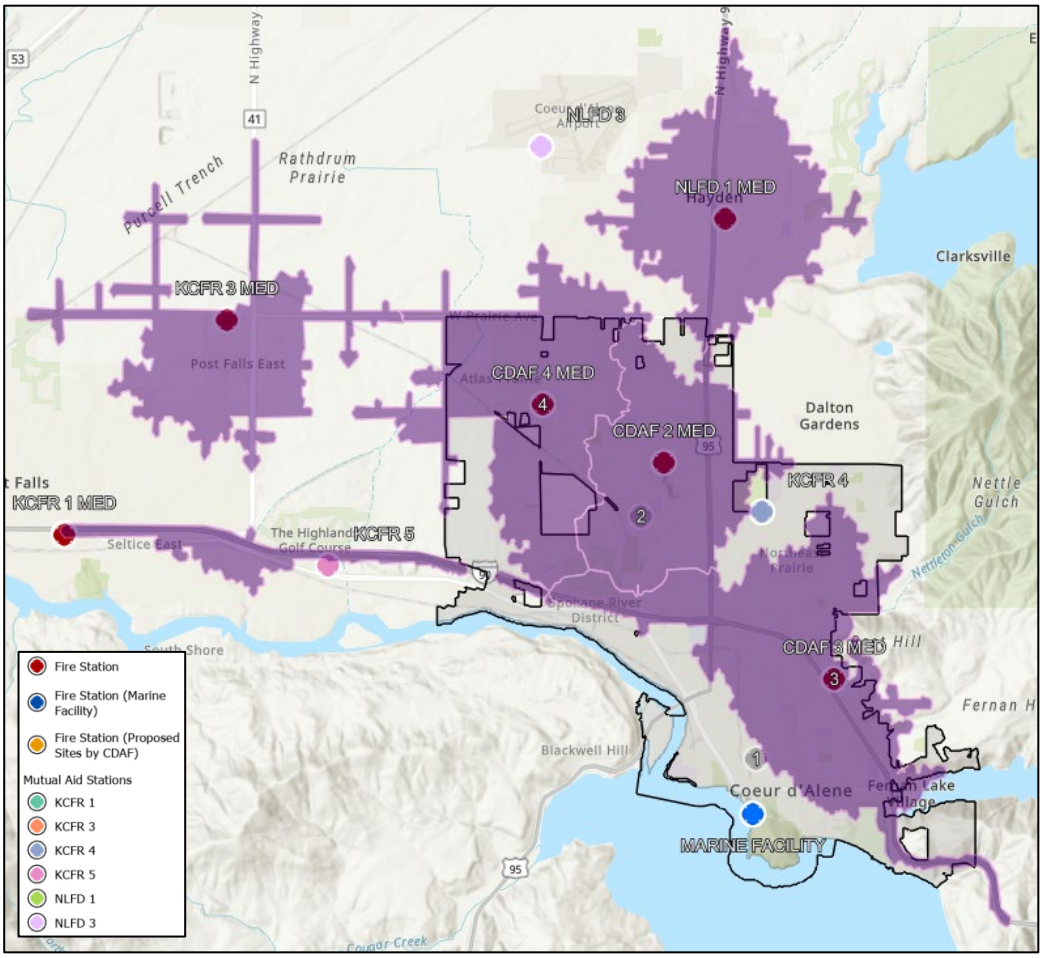


Station	% By Station
CDA Station 3 Medic Unit	28%
CDA Station 2 Medic Unit to Marie	29%
CDA Station 4 Medic Unit	11%

This scenario captures the highest percentage and greatest concentration of EMS incidents.

EMS Scenario G –Sta. 2 Medic Unit @ North & Sta. 1 Medic Unit @ Sta. 3

ESCI assessed the potential impact on EMS coverage if Station 2 were relocated to the north of its current site near Dalton and Pleasant, and Station 1's medic unit was moved to Station 3. The following figure and table show the 4-minute travel time for each medic unit station assignment, along with the coverage data.



Station	% By Station
CDA Station 3 Medic Unit	35%
CDA Station 2 Medic Unit to Dalton	17%
CDA Station 4 Medic Unit	9%

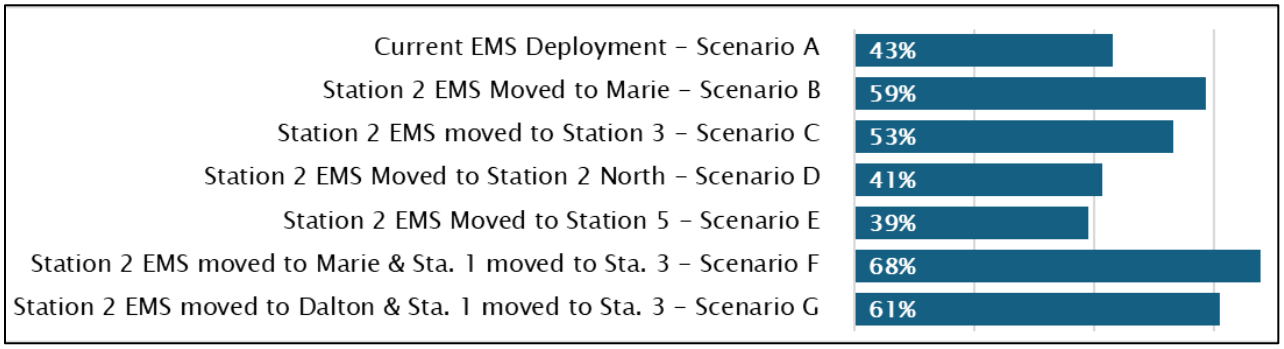
This scenario captures a high percentage of EMS incidents; it ranks second overall.

Summary of EMS Medic Unit Coverage

The current medic unit coverage could be improved by exploring potential station configurations and relocation options. One concern is the increasing EMS incident call volume, particularly at Stations 1 and 2, driven by high incident demand in the downtown area. The CDAF initiated a pilot program to establish a daytime medic unit using overtime, with the primary aim of mitigating the impacts on Engine 2 and Ladder 1. This medic unit is based at the Kootenai Health Hospital. During the pilot period, the department has found it nearly impossible to obtain enough staff on overtime to place the unit in service. This analysis does not consider the impact of this pilot program due to the limited availability of the unit.

The next figure shows incident capture within a 4-minute travel time. Relocating Station 2's medic unit to the south at the Marie location and moving Medic 31 to Station 3 provides the greatest medic unit coverage benefit, Scenario F.

Figure 90. Count of EMS Incidents – Scenarios



Recommendations

Service Delivery & Performance

ESCI recommends considering two Service Delivery Distribution Strategies, which are discussed in more detail.

Five-Station Deployment (Scenario J)

This option proposes a five-station distribution and seamless use of KCFR Station 4. The following figure details the recommended unit placement and deployment.

- Relocate Station 2 to the north (Dalton & Pleasant) and construct a new Station 5 at the Riverstone site. We recommend that Station 2 be staffed 24 hours a day with a ladder/quint company, a Battalion Chief, and a medic unit (Medic 32).
- ESCI recommends relocating Medic 31 to Station 3 and staffing Medic 34 on a full-time basis.

Figure 91. Five Station Staffing Recommendation (Scenario J)

Station 1	Station 2	Station 3	Station 4	Station 5
Ladder/Quint (4 FFs)	Ladder/Quint (4 FFs) Medic Unit (2 FFs) Bat. Chief (1 FF)	Engine (3 FFs) Medic Unit (2 FFs)	Engine (3 FFs) Medic Unit (2 FFs)	Engine (3 FFs)
			Total Minimum Staffing	**24**

Discussion: This Five-Station Deployment strategy provides improved coverage and maximum overall distribution across the city, including proposed annexations within the Area of City Impact (ACI). The current travel time averages 2 minutes, which is above the recommended standard (4 minutes). The number of stations and the reliability of response units directly impact travel times. Therefore, adding a fire station will reduce travel time. The improvement in ladder service to the northern portion of the city, compared to existing ladder coverage, provides 77% better coverage under this recommendation.

Although the medic unit coverage is better with other options, the cumulative coverage in this option is improved for all services combined. Additionally, the workload among the three medic units will be better balanced.

The effective Response force is improved on a 24-hour basis to align resources with the community's greater risks: high-rise, commercial, and apartment buildings. Increasing the minimum number of firefighters from 19 (Current) to 24 represents a 26% improvement in firefighting capability.

Four Station Deployment (Scenario F)

This option proposes maintaining a four-station distribution and incorporating seamless use of KCFR Station 4. The following figure details the recommended unit placement and deployment.

- Move Station 2 to the South (Marie & Ramsey). We recommend that Station 2 be staffed 24 hours a day with a ladder/quint company, a Battalion Chief, and a medic unit (Medic 32).
- ESCI recommends relocating Medic 31 to Station 3 and staffing Medic 34 on a full-time basis.

Figure 92. Four Station Staffing Recommendation (Scenario F)

Station 1	Station 2	Station 3	Station 4
Ladder/Quint (4 FFs)	Ladder/Quint (4 FFs) Medic Unit (2 FFs) Bat. Chief (1 FF)	Engine (3 FFs) Medic Unit (2 FFs)	Engine (3 FFs) Medic Unit (2 FFs)
		Total Minimum Staffing	**21**

Discussion: This option provides improved overall distribution across the city boundaries compared to the existing station locations, but less overall coverage than Scenario J. It offers an economical approach to enhancing service deployment.

The improvement in ladder service to the northern portion of the city, compared to existing ladder coverage, provides 62% improved coverage. Additionally, the distance from the proposed site places the second ladder truck closer to downtown, where most high-rise buildings are located.

Medic unit coverage is excellent, with Station 2 moved to the south. Doing so achieves the greatest coverage while balancing the workload across the three medic units.

This option results in a lower minimum staffing level than the five-station recommendation for producing an effective response force. This should be considered in light of the recommended number of firefighters (42) required for high-rise or large commercial fires. However, this option provides an incremental improvement from 19 to 21 minimum firefighter staffing, a 10% improvement.

The following recommendations apply to the two options discussed previously and are provided here to enhance clarity.

- Relocate the Battalion Chief to one of the recommended locations for Station 2.
  - On an interim basis, relocate the Battalion Chief to the existing Station 2.
- Collaborate with Kootenai County EMS to secure funding for the full-time, 24/7 staffing of Medic 34.
- Initially, give ladder companies priority for staffing with a minimum of four (4) personnel due to the complexities and tasks required for ladder companies.
- In the long term, strive to staff engine companies with a minimum of four (4) personnel when a funding mechanism is identified and achievable, to achieve a higher minimum staffing level aligned with the community's high-rise risk.

Other service delivery and performance recommendations:

- Coordinate with the Kootenai County Fire Chiefs to implement automated vehicle location (AVL) dispatching and automatic aid agreements with all agencies. The goal should be to ensure that emergency resources in the region respond promptly, regardless of jurisdictional boundaries, through a dispatch system that selects the closest units and automatically assigns them based on incident type and the community's risk level.
- Complete a thorough review of the fire and EMS dispatch center to identify areas for improving call processing times.
- Complete a thorough review of CDAF resource turnout times, identify opportunities for improvement, and take active steps to meet the standard and maintain continuous monitoring.

Capital Planning

- Establish a Capital Facilities Plan to address necessary facility upgrades, including improvements to living accommodations, the development of hot, warm, and cold zones, and enhancements to the flow of living crew quarters to response units in the apparatus bay, among other objectives.
- Establish a CDAF Vehicle Replacement Plan to ensure the timely replacement of apparatus, taking into account the required funding mechanisms and manufacturers' delivery timelines.
- Collaborate with Kootenai County EMS to develop a data-driven ambulance replacement schedule and plan, ensuring that ambulances remain reliable and are replaced before reliability issues arise.

Legislative & Funding Strategies

- Work with local and state officials in Idaho to adopt legislation that allows tourist destinations, such as the City of Coeur d'Alene, to implement local option tax funding mechanisms to provide essential services.
- Collaborate with Kootenai County EMS to review current EMS fees and property tax levy rates, then develop strategies to ensure adequate funding to meet the community's growing service needs.
- Complete a cost-benefit analysis of the overtime relief factor to determine the number of additional personnel necessary to staff appropriately.