



2024 Long-Range Master Plan

CENTRAL CITY FIRE DEPARTMENT

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Contents

- Executive Summary7**
- Acknowledgments9**
- Organizational Overview 10**
 - Service Area Population & Demographics 10
 - History and Formation 12
 - Governance and Lines of Authority..... 12
 - Foundational Organizational Documents..... 13
 - Organizational Design 13
 - Insurance Services Office (ISO) 14
- Management Components.....15**
 - Planning, Goals, & Objectives 15
 - Internal Assessment of Critical Issues..... 16
 - Internal Assessment of Future Challenges 17
 - Internal Communication Processes 18
 - External Communication Processes..... 18
 - Reporting & Recordkeeping..... 19
 - Information Technology Systems..... 19
 - Document Control and Security 19
- Personnel Management and Staffing21**
 - Reports & Recordkeeping 21
 - Labor-Management..... 21
 - Compensation..... 21
 - Certifications & Licensing..... 22
 - Counseling Services 23
 - Application & Recruitment Processes 23
 - Health And Wellness Programs 24
 - Staffing..... 24
 - Administration and Support Staffing..... 24
 - Operational Staffing Levels 24



Review Staff Scheduling Methodology 25

Emergency Services 25

 NFA Staffing Recommendations 26

Financial Analysis29

 Historical Financial Analysis 29

 Fund Accounting 29

 General Fund 29

 Public Safety Fund 30

 Capital Improvement Fund..... 30

 Historical Revenue and Expenditures 30

 Revenue 30

 Expenditures..... 32

 Revenue vs. Expenditures 33

 Fund Balances 33

 Employee Compensation 35

 Salary and Pay Comparison 36

 Part-Time to Full-Time..... 38

 Capital Improvement Plan 39

Capital Assets.....40

 Fixed Facilities 40

 Locations of Facilities 40

 Facilities Review..... 40

 Facilities Review..... 44

 Fleet/Apparatus..... 45

 Age, Condition, & Serviceability..... 45

 Maintenance 47

 Future Needs 47

 Apparatus Replacement Planning 47

 Equipment 52

 Capital Improvement Plan 52



Service Delivery & Performance54

- Service Demand Analysis 54
 - Incident Type Analysis..... 54
 - Temporal Analysis 57
 - Geographic Analysis..... 59
- Resource Distribution Analysis 62
 - ISO Distribution 62
- Resource Concentration Analysis..... 66
- Resource Reliability Analysis 70
 - Commitment Time 70
- Response Performance Analysis 71
 - Alarm Handling Time 72
 - Response Time 73
- Automatic and Mutual Aid 73

Planning for Fire Protection and Emergency Medical Services76

- Current Planning Process..... 76

Future Projections77

- Population Growth Projections..... 77
 - Population History 77
 - Population Projection 78
- Service Demand Projections 79
 - Future Service Demand by Population..... 79

Future Delivery System Modeling.....81

- Response Standards and Targets 81
- Critical Tasks, Risk, and Staffing Performance..... 82
 - Distribution Performance Criterion 85
 - Critical Tasking..... 86
 - Dynamics of Fire in Buildings 86
 - Emergency Medical Event Sequence 89
 - Response Standards for People, Tools, & Time 90



Optimization of Fire Station Locations..... 91

 Single Station Scenarios..... 93

 Two Station Scenarios..... 96

 Summary..... 99

Conclusions and Recommendations 100

 Data Collection and Analysis..... 100

 Key Findings..... 100

 Short-Term Strategies..... 101

 Recommendation 1-A: Fire Station(s) Plan..... 101

 Recommendation 1-B: Add Paid Staffing 106

 Recommendation 1-C: Fleet Needs Analysis..... 107

 Recommendation 1-D: Improve Volunteer Recruitment and Retention..... 108

 Recommendation 1-E: Improve Relationships with Neighboring Agencies 108

 Recommendation 1-F: Develop a Department Vision Statement 111

 Recommendation 1-G: Develop Strategic Plans 111

 Recommendation 1-H: Develop and Release Annual Reports 112

 Recommendation 1-I: Develop a Long-Range Capital Improvement Plan 112

 Recommendation 1-J: Additional Social Media Platforms 112

 Recommendation 1-K: Part-Time Admin Assistant 113

 Mid-Term Strategies 113

 Recommendation 2-A: Full-Time Career Staffing 113

 Recommendation 2-B: Utilize National Fire Academy for Professional Development. 114

 Recommendation 2-C: Administrative Duties for Company Officers 115

 Recommendation 2-D: Cross Train Personnel for Fire Inspections..... 116

 Recommendation 2-E: Develop a Community Risk Assessment/Standards of Cover Document 117

 Recommendation 2-F: Fire Chief Salary Review 117

 Long-Term Strategies 118

 Recommendation 3-A: Add Deputy Chief/Fire Marshal 118

 Recommendation 3-B: Add Additional Career Personnel..... 119

 Recommendation 3-C: Create Internal Driver Position..... 119



Cost Projections 121

 Fire Station Costs..... 121

 Staffing Costs..... 122

 Options for Funding Strategies 125

Appendix 'A' – Growth Map 130

Appendix 'B' – Table of Figures..... 131



Executive Summary

The Central City Fire Department (CCFD) plays a critical role in protecting the lives and property of the residents and businesses of Central City, Colorado. As the city continues to evolve, the fire department faces mounting challenges that require immediate attention, particularly regarding its facilities, staffing, and operational efficiency. This report highlights key findings and recommendations, with a primary focus on the necessity of constructing a new fire station to meet modern safety standards and operational demands.

The current fire stations do not meet modern health, safety, and operational requirements. Fire Station 1, located in a historic building, is severely outdated and lacks the necessary space to accommodate modern fire apparatus. The building also lacks essential firefighter living quarters, decontamination areas, and adequate training space, making it unsuitable for a full-time, or even part-time, staffed station. The facility suffers from safety concerns, including outdated electrical wiring, poor ventilation, and the absence of proper exhaust removal systems, exposing firefighters to unnecessary health risks. Additionally, Fire Station 2 was built as a temporary structure after the loss of a previous station at 495 Apex Valley Road. While relatively new, it is not equipped to serve as a fully operational firehouse. The lack of water, sanitation, sleeping quarters, and proper training facilities makes it impossible to house full-time or part-time firefighters on-site, significantly impacting response readiness.

Another pressing issue is the department's reliance on volunteer staffing, which has been declining in recent years. The limited availability of trained personnel, especially during daytime hours, has resulted in slower response times and an increased reliance on mutual aid from neighboring departments.

The department's aging fleet further exacerbates the problem, with several apparatus well beyond their recommended service life. The city's layout, consisting of multiple structures over three stories tall, poses additional challenges, requiring specialized equipment such as an aerial/ladder truck to combat fires safely and effectively in taller buildings and access rooftop HVAC and electrical systems, which are common sources of fire incidents.

To address these challenges, constructing a modern fire station is essential to improving response capabilities, firefighter safety, and service delivery. The new facility should incorporate adequate space for modern fire apparatus and storage, bunk rooms, office space, and sanitation facilities to support full-time and part-time staffing, as well as a dedicated training area to enhance firefighter readiness and meet Firefighter II Job Performance Requirements (JPRs). Cancer prevention measures, such as proper decontamination areas and ventilation systems, should be included to ensure the firefighters' health and safety. The station's location should be strategically chosen based on response time analysis to optimize emergency coverage for the city.



In addition to a new fire station, staffing enhancements are necessary to improve service delivery. Increasing full-time staffing levels will ensure adequate coverage for fire and EMS operations, particularly during high-risk periods. Efforts should also be made to improve volunteer recruitment and retention through enhanced training facilities, benefits, and incentives. Establishing a dedicated Apparatus Driver position would further enhance response efficiency and reduce turnover.

Fleet and equipment modernization is another critical recommendation. Acquiring an aerial/ladder truck is essential to addressing fire suppression challenges in multi-story buildings. Implementing a structured apparatus replacement plan will ensure aging units are phased out systematically, maintaining service reliability. Strengthening regional partnerships with neighboring fire departments and the Colorado Division of Fire Prevention and Control (DFPC) can also lead to shared resources and cost-saving measures.

Building a new fire station represents a significant investment, with cost estimates ranging between \$10.5 million and \$19.8 million, depending on size, design, and location. Additional costs for staffing and apparatus procurement must also be factored into long-term planning. Funding options, including grants, municipal bonds, and partnerships, should be explored to support these initiatives.

The recommendations outlined in this report provide a comprehensive framework to enhance the capabilities of the Central City Fire Department. Constructing a new fire station is not just an infrastructure upgrade, it is a necessary step to ensure firefighter safety, improve response efficiency, and protect the growing community. By prioritizing these improvements, Central City can better position itself to meet current and future emergency response demands.



Acknowledgments

Central City Fire Department

Gary Allen, Fire Chief

Phil Headrick, Captain

Susie Allen, Lieutenant

Central City, Colorado

Jeremy Fey, Mayor

Chuck Spencer, Mayor Pro-Tem

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Organizational Overview

Service Area Population & Demographics

Central City, Colorado, is a small community with a population of 778 people and 410 households as of 2024. It is projected to increase slightly to 415 households by 2029. The area has a population density of 398.2 people per square mile. The median household income stands at \$60,895, reflecting a moderately diverse community with a diversity index of 49.5. Housing in Central City shows a significant portion of vacant units at 23%, with 36% of homes built before 1980. The community has a balanced mix of renters and owners, with 44% of households being renter-occupied and 56% owner-occupied.

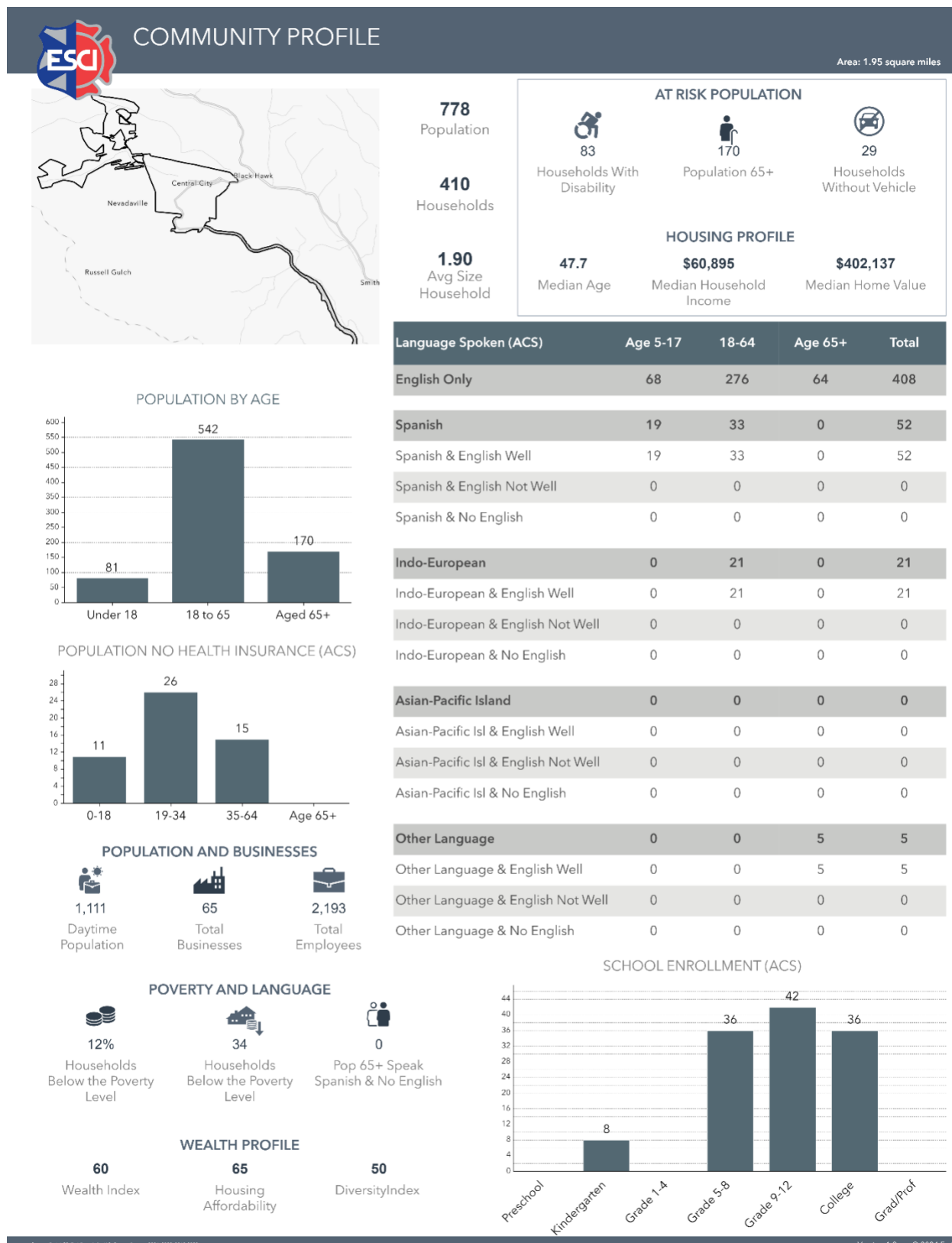
Demographically, 22% of the population is older than 65, and 20% of households include individuals with disabilities. Economic challenges are present, with 8% of families living below the poverty level, although none are reported to receive public assistance. Transportation access is relatively good, with only 3% of households lacking a vehicle. The community includes a small percentage of school-aged children (5% in grades 1-8) and high school-aged youth (5%), while 24% of the population holds a college degree.

During the day, the population density increases to 568.7 people per square mile, with a daily population shift of 333 people, which is 143% of the total population. The area has a total crime index of 241, compared to the national average index of 100. Additionally, 51% of homes use gas appliances and require carbon monoxide alarms.

Central City is unique due to its vibrant casino scene, which significantly boosts visitor numbers. The city features several casinos, including the Grand Z Casino & Hotel, The Famous Bonanza Casino, Dostal Alley Brewpub & Casino, Easy Street Casino, and Century Casino. These casinos not only provide entertainment through slot machines, table games, and sports betting, but also contribute to the local economy by attracting tourists and generating revenue for community improvements and historic preservation. This influx of visitors helps maintain the city's lively atmosphere and supports local businesses.



Figure 1. Central City Community Profile



Source: US ACS, US Census Bureau 2007-2019 2022

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History and Formation

The Central City Fire Department (CCFD) was established in 1869, marking the beginning of a long-standing commitment to protecting and serving the community of Central City. Founded as a volunteer-based organization, the department's primary mission from its inception has been to provide emergency response services. Over the years, CCFD has expanded its services to meet the evolving needs of the community, adapting to changing risks and challenges in both urban and rural areas.

Today, CCFD operates from two strategically located fire stations: one in the heart of downtown Central City and another on Golconda Road. These stations enable the department to respond efficiently to a wide range of emergencies, including structural fires, wildland fires, traffic accidents, natural disasters, medical emergencies, and water rescues. Central City operated from a fire station at 495 Apex Valley Rd. In 2017, it became Timberline Fire Protection District Station 10 and is now an EMS Station for the Gilpin Ambulance Authority. This change created tensions between the CCFD and the Timberline Fire Protection District. In addition to emergency response, the department is deeply committed to fire prevention and public safety, offering fire education programs, inspection services, and general public service to residents and businesses within the community.

A significant milestone in the department's history occurred in 1994 when CCFD hired its first full-time fire chief, Gary E. Allen. This decision marked a shift toward more professionalized leadership and a structured approach to managing the growing demands of the department. The appointment of a full-time fire chief allowed CCFD to ensure a higher level of preparedness for both emergency responses and day-to-day operations.

Governance and Lines of Authority

The Central City Fire Department is a municipal fire department. The fire chief, who heads the department, reports directly to the city manager. Central City is a Home Rule Charter City governed by the City Council. All legislative and policy-making authority is vested in the city council. The council hires the city manager to lead the administrative branch of the local government and is responsible for implementing the policies developed by the council.

The mayor and four aldermen are elected directly by the people through at-large voting. City council terms are four years in length. The mayor's primary responsibilities are to preside over council meetings, act as the ceremonial and legal head of the city, and execute and authenticate legal documents. The mayor votes as a council member but does not have veto power.



Each year, the city council selects a mayor pro-tem from among the four aldermen by majority vote. The mayor pro-tem assumes the mayor's duties if the mayor is unable to serve.

Foundational Organizational Documents

Central City Fire Department is contracted with Lexipol LLC to support policy development. They have issued numerous policies through the Lexipol Knowledge Management System. Policies include areas from:

- Fire Service Role and Authority
- Organization and Administration
- General Operations
- Fire Prevention
- Emergency Medical Services
- Training
- Equipment and Technology
- Safety
- Personnel
- Facility

Organizational Design

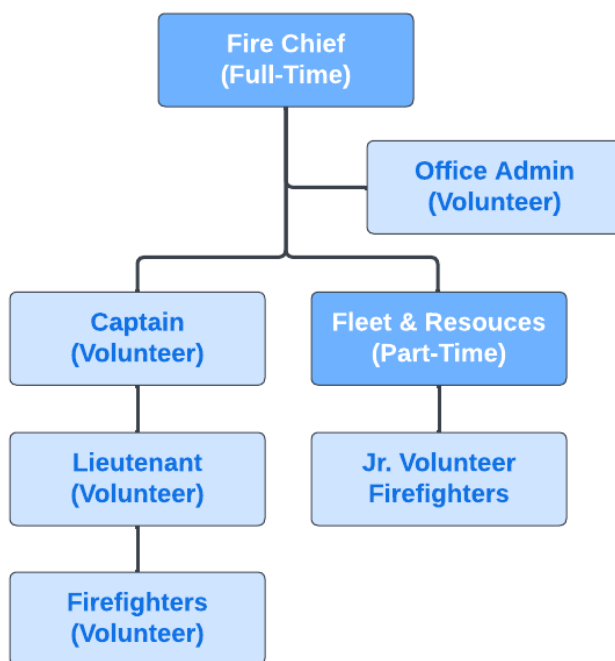
The Central City Fire Department operates primarily as a volunteer organization, with the fire chief being the only full-time paid staff member. In addition to the chief, there are three paid part-time positions:

1. Fleet & Resource Specialist
2. Fire & Resource Specialist
3. Fire Department Apprentice

The following is the department's current organizational chart.



Figure 2. Organizational Chart



Insurance Services Office (ISO)

The Insurance Services Office (ISO) is a national data analytics provider that evaluates fire protection for communities across the country. ISO has created the Fire Suppression Rating Schedule (FSRS) which is a manual containing the criteria used in reviewing the fire prevention and fire suppression capabilities of individual communities or fire protection areas. The FSRS measures the major elements of a community's fire protection system and develops a numerical grading called a Public Protection Classification (PPC®).

The PPC® score ranges from 1 (best protection) to 10 (no protection). The rating is based on four main criteria: water supply, fire department capabilities, emergency communication systems, and community risk reduction efforts. A lower (better) PPC® score not only means a community has better fire suppression capabilities in the case of a fire, but it will also mean lower insurance premiums for residents and businesses.

The "X" designation in the PPC® score means that some areas of the community do not meet the minimum criteria for water supply, which is a critical component of fire protection. This can affect the fire department's ability to respond effectively to large or multiple fires. However, the "X" designation does not affect the other criteria of the PPC® score, which may still reflect a high level of fire protection in other aspects. In August 2024, the CCFD was awarded an ISO Class 5/5X rating.



Management Components

Planning, Goals, & Objectives

The mission statement of the Central City Fire Department (CCFD) is "To serve the community in and around Central City and provide a safe environment through quality emergency services and public education and prevention programs." This statement reflects the department's dedication not only to responding to emergencies, but, also, to proactively enhancing community safety through education and prevention initiatives. While the department does not currently have a formal, comprehensive strategic plan in place, the fire chief plays an active role in setting both long-term and short-term goals that guide the department's operations. These goals are reviewed and adjusted periodically to ensure they are aligned with the community's needs and the department's evolving priorities.

There is room for improvement in the area of formal strategic planning. The lack of such a formal plan can create challenges in tracking progress, measuring success, and ensuring the department is always prepared for both foreseeable and unforeseen challenges. Additionally, the department currently does not produce an annual report that provides a clear picture of its progress toward its goals. Implementing annual reports would improve transparency and allow both internal stakeholders and the community to see the department's achievements and areas that require attention.

To address planning gaps, the department has taken proactive steps by collaborating with Emergency Services Consulting International. In 2017-2018, ESCI assisted CCFD in conducting a comprehensive Gap Analysis Report, which provided a detailed assessment of the department's current capabilities, resources, and areas of improvement. The findings from this report were instrumental in identifying critical gaps in staffing, equipment, training, and facilities. Building on the insights gained, CCFD engaged ESCI again in 2024 to develop a Long-Range Master Plan, which aims to provide a structured framework for the city and department's growth over the next several years.

Given the department's limited administrative resources, developing such comprehensive plans internally has been challenging. The small administrative staff has made it difficult to allocate the time and expertise needed for strategic planning and reporting, which is why contracting with ESCI has been critical. The partnership with ESCI has provided CCFD with the specialized knowledge and support required to develop data-driven, actionable plans that will guide the department's future success. Still, the need for a more formal, internal, and strategic planning process remains an area of focus. By implementing a structured strategic plan and establishing annual reports, the department will be better equipped to track its progress, secure funding, and communicate its successes and challenges to



stakeholders. These improvements will ultimately help CCFD continue to provide high-quality services to the community while ensuring long-term sustainability and growth.

Internal Assessment of Critical Issues

In discussions with the leadership of the Central City Fire Department (CCFD), several critical issues were identified that are significantly impacting the department's ability to provide efficient and effective services. One of the primary challenges is staffing levels. Volunteerism has been steadily declining, and the department currently lacks the necessary paid staff to fully cover emergency calls. This shortage results in response delays and can compromise the safety of both first responders and the community. In addition to staffing, CCFD is also struggling with a lack of proper training facilities. Without an adequate training room or specialized facilities, firefighters are unable to receive the hands-on, scenario-based training they need to maintain critical skills, which ultimately affect operational readiness.

Another pressing concern is the well-being of personnel and the aging infrastructure of Station 1, which is over 100 years old and has never met National Fire Protection Association (NFPA) standards. The station suffers from numerous safety and health hazards, including water leaks that compromise the building's integrity, exhaust fumes seeping into offices and training areas, and an outdated electrical system. Additionally, windows that have shifted prevent proper ventilation, creating an uncomfortable and potentially unsafe working environment for personnel. The condition of Station 1 not only undermines staff safety but also hinders the department's overall operational efficiency.

CCFD is also grappling with budget constraints. The department is inadequately funded, which limits its ability to maintain or upgrade essential equipment, facilities, and staffing levels. The department is funded primarily through the city's general budget, meaning it must compete with other city departments for limited resources. While there is a 2% sales tax allocated for public safety, it can be used for law enforcement, emergency dispatch, ambulance services, or fire, leading to uncertainty regarding the funds available specifically for CCFD. This competitive funding environment has made it difficult to secure a reliable and stable revenue stream, which is essential for long-term planning and growth.

Finally, there is a significant gap in strategic planning for the future. The department lacks a formal strategic plan that outlines how to address its staffing challenges, budget constraints, facility upgrades, and overall service delivery in the years to come. Without a clear roadmap, CCFD leadership faces difficulty in making informed decisions and proactively addressing the department's evolving needs. This lack of strategic foresight leaves the department vulnerable to ongoing operational challenges and missed opportunities for improvement.



Internal Assessment of Future Challenges

An internal assessment of critical issues is essential to understanding the future challenges that an organization might face. Addressing these challenges proactively will help the organization remain resilient, agile, and capable of achieving its strategic goals. One of the primary challenges the organization will face in the coming years is securing adequate and sustainable funding. As the demand for services increases and operational needs evolve, the financial resources required to maintain and expand operations, such as necessary paid staffing, will grow. However, there are several factors that make future funding uncertain. Budget constraints, driven by fluctuating economic conditions and increased pressure on public budgets, could make obtaining consistent and reliable funding difficult. Additionally, the competition for resources among other city needs is also growing. To mitigate the risk of funding shortages, the organization will need to explore alternative sources of revenue, including grants and partnerships. Prioritizing financial planning and seeking innovative ways to generate revenue will be essential to address this challenge.

As the organization continues to grow, staffing will become an increasingly critical issue. One significant challenge in staffing is the decline of volunteer firefighters, a trend that has been observed in many regions. Volunteer firefighters have long been a cornerstone of emergency services, but there are growing concerns about the ability to attract and retain volunteers. Changing demographics, with fewer individuals having the time or resources to commit to volunteer roles, along with the increasing demands placed on firefighters, have contributed to this decline. Recruiting and retaining skilled personnel is essential for delivering high-quality services and maintaining operational efficiency. To address these challenges, the organization must invest in talent acquisition, volunteer recruitment and retention programs, as well as workforce training initiatives, while also fostering an inclusive and supportive workplace culture that attracts and retains members.

The future of the organization's fire stations presents both opportunities and challenges. CCFD lacks a proper headquarters station. This station is needed to serve as the central hub for operations, strategic decision-making, and coordination across different units. As the organization grows, the existing fire stations have become inadequate in terms of physical space and facilities. Expanding the current fire stations involves significant financial and logistical challenges, that make it nearly impossible. Additionally, with increasing reliance on digital tools and remote communication, maintaining up-to-date technological infrastructure at the fire stations will be critical. Failure to invest in modern technology could hinder productivity, collaboration, and overall efficiency. To address these challenges, the organization will need to develop a long-term facilities and infrastructure plan that considers both current needs and future growth, incorporating strategies for upgrading technology, optimizing workspace, and ensuring the fire stations remain a productive and accessible center for operations.



Another future challenge is designing and obtaining funds for a new fire station. Volunteers are often drawn to stations that offer modern, well-maintained facilities that support training and provide a positive work environment. Without the proper space and resources, the organization may struggle to attract and retain volunteers. Similarly, career firefighters may be less inclined to apply to an organization if the fire station lacks essential amenities such as appropriate living quarters, training facilities, or up-to-date equipment. This could significantly hinder the organization's ability to recruit and retain skilled full-time staff, particularly in a competitive labor market where candidates expect high standards of workplace conditions. Additionally, the geographic location of the fire station plays a crucial role in its effectiveness. If the station is not easily accessible or located in a suitable area, it may fail to meet operational needs and reduce its overall efficiency. The site must be large enough to accommodate current needs while also allowing for future growth. Furthermore, the station's location should ensure adequate response times to emergencies, as proximity to key service areas is essential for timely interventions. Failure to secure funding and find an appropriate location for a new fire station could limit the organization's ability to grow and effectively serve the community.

Internal Communication Processes

The Central City Fire Department utilizes a variety of internal communication methods to ensure effective and timely dissemination of information. These methods include text messaging, email, and in-person communication during meetings and training sessions. Given the department's smaller size, communication is streamlined to maintain quick and direct contact. In addition, the fire chief and other department officers can personally reach out to members via phone when urgent or time-sensitive information needs to be shared.

External Communication Processes

The Central City Fire Department maintains a well-designed and comprehensive website at <https://www.centralcityfire.com>, providing the public with detailed information about the department's services, mission, and operations. The website serves as a key resource for residents, offering easy access to important updates, safety tips, and contact information.

In addition to the website, the department is active on social media, particularly through its Facebook page, which has over 1,500 followers. The Central City Fire Department regularly updates its Facebook page with posts about community events, emergency incidents, and other departmental activities. This social media presence helps keep the public informed in real time and creates a strong connection between the department and the community. The Facebook page can be accessed at <https://www.facebook.com/CENTRALCITYFD/>. Although the department uses Facebook, it is recommended they explore other social media platforms, such as Instagram.



For those wishing to contact the fire chief directly, contact information is readily available, including on the Central City Fire Department website. The fire chief is accessible to the public for any issues, concerns, or inquiries, reflecting the department's commitment to transparency and responsiveness to the needs of the community.

Reporting & Recordkeeping

Central City Fire Department utilizes ESO, a web-based program, to record incident and training data. Additional records are found internally at the agency directed by the city, under applicable records retention schedules.

Information Technology Systems

The department is connected to the city-wide network, allowing for seamless integration with other municipal systems and resources. This ensures that data can be efficiently shared and accessed within the city's broader IT infrastructure.

The station's Wi-Fi network is password-protected to safeguard against unauthorized access. The Wi-Fi password is exclusively provided to paid and volunteer firefighters, with access controlled to ensure that only authorized personnel can connect to the network.

All computers within the department are secured with password protection. However, the department currently does not have an established password policy in place to enforce specific security protocols. This presents an opportunity for improvement to ensure that all passwords meet a standard level of complexity and are regularly updated to enhance security.

At present, the department does not utilize two-factor authentication (2FA) for any systems or accounts. The implementation of 2FA could further strengthen security by requiring an additional verification step for access to sensitive systems or information.

Document Control and Security

Sensitive documents within the fire department are currently maintained in both hard copy and digital formats, with an ongoing transition toward fully electronic records. Personnel files are stored securely in a file cabinet in the Fire Chief's office, with plans to convert these records to an electronic format. Additionally, other sensitive documents, such as paper incident reports, are stored in file cabinets located both in the Fire Chief's office and the training room area. Efforts are underway to centralize these documents in the Fire Chief's office to improve accessibility and security.

Currently, the file cabinets storing these sensitive documents do not have locks, but the department is in the process of purchasing and installing locks within the next few weeks to enhance physical security. In terms of digital security, efforts are being made to ensure



that sensitive electronic records are stored securely, with restricted access to authorized personnel only.

When sensitive documents are no longer needed, they are securely disposed of through shredding to prevent unauthorized access or misuse of confidential information.

Upon a volunteer's resignation or departure, their personnel file is retained in hard copy and electronic formats. The hardcopy file is then transferred to Central City's HR department, where it is retained in accordance with State Archives guidelines. Once the retention period has expired, the file is securely destroyed in compliance with legal requirements and department policy.



Personnel Management and Staffing

Reports & Recordkeeping

Records for Central City Fire Department staff are maintained by the Central City Fire Department Fire Chief and the Human Resources Department within the city. Outside programs, such as Lexipol, ESO/Emergency Reporting, or other software, such as a service (SaaS) platform, support reporting and record keeping for items such as policy review, training hours, incident responses, etc.

Labor-Management

There is no formal labor group represented by the International Association of Firefighters (IAFF) or similar organization.

The Central City Volunteer Firefighter Foundation (CCVFF) is a nonprofit organization that raises funds to support the Central City Fire Department and volunteer firefighters' efforts.

Compensation

The Central City Fire department currently has one full-time member, the Fire Chief. The city has outlined three salary levels for full-time members, as noted below.

Figure 3. Salary Ranges

Job Class	Class Code	Minimum	Midpoint	Maximum
Fire Chief/ Fire Marshal	311	82,714	97,189	111,684
Firefighter/ EMT	313	45,731	53,733	61,736
Temporary Fire Resource Specialist	314	41,430	48,680	55,930



The following table outlines the current hourly rates for the three part-time positions within the Central City Fire Department.

Figure 4. Current Part-Time Pay Rates per Hour

Job Title	Hourly Rate
Fleet & Resource Specialist	\$24.01
Fire & Resource Specialist	\$20.55
Fire Dept Apprentice	\$16.00

Volunteers are not directly compensated for their participation in the department with direct compensation. They are provided with training, equipment, and clothing. In addition, they receive a length of service awards such as a \$250 reimbursement for gear and financial incentives deposited into a 457 account for meeting annual training requirements and participating in at least 15% of the calls for service in any given year.

As the department continues to grow, it will be important to ensure that salary and benefit programs remain competitive with the surrounding departments and the Denver Metropolitan area to retain members. Incentive programs should be considered for part-time members, and/or volunteer members, to retain them.

Certifications & Licensing

Members of CCFD hold voluntary certifications as offered by the Colorado Division of Fire Prevention and control. These certifications include Firefighter I, Firefighter II, etc. In addition, personnel hold emergency medical services licensing through the Colorado Department of Public Health and Environment (CDPHE). Limited opportunities are presented locally for personnel to obtain certification, so personnel must travel into the Denver metropolitan area to obtain appropriate courses and certifications.

Ongoing training and education are available to the members of CCFD through departmental training opportunities by the medical director for EMS training or the fire department for fire and all-hazard response disciplines.

The Fire Chief, or their designee, provides training for all firefighters using a structured task book of skills, along with a required 36-hour State of Colorado Entry Firefighter program. This training prepares them for specific roles in emergencies, ensuring that all personnel are trained to meet the Firefighter II Job Performance Requirements (JPRs), even if they do not hold an official state certification. However, without a dedicated fire station, training facility, or burn building, hands-on training becomes extremely difficult. Firefighters must



find safe locations to practice without disrupting businesses or the public, and they must simulate real emergencies without the real conditions of heat and smoke. For example, when learning how to control a fire using specific hose patterns—such as the T, Z, and O techniques—they can only spray water at walls or targets, rather than working with real flames to see how fire behaves and reacts. This limitation makes it much harder to fully prepare for real-life emergencies.

Counseling Services

The Central City Fire Department offers mental health and counseling services through First Responder Trauma Councilors, Inc. This program provides clinical supervision to the local peer support team, availability of on-call diffusing and debriefing services, and treatments for first responder mental health concerns.

Application & Recruitment Processes

The Central City Fire Department has a designated application that can be found on the department website. The department also has an advertisement on Fire Station 1 to support the recruitment process for additional volunteers.

Once the application is completed, the Fire Chief and their designee(s) process the application and do interviews with candidates. These candidates then go through the department's requirements for background checks and medical requirements before being offered a volunteer firefighter position. While all members live in the community, the department can have volunteers that live outside the area. These volunteers have identified requirements they are required to meet to maintain membership.

The Central City Fire Department also has other programs to support recruitment, such as the Junior Firefighter program and the Community volunteer program. Both programs are designed to allow community members to support the department in a non-emergency scene.

As with all primarily volunteer fire departments across the United States, the ability to recruit and retain volunteers is becoming extremely difficult. As the department and demands continue to grow, the Central City Fire Department will have to continue to be aggressive with recruitment and retention efforts of the volunteers and part-time/full-time members.



Health And Wellness Programs

Health and wellness programs for all members of the department include hepatitis B vaccination. Members may also utilize their \$250 service incentive to purchase a gym membership.

Staffing

Administration and Support Staffing

The Fire Chief is the sole administrative member of the Central City Fire Department. Central City provides administrative support to the Fire Department regarding Fleet/Facility Repair, Human Resources, Information Technology, and the City Manager. The Fire Chief works a 40+ hour work schedule, Monday through Friday.

Each of the three part-time members has specific areas of responsibility, specifically related to administrative functions, for which they are responsible. These functions include:

- Fleet & Resource Specialist
- Fire & Resource Specialist
- Fire Dept Apprentice

As of 1/1/2025, the staffing of the part-time members is as follows:

- Fleet & Resource Specialist – Monday – Friday (daytime hours)
- Fire & Resource Specialist – Monday – Wednesday (daytime hours)
- Fire Department Apprentice – Minimal hours (daytime, dependent on school schedule)

The department also has a volunteer lieutenant who serves as the office manager and assists the Fire Chief with administrative responsibilities. In addition, other volunteer members provide support with administrative tasks as needed.

All members have written job descriptions to identify the roles and responsibilities of the position. The job descriptions are all updated within a 5-year period.

Operational Staffing Levels

The Central City Fire Department utilizes three part-time employees to support operations and administrative aspects of the Fire Department. Currently the Central City Fire Department is staffed mostly with volunteers. Full-time staffing includes the fire chief. There are also two part-time employees that work between 24 and 29 hours per week and one part-time employee who works less than 20 hours per week; however, they can work a



maximum of 32. At the time of this report there were 18 active members of the department. The following table displays the breakdown of where members reside. The table includes full-time, part-time, and volunteer personnel.

Figure 5. Staffing Residence Breakdown

Staffing Residence Breakdown	
Within City Limits	5
Within 5 Miles of City Limits	6
Out of Town	7
Total	18

As illustrated in the previous table, many members of the department live outside of town or within five miles of the city limits. While five miles may not seem like a great distance, it can lead to extended emergency response times. This highlights the need for the Central City Fire Department to construct a station that offers better accommodation for members who reside outside the city limits, enabling them to be at the station more frequently and respond to emergencies more promptly. The specific accommodation needed will be discussed in greater detail later in this report.

Review Staff Scheduling Methodology

The Fire Chief is the only full-time employee of the Fire Department who works a standard 40+ hour a week position. The Fire Chief is provided with a command vehicle and responds after hours to emergencies. The two part-time employees that work between 24 and 29 hours per week, and one that works up to 20 hours per week, are based upon budget allotments; however, they can work a maximum of 32. With this schedule, the part-time members have limited overlap of coverage each week, and there may be times where no additional coverage is available based on sick/vacation time. With this, the maximum anticipated staffing for a weekday is 2 personnel (Fire Chief and one part-time member), whereas there may be limited times that 3 personnel are available. As identified by the Fire Chief, during daytime hours of 06:00-19:00, there is limited or no availability of volunteer members, leaving the overall community coverage to 1-3 personnel and mutual aid resources. It will be recommended later in this report for the agency to pursue staffing opportunities to ensure adequate coverage is in the community at all times.

Emergency Services

Emergency service responses are staffed by the on-duty part-time members and/or Fire Chief, along with the volunteer members, when they are available to respond. Generally, especially during daytime, there are limited volunteers available to respond. If the incident



requires more than 1-3 personnel, mutual aid is often required from the neighboring agencies to fulfill emergency response needs.

NFPA Staffing Recommendations

When developing an effective response force to address the needs of a community, several factors must be considered. NFPA 1710 and NFPA 1720 address the recommended resources for different types of emergency incidents.

Tasks to perform at the scene of a fire can be broken down into two key components: life safety and fire control and extinguishment. Responders' base life safety tasks on the number of building occupants and their location, status, and ability to take self-preservation action. Life safety-related tasks involve search, rescue, and evacuation of victims. The fire control component involves delivering sufficient water to extinguish the fire and create an environment within the building that allows safe entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types and magnitudes of fire. In the absence of adequate personnel to perform concurrent action, the commanding officer must prioritize the tasks and complete some in sequential order, rather than concurrently. These tasks include:

- Command
- Water Supply
- Handline Operation
- Backup Hose Lines
- Search and Rescue
- Ground Ladders
- Ventilation
- Initial Rapid Intervention Crew

The first 15 minutes are the most crucial period in the suppression of a fire. The timing of this 15-minute period does not start when the firefighters arrive at the scene but begins when the fire initially starts. How effectively and efficiently firefighters perform during this period significantly impacts the outcome of the event. This general concept is applicable to fire, rescue, and medical situations. Responders must perform critical tasks in a timely manner to control a fire or to treat a patient. The Central City Fire Department is responsible for ensuring that responding companies can perform all the tasks described in a prompt, efficient, and safe manner.

Considerable ongoing local, regional, and national discussion and debate draws a strong focus and attention to the matter of firefighter staffing. Frequently, this discussion is set in the context of firefighter safety. The jurisdiction may choose to establish response demand zones and use criteria outlined in NFPA standards. NFPA 1710, 2020 edition, specifies the number of firefighters assigned to an engine company to be "minimum of four on-duty members personnel per engine company." ESCI notes that the more critical issue is the



number of firefighters assembled at the scene of an incident in conjunction with the scope and magnitude of the tasks expected of them, regardless of the type or number of vehicles upon which they arrive. NFPA 1710 recommends that the number of on-duty fire suppression members shall be sufficient to perform the necessary firefighting operations given the expected firefighting conditions. The standard further recommends that the numbers shall be determined through task analyses that take the following factors into consideration:

- Life hazard to Central City (including both residents and visitor population)
- Safe and effective firefighting performance
- Potential property loss
- Nature and configuration of protected properties
- The presence and application of standard procedures at all fire scenes

Some terms are interchangeable, such as assembly of firefighters on an incident, which may also be referred to as “Initial Full Alarm Assignment,” “Effective Firefighting Force” (EFF), or “Effective Response Force” (ERF). In the figures below, ESCI describes the NFPA 1710 level of staffing comprising this effective response force for three different scenarios.¹

Figure 6. Initial Full Alarm Assignment for Residential Structure Fire

Initial Full Alarm Assignment—2,000 SF Residential Structure Fire	
Incident Commander	1
Water Supply Operator	1
2 Application Hose Lines	4
1 Support Member per line	2
Victim Search and Rescue Team	2
Ground Ladder Deployment	2
Aerial Device Operator	1
Incident Rapid Intervention Crew (4 FF)	4
Total	17

Figure 6 shows the staffing needed to mitigate a single-family, 2,000-square-foot two-story residential structure safely and effectively without a basement and no exposures. The following figure describes an initial full alarm assignment for an open-air strip-type

¹ 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 (National Fire Protection Association 2020 ed.) Article 5.2.4 Deployment.



shopping center. As the risk and difficulty become greater, the staffing levels needed for effective mitigation increase.

Figure 7. Initial Full Alarm Assignment for Strip Shopping Center

Initial Full Alarm Assignment Open Air Strip Shopping Center (13,000 SF to 196,000 SF)	
Incident Commander	2
Water Supply Operators	2
3 Application Hose Lines	6
1 Support Member per line	3
Victim Search and Rescue team	4
Ground Ladder Deployment	4
Aerial Device Operator	1
Rapid Intervention Crew (4 FF)	4
EMS Care (1 crew)	2
Total	28

The following is an initial full alarm assignment for a three-story apartment building with a single 1,200-square-foot apartment fire.

Figure 8. Initial Full Alarm Assignment in a Three-Story Apartment Building

Initial Full Alarm Assignment 1,200 SF Apartment (3-story garden apartment)	
Incident Commander	2
Water Supply Operators	2
3 Application Hose Lines	6
1 Support Member per line	3
Victim Search and Rescue Team	4
Ground Ladder Deployment	4
Aerial Device Operator	1
Rapid Intervention Crew (4 FF)	4
EMS Care (1 crew)	2
Total	28

These are generalizations representative of different types of structures and their associated risks. Each fire department may handle these types of fires with fewer or more personnel; however, this describes the work functions that must occur, generally concurrently and, for safe and effective fire handling, promptly.



Financial Analysis

Historical Financial Analysis

An analysis of the Central City Fire Department's historical financial data has been conducted to identify key financial trends, strengths, and areas for improvement, laying the foundation for the financial projections included in this report. Financial analysis is critical in assessing the long-term fiscal health and resilience of the Fire Department, particularly in maintaining an adequate level of service. To support this assessment, a financial model has been developed to consistently reflect the department's fiscal policies and practices. This model aims to standardize financial operations and account for any unique financial characteristics, providing an estimate of the total public cost of the department's operations. It also serves as a tool to evaluate the department's financial sustainability, both under current conditions and in the event of changes to service levels.

The following section provides background information on the Central City Fire Department's historical and current financial status. Understanding the resources and costs associated with fire and rescue services requires a comprehensive review of the department's revenue streams and expenditures. This analysis draws on interviews with Central City Finance Department staff, reviewed audited financial statements, and adopted budget documents for fiscal years 2020-2024.

Fund Accounting

Local governments use a fund-based accounting system to ensure proper oversight and segregation of revenue and expenses tied to specific activities. The Governmental Accounting Standards Board (GASB), an independent body, sets the standards for accounting and financial reporting across all levels of government. According to GASB, a "fund" is defined as a fiscal and accounting entity that maintains a self-balancing set of accounts. These accounts track financial resources, liabilities, and residual equities or balances, documenting any changes within. Funds are created to segregate financial activities in accordance with regulations, restrictions, or limitations specific to certain functions or objectives. Essentially, a fund is designed to capture and record all revenue, expenses, and fund balances associated with a particular activity or program. In the case of Central City, several accounts specifically support the operation of the fire department, which are detailed in the following section.

General Fund

The General Fund in Central City is used to support governmental activities funded primarily through taxes and fees. These activities include Administration, Court Services, Finance, Planning, Law Enforcement, Fire Services, Public Works, and Community Services.



Within the General Fund, there is a designated account specifically for Fire Protection Services, which this report will examine.

Public Safety Fund

The Public Safety Fund is a special fund dedicated to the allocation of revenue specifically for fire protection, public safety services, programs, and facilities. This fund is separate from the General Fund and is independently funded.

Capital Improvement Fund

The Capital Improvement Fund is a special fund dedicated to financing capital items. Within this fund, there are specific accounts for Fire Department - Heavy Equipment (30-422-1000) and Fire Department - Small Equipment (30-412-2000).

It is important to note that the Central City has a Five-Year Capital Improvement Plan. Items identified in the plan for the Fire Department are funded through the Capital Improvement Fund, the Public Safety Fund, General Fund, and various grants.

Historical Revenue and Expenditures

Revenue

Within the Central City Fire Department, there are four sources of revenue from which the department operates:

1. General Fund
2. Public Safety Fund
3. Capital Improvement Fund
4. Grants

Revenue for the General Fund primarily comes from taxes, including the occupational tax collected from the six casinos located within Central City. The fire department does not generate any revenue from the general fund. The Public Safety Fund is primarily funded through the receipt of 2% of both sales and use taxes. The Capital Improvement Fund is primarily financed through marijuana sales tax revenue and grants.

Two common fire service grants are the Staffing for Adequate Fire and Emergency Response (SAFER) Grant and the Assistance to Firefighters Grant (AFG). Both grants play vital roles in enhancing the fire department's capabilities. SAFER focuses on staffing, ensuring an adequate number of trained personnel, while AFG provides financial support for purchasing equipment and improving operations. Together, these grants help maintain a well-equipped and well-staffed fire department able to respond efficiently to emergencies and protect the community. Central City has successfully been awarded



grants in the past. Grant funds are allocated to either the General Fund, Public Safety Fund, or Capital Improvement Fund for tracking purposes. However, grant funding can only be used for the specific purposes outlined in the grant agreement.

The following table provides a detailed breakdown of revenue for the three primary funds supporting the fire department for the fiscal years 2020 to 2024.

Figure 9: Revenue Summary (FY20 to FY24)

Fund	FY 20 Actual	FY 21 Actual	FY 22 Actual	FY 23 Estimate	FY 24 Adopted
General Fund	3,530,796	4,227,492	4,664,664	5,297,479	5,033,748
Public Safety Fund	349,238	309,737	335,779	339,874	326,552
Capital Improvement Fund	160,805	537,887 ^a	95,053	81,132	81,131

^a Includes funding from a \$409,524 Assistance to Firefighters Grant (AFG)

Analyzing revenue trends across all three funds helps predict the funds available for use. Any declines in revenue for specific funds should be carefully examined to identify the root cause, enabling more accurate future predictions. Excluding the AFG funding in 2021, revenue sources across all three funds have remained stable, with no significant increases or decreases.

Since the fire department is not a revenue-generating entity, there is no specific breakdown of revenue included for the Fire Protection Services account within the General Fund.



Expenditures

The following table provides a detailed breakdown of revenue for the three primary funds supporting the fire department for the fiscal years 2000 to 2024. The Fire Protection Services account within the General Fund is included in the table as well.

Figure 10. Expenditure Summary (FY20 to FY24)

Fund	FY 20 Actual	FY 21 Actual	FY 22 Actual	FY 23 Estimate	FY 24 Adopted
General Fund	3,319,892	3,259,294	4,604,536	5,160,286	5,886,430
Fire Protection Services ^a	324,238	265,443	430,588	373,714	401,537
Public Safety Fund	341,103	358,535	292,386	249,116	406,026
Capital Improvement Fund	113,609	535,762 ^b	264,044	206,088	83,423

^a Fire Protection Services expenditures are part of the General Fund
^b Includes purchasing from an Assistance to Firefighters Grant (AFG)

Expenditures in the General Fund, as well as in the Fire Protection Services subaccount, have increased over the five fiscal years analyzed. This will be broken down further in the next table. Expenditures from the Public Safety Fund have also increased from the 2023 estimate to the 2024 adopted budget, largely due to higher costs for radio equipment and maintenance (Account 20-443-6400).

Figure 11. Fire Protection Expenditures Breakdown (FY20 to FY24)

Fund	FY 20 Actual	FY 21 Actual	FY 22 Actual	FY 23 Estimate	FY 24 Adopted
Personnel Services	216,627	167,884	208,382	197,425	220,287
Professional Services	1,112	10,538	7,147	9,500	10,000
Operating Expenses	103,915	87,021	113,156	166,788	171,250
Capital Outlay	2,584	-	101,803	-	-

Except for a decrease in Fiscal Year 2021, personnel service expenditures have remained stable over the past five years (Account 01-422-1100). With the exception of Fiscal Year 2022, professional services expenditures have remained relatively stable throughout the five-year period. Operating expenditures have consistently risen from FY21 to current, with the main driver being increased costs for routine fire truck maintenance (Account 01-422-4309).



Revenue vs. Expenditures

The following table illustrates the variance between revenue and expenditures. In FY24 there is an expected negative difference across all three funds. Operating with a negative difference can pose financial challenges, requiring a closer examination of budgetary allocations, cost management strategies, and revenue streams.

Figure 12. Revenue vs. Expenditures (FY20 to FY24)

Fund	FY 20 Actual	FY 21 Actual	FY 22 Actual	FY 23 Estimate	FY 24 Adopted
General Fund	210,904	986,198	60,128	137,216	(852,682)
Public Safety Fund	8,135	(48,799)	43,939	90,757	(79,474)
Capital Improvement Fund	47,196	2,125	(168,992)	(124,956)	(2,292)

The FY2024 budget for the General Fund projects expenditures will outpace revenue. It is important to note that the FY2023 budget also anticipated expenditures exceeding revenues by \$432,046, but 2023 estimates now show a favorable variance of \$137,216, with revenues exceeding expectations.

In the Public Safety Fund, the 2024 budget projects a decrease in the fund balance of \$79,474. While there is a reserve, it is crucial to monitor this trend to prevent further depletion of the reserve in future years. Similarly to the General Fund, the 2023 budget projected a decrease of \$83,910 in the Public Safety Fund, but estimates for 2023 indicate a positive change, with a \$90,757 increase in the fund balance.

Except in 2020 and 2021, the Capital Improvement Fund has experienced a decrease in its balance each year. Although the projected decrease for 2024 is smaller than prior years, it remains important to ensure this fund is adequately supported to sustain future capital improvement projects.

Fund Balances

The following section will examine the ending fund balances for each of the City's funds. Each fund includes an emergency reserve. In compliance with Article X, Section 20 of the Colorado Constitution, the city is required to maintain a reserve equal to 3% of its budgeted expenditures for emergencies. This reserve is kept in a separate fund, known as the Tabor Reserve Fund, and can only be used in emergencies, with its use strictly regulated.



Additionally, in the General Fund, the city maintains a reserve equivalent to two months of expenses, even though the policy stipulates that "At no time shall the General Fund reserve fall below one month of expenditures, averaged over three years."

Figure 13. General Fund Ending Balance (FY20 to FY24)

Fund	FY 20 Actual	FY 21 Actual	FY 22 Actual	FY 23 Estimate	FY 24 Adopted
Ending Fund Balance	2,377,382	3,345,835	2,405,963	2,543,178	1,690,497
Restricted for Emergencies	142,000	97,779	138,136	154,808	176,593
Reserved for Two Months of Expenses	553,315	543,216	767,423	860,044	981,072
Unrestricted Balance	1,682,067	2,704,841	1,500,404	1,528,327	532,832

One item of concern is the declining balance in the General Fund. While Central City maintains reserves, it is important to closely monitor this downward trend, especially since this report will outline several recommendations that could increase the city's expenses in efforts to improve fire department services.

Figure 14. Public Safety Fund Ending Balance (FY20 to FY24)

Fund	FY 20 Actual	FY 21 Actual	FY 22 Actual	FY 23 Estimate	FY 24 Adopted
Ending Fund Balance	163,298	114,499	157,893	248,650	169,175
Restricted for Emergencies	10,233	10,756	8,772	7,473	12,181
Reserved for Specific Purposes	20,000	20,000	20,000	20,000	20,000
Unrestricted Balance	133,065	83,743	129,121	221,176	136,994

Over the past five years, the ending balance of the Public Safety Fund has experienced both increases and decreases, but it has generally remained stable, with the FY20 ending balance and the FY24 adopted ending balance being very similar. However, it remains important to closely monitor this balance, particularly in light of the potential costs associated with the recommendations in this report, as well as the rising costs of supplies, equipment, and inflation.



Figure 15. Capital Improvement Fund Ending Balance (FY20 to FY24)

Fund	FY 20 Actual	FY 21 Actual	FY 22 Actual	FY 23 Estimate	FY 24 Adopted
Ending Fund Balance	307,659	309,785	140,793	15,837	13,544
Restricted for Emergencies	3,408	16,073	7,921	6,183	2,503
Unrestricted Balance	304,251	293,712	132,872	9,654	11,042

The ending fund balance of the Capital Improvement Fund has declined significantly, leaving almost no remaining balance. This fund is typically used for major purchases, such as fire apparatus and fire stations, in the case of the fire department.

Employee Compensation

Employee compensation plays a critical role in both recruiting and retaining talent. While compensation may not be the sole deciding factor in whether an individual chooses a job or stays within a particular career, it is undeniably one of the most important considerations. In a competitive job market, attractive compensation packages can be a significant motivator for potential employees and a key differentiator between organizations.

Fair and competitive compensation is vital in promoting a positive organizational culture. Employees who believe they are compensated fairly are more likely to feel valued, which can lead to increased productivity, higher morale, and a stronger commitment to the organization's goals. Conversely, inadequate, or inequitable, compensation can lead to dissatisfaction, low retention rates, and even harm the organization's reputation in the labor market.

The following table displays the salary rates for three positions within the Central City Fire Department. Note that the Fire Chief position is the only full-time role within the department.

Figure 16. Salary Ranges

Job Class	Class Code	Minimum	Midpoint	Maximum
Fire Chief/ Fire Marshal	311	82,714	97,189	111,684
Firefighter/ EMT	313	45,731	53,733	61,736
Temporary Fire Resource Specialist	314	41,430	48,680	55,930



The following table outlines the current hourly rates for the three part-time positions within the Central City Fire Department.

Figure 17. Current Part-Time Pay Rates per Hour

Job Title	Hourly Rate
Fleet & Resource Specialist	\$24.01
Fire & Resource Specialist	\$20.55
Fire Dept Apprentice	\$16.00

Salary and Pay Comparison

The following four tables present the salaries and/or pay rates for various positions across the four agencies with which the Central City Fire Department has mutual aid agreements. As you will see, there is not only a variety of positions but also a significant range in pay rates across these agencies.

Figure 18. Clear Creek Fire Authority (CCFA) Salary Comparables

Position	Pay Rate
Career Firefighter (per year)	57,000
Career Lieutenant (per year)	72,500
Career Captain (per year)	99,500
Volunteer Firefighter (per shift)	70
Volunteer Officer (per shift)	90

Figure 19. Timberline Fire Protection District (TFPD) Salary Comparables

Position	Pay Rate (per year)
Career Firefighter	52,000 to 55,000
Career Lieutenant	64,537 to 71,340
Fire Chief	98,708
Administrative Chief	92,247
Support Captain	77,740



Figure 20. Foothills Fire Protection District (FFPD) Salary Comparables

Position	Pay Rate (per year)
Fire Chief	115,000
Training Officer	85,000
Fleet Lieutenant	80,000
Fire Marshal	75,000
Part-Time Admin Manager	30,000

Figure 21. Black Hawk Fire Department (BHFD) Salary Comparables

Position	Pay Rate
Fire Chief	168,350 to 235,690
Fire Marshal	125,516 to 175,723
Fire Captain	120,541 to 168,758
Fire Lieutenant	114,801 to 160,722
Fire Engineer	85,165 to 119,231
Senior Firefighter	73,736 to 103,230
Firefighter	70,473

In the following table, ESCI compares the salaries of similar positions within the Central City Fire Department to those in the four mutual aid agencies. When a salary range was provided, the midpoint was used for comparison. If a salary for a position was not provided, or if the position does not exist within that department, "N/A" has been entered in the corresponding cell.



Figure 22. Central City Fire vs. Comparables

Job Class	CCFD	CCFA	TFPD	FFPD	BHFD
Firefighter	53,733	57,000	53,500	N/A	88,483
Lieutenant	N/A	72,500	67,938	80,000	137,761
Captain	N/A	99,500	77,740	85,000	144,649
Fire Chief	97,189	N/A	98,708	115,000	202,020
Fire Marshal	N/A	N/A	N/A	75,000	150,619

The previous chart highlights that Black Hawk is an outlier in terms of pay rates. However, as neighboring agencies, it is important for Central City to consider Black Hawk's pay rates, especially when recruiting new hires. Both agencies will be competing for the same pool of individuals seeking employment in the area.

Additionally, this chart provides valuable insights for future projections, particularly when making recommendations for setting pay rates for newly created positions within the fire department. It also indicates that an adjustment to the firefighter salary may be necessary if Central City moves forward with recommendations to add full-time staffing. This adjustment would be crucial for attracting and retaining career firefighters, ensuring the department can build and maintain a skilled, committed workforce.

Part-Time to Full-Time

Many fire departments in the area with full-time staffing operate on a 48-hour on/96-hour off schedule, which totals 2,912 hours per year. This scheduling model is common in the area because it allows for sufficient off-time while maintaining adequate coverage. The following table uses the current part-time hourly pay rates to estimate what each position's salary would be if converted to a full-time role. These calculations assume that each position would work the standard full-time annual hours of 2,912.

However, it is important to note that transitioning from part-time to full-time positions entails more than just adjusting the salary. In addition to the base pay, there are significant additional costs associated with full-time staffing, including benefits such as health insurance, retirement contributions, paid time off, and other employee-related expenses. These costs should be carefully considered when evaluating the financial implications of moving to a full-time workforce, as they can substantially increase the overall compensation package for each position. Often, part-time hourly rates are higher than the equivalent full-time hourly rate due to the additional costs associated with benefits. Since



part-time employees generally do not receive these benefits, their hourly wage is often adjusted upward to account for the lack of those added expenses.

Figure 23. Current Part-Time Pay Rates as Full-Time Salary (2,912 hours)

Job Title	Hourly Rate	Estimated Full-Time Salary
Fleet & Resource Specialist	\$24.01	69,917
Fire & Resource Specialist	\$20.55	59,842
Fire Dept Apprentice	\$16.00	46,592

Capital Improvement Plan

Each year, Central City incorporates a five-year capital improvement plan into its budget. The following section outlines the specific items related to fire services included in this plan.

Figure 24. Capital Improvement Plan (FY24 to FY28)

Fund	FY24	FY25	FY26	FY27	FY28
Vehicles/Apparatus	-	125,000	100,000	-	150,000
Small Equipment	-	50,000	15,000	-	40,000
Radio System Upgrades	150,000	-	-	-	-
Buildings/ Facilities	-	-	500,000	1,500,000	-
Total	150,00	175,000	615,000	500,000	190,000

While ESCI commends Central City for proactively projecting future capital expenses, it is important to ensure that the budget reflects the actual costs of these items. The expenses associated with modern fire apparatus and the construction of fire stations often exceed the amounts currently allocated in the capital improvement plan. It is crucial to adjust the budget to capture the true financial requirements more accurately for these critical investments.



Capital Assets

The assets (fixed and mobile) are owned by the City of Central City and are utilized to provide fire protection services for the community. The Department operates from two fire stations and multiple apparatus/vehicles.

Fixed Facilities

Locations of Facilities

The Department operates from two fixed facilities, neither of which appear to meet the needs of the community or department.

Fire Station 1, located at 116 Lawrence Street, is a single bay historical building located downtown Central City. The building lacks the functionality of a modern fire station. The space, even if renovated, is not large enough to fit a modern fire apparatus. Currently, the department administration (Fire Chief) operates from the second floor, which is also the training room, meeting room, storage area, and historical memorabilia display area. The upstairs also has a kitchen and shower area, however, neither are functional. The area does not meet ADA requirements and/or modern safety items such as vehicle exhaust, heating/cooling capabilities, fire sprinklers, fire alarm system, extractor, etc. There are three apparatus in the apparatus bay, however one must be moved to be able to utilize the other two apparatus.

Fire Station 2, located at 62 Galconda Road (Unit 3) on the western side of the community along Central City Parkway. The structure is a 2-bay, arched, heated, membrane structure; constructed in 2018 as a temporary solution to be able to house department apparatus/equipment. The facility is in good condition, however, lacks modern functionality of a fire station, including restrooms/shower facilities, meeting rooms, bunk rooms, office space, etc. In addition, the building does not have modern safety items such as vehicle exhaust, heating/cooling capabilities, fire sprinklers, workout facilities, fire alarm system, extractor, etc. While the facility is less than 10 years old, it will not provide long-term fire protection needs for the community and a plan should continue to be considered for replacement and/or major renovation.

The CCFD also has storage in other areas of city-owned facilities/areas and the gear extractor in the City Manager's townhome.

Facilities Review

ESCI evaluates facilities on five distinct levels. The following table outlines the rating system, and the criteria used for each level.



Figure 25. ESCI Facility Rating Criteria

Excellent	<ul style="list-style-type: none"> • Like new condition. • No visible structural defects. • The facility is clean and well-maintained. • The interior layout is conducive to function 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	<ul style="list-style-type: none"> • 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	<ul style="list-style-type: none"> • 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 match the building's purposes well. • Shows increasing age-related maintenance but with no critical defects. • Age is typically 30 years or more.
Marginal	<ul style="list-style-type: none"> • 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 or showing 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	<ul style="list-style-type: none"> • The building is cosmetically weathered and worn with potential structural defects, although not imminently dangerous or unsafe. • Large, multiple 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 or showing signs of advanced deterioration with moderate to significant non-structural defects. • Problematic age-related maintenance and/or major defects are evident. • It may not be well suited to its intended purpose. • Age is typically greater than 50 years.



Central City Fire Station 1

Figure 26. Facility Information and Condition Worksheet – Fire Station #1

Facility Information and Condition Worksheet

Complete facilities and apparatus information using these tables. Use one table for each facility.				
Facility Name / Station Number: Fire Station #1 - Central City				
Address: 116 Lawrence St Central City, CO 80427				
Primary use (check all that apply) <input checked="" type="checkbox"/> Administration <input type="checkbox"/> Maintenance <input checked="" type="checkbox"/> Emergency Ops <input type="checkbox"/> Special Ops <input checked="" type="checkbox"/> Training <input type="checkbox"/> Communications Center <input type="checkbox"/> Other (specify):				
Structure				
Square Footage: 3234		# of Stories: 2		
Dates of Construction		Original: 1880	Last Remodel: Unknown	
Facilities Rating				
General Condition <input type="checkbox"/> Very Good <input type="checkbox"/> Good <input type="checkbox"/> Fair <input type="checkbox"/> Poor <input checked="" type="checkbox"/> Critical				
5. Very Good	4. Good	3. Fair	2. Poor	1. Critical
As New, No Defects, Performing as intended	Minor defects Performing as intended	Moderate defect Functioning but worn	Minor or major defect Not functioning as desired	Major defect Not functioning OR Risk to safety and health
Preventive Maintenance	Conditional Repair	Repair	Repair OR Replace	Immediate Repair OR Replace
Facilities & Building Services				
Security System Type <input type="checkbox"/> Security Fence and Gate <input type="checkbox"/> Sallyport <input type="checkbox"/> CCTV <input type="checkbox"/> Keypad <input type="checkbox"/> Key (check all that apply): <input type="checkbox"/> Other, specify:				
Maximum Staffing Capacity:				
Kitchen Facilities <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Emergency Ops Center <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Training/Meeting Rooms <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Exercise/Workout Areas <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Equipment Storage <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Shower Facilities <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Apparatus Exhaust Removal System <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Firefighter PPE Extractor <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Living Quarters <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Apparatus Bays <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
# of Beds: 0	# of Bedrooms: 0	# of Back-in: 1	# of Drive-Through:	
Notes or Comments: Station not suitable for overnight staffing, crew quarters, and/or response. Apparatus bay will not house modern equipment, does not provide appropriate safety features (sprinklers, fire alarm, exhaust system, extractor, showers/decon, etc.) and limited capabilities of bathrooms, showers, storage, etc. *Shower and kitchen facilities are on site, but not usable. It does not appear the structure could be renovated to meet modern codes/guidelines of a fire station, specifically to support operations of the required response apparatus. Structure is on the historical registry which makes renovations/reconstruction difficult to meet current codes and or requirements.				



Central City Fire Station 2

Figure 27. Facility Information and Condition Worksheet – Fire Station #2

Facility Information and Condition Worksheet

Complete facilities and apparatus information using these tables. Use one table for each facility.				
Facility Name / Station Number: Fire Station #2 - Central City				
Address: 62 Galconda Road, Unit 3 Central City, CO 80427				
Primary use (check all that apply) <input type="checkbox"/> Administration <input checked="" type="checkbox"/> Maintenance <input checked="" type="checkbox"/> Emergency Ops <input type="checkbox"/> Special Ops <input checked="" type="checkbox"/> Training <input type="checkbox"/> Communications Center <input checked="" type="checkbox"/> Other (specify):				
Structure				
Square Footage: 2800		# of Stories:		1
Dates of Construction		Original: 2018		Last Remodel: N/A
Facilities Rating				
General Condition <input type="checkbox"/> Very Good <input type="checkbox"/> Good <input type="checkbox"/> Fair <input checked="" type="checkbox"/> Poor <input type="checkbox"/> Critical				
5. Very Good	4. Good	3. Fair	2. Poor	1. Critical
As New, No Defects, Performing as intended	Minor defects Performing as intended	Moderate defect Functioning but worn	Minor or major defect Not functioning as desired	Major defect Not functioning OR Risk to safety and health
Preventive Maintenance	Conditional Repair	Repair	Repair OR Replace	Immediate Repair OR Replace
Facilities & Building Services				
Security System Type <input type="checkbox"/> Security Fence and Gate <input type="checkbox"/> Sallyport <input type="checkbox"/> CCTV <input type="checkbox"/> Keypad <input type="checkbox"/> Key (check all that apply): <input checked="" type="checkbox"/> Other, specify:				
Maximum Staffing Capacity: 0				
Kitchen Facilities <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Emergency Ops Center <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Training/Meeting Rooms <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Exercise/Workout Areas <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Equipment Storage <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		Shower Facilities <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Apparatus Exhaust Removal System <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Firefighter PPE Extractor <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		
Living Quarters <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		Apparatus Bays <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No		
# of Beds: 0	# of Bedrooms: 0	# of Back-in: 2	# of Drive-Through: 0	
Notes or Comments: Station not suitable for overnight staffing, crew quarters, and/or response. Apparatus bay does not provide appropriate safety features (sprinklers, fire alarm, exhaust system, extractor, showers/decon, etc.) and limited capabilities of bathrooms, showers, storage, etc.				



Facilities Review

The current facilities of the Central City Fire Department do not meet industry standards and/or the community's needs. Nor do the facilities offer the department the space to grow, providing the anticipated level of service desired by the city.

As noted previously, Fire Station 1 is a historical property that would require a significant remodel to bring it up to modern standards, however modern fire apparatus would still not be able to be used from that facility. With a significant renovation, this station may be able to be used to house a 2–3-person crew on a rapid response vehicle to specifically support EMS operations and/or more minor all-hazard responses.

Fire Station 2 was built as an emergency and temporary solution after the loss of the station at 495 Apex Valley Road. While the facility is relatively new, it does not meet the necessary requirements for sleeping quarters, storage, crew accommodations, or other essential needs to support full-time or part-time staffing. Additionally, Station 2 lacks both water and sanitation services, further limiting its functionality as a fully operational fire station.

A replacement facility or facilities have been identified as a strategy for future opportunities contained within this report and by the Fire Chief. As part of the design process of the new facility/facilities, it is imperative that the Central City Fire Department ensure the safety of members, manage environmental concerns, ensure code compliance, and maintain appropriate staff facilities, all while ensuring the future viability of growth to the community.



Fleet/Apparatus

Age, Condition, & Serviceability

The Central City Fire Department has numerous types of apparatus to meet the needs of the community. In a community where there are aspects of wildland, rural, and urban components that must be protected, the apparatus must support those needs. In addition, the topography, weather, road layout and size provide challenges for response and requires unique deployment of apparatus.

While the review of apparatus shows much of the apparatus to be in 'good' or 'very good' condition, the age of most apparatus are beyond the replacement date identified in industry standards and best practices.

The following table lists current apparatus and condition. Also noted are trailers and antiques, which are not considered for the study's purpose, but are representative of the vehicles owned, stored, or maintained by the department.



Figure 28. Central City Fire Department Apparatus Assessment

Station 1 Apparatus							
Unit ID	Unit Class	Type	Manufacturer	Model Year	Tank Size	Pump Capacity	Apparatus Condition
B-32	Brush Type 6	Type 6	Ford	2000	300	250	Good
C-31	Command	N/A	Dodge	2019	N/A	N/A	Good
C-32	Command	N/A	Dodge	2006	N/A	N/A	Good
E-33	Engine	Type 3	Pierce	1986	500	750	Fair
T-32	Tender	Type 3	International	1980	1250	250	Fair/Poor
Station 2 Apparatus							
Unit ID	Unit Class	Type	Manufacturer	Model Year	Tank Size	Pump Capacity	Apparatus Condition
B-31	Brush Truck	Type 6	GMC	1999	300	250	Good
E-31	Engine/Pumper	Type 1	Pierce	2021	600	1250	Very Good
E-32	Engine/Pumper	Type 1	Pierce	1996	750	1500	Good
R-31	Rescue - Light Duty	Rescue	GMC	1993	N/A	N/A	Fair
T-31	Tactical Tender	Tender	Maxi Metal / Pierce	2018	2000	1000	Very Good
U-35	Support	Support	Chevrolet Blazer	1993	N/A	N/A	Very Poor
UTV31	Wildland	Support	Polaris	2022	70	175	Good
W-30	Water Rescue	Boat	Zodiac	1996	N/A	N/A	Good
Other							
Unit ID	Unit Class	Type	Manufacturer	Model Year	Tank Size	Pump Capacity	Apparatus Condition
S-37	Cargo Trailer	Trailer	Pace American	1996	N/A	N/A	Good/Fair
S-38	Cargo Trailer	Trailer	Interstate 1	2001	N/A	N/A	Good/Fair
S-39	Flatbed Trailer	Trailer	PJ	2023	N/A	N/A	Good/Fair
E-1	Engine	Antique	Howe	1954	N/A	N/A	Antique, not rated
E-2	Pumper	Antique	Model T Ford Chemical Pumper	1931	N/A	N/A	Antique, not rated
E-35	Engine	Antique	FWD	1972	N/A	N/A	Antique, not rated



Maintenance

Apparatus are maintained by the City of Central City Public Works Department and/or Front Range Fire Apparatus (Pierce Authorized Dealer/Emergency Vehicle Technician Repair Shop). The agency meets NFPA standards for items such as pump testing, ladder testing, etc. When vehicles are required to be taken to Front Range Fire Apparatus, there could be significant time out-of-service and/or the time for members to take the vehicles is likely a 4-6 hour round trip, resulting in decreased coverage in the community.

During the time of the site visit, at least one apparatus was out-of-service, and the Fire Chief identified that, based upon the age of some of the vehicles, they are becoming harder to maintain due to the availability of parts.

Future Needs

Currently, the Central City Fire Department does not own or operate an aerial device. The ISO criteria requirement does require an aerial type of apparatus within 2.5 miles of any building greater than three stories or requiring greater than 3,500 gallons per minute fire flow to get full credit. An aerial device is available on mutual aid from Clear Creek Fire Authority. However, it is outside of the 2.5-mile radius of Central City. Many of the buildings in the area are three stories or taller, making ground-based operations challenging. Additionally, critical infrastructure such as HVAC systems and mechanical units—common sources of fires and emergencies—are typically located on rooftops, increasing the need for elevated access. Without an aerial or ladder truck, firefighters face significant delays in reaching these areas, which can hinder fire suppression efforts and increase property damage.

In the future, as apparatus are due for replacement and the decision is made on what size/type of Fire Station to construct, it is recommended that the department evaluate the number and types of apparatus that can be deployed in the event of an emergency. This evaluation should include the requirements related to ISO, automatic/mutual aid availability, and deployment capabilities. This plan should evaluate the need of type 1, type 3, type 6, tenders, and command/staff vehicles. The evaluation/plan should also include the potential of apparatus sharing, such as temporarily borrowing/leasing an apparatus from a neighboring agency in the event of required maintenance; this would reduce the overall need for primary and backup resources of each type.

Apparatus Replacement Planning

Fire apparatus are typically unique pieces of equipment, often very customized to operate efficiently in a narrowly defined mission. A pumper may be designed such that the compartments fit specific equipment and tools, with virtually every space on the truck designated in advance for functionality. This same vehicle, with its specialized design, cannot be expected to function in a completely different capacity, such as a hazardous



materials unit or a rescue squad. For this reason, fire apparatus is very expensive and offers little flexibility in use and reassignment. As a result, communities across the country have sought to achieve the longest life span possible for these vehicles.

Unfortunately, no mechanical piece of equipment can be expected to last forever. As a vehicle ages, repairs tend to become more frequent, parts more difficult to obtain, and downtime for repair increases. Given the emergency mission that is so critical to the community, this factor of downtime is one of the most frequently identified reasons for apparatus replacement.

Because of the large expense of fire apparatus, most communities find the need to plan for the cost of replacement. To properly do so, agencies often turn to the long-accepted practice of establishing a life cycle for the apparatus that results in a replacement date being anticipated well in advance. Forward thinking organizations then set aside incremental funds during the life of the vehicle, so replacement dollars are ready when needed.

CCFD does not maintain a formal schedule that places all apparatus on any specified replacement cycle from date of primary service. ESCI recommends that the CCFD make an effort to develop a vehicle replacement schedule, including a funding strategy that will fully meet future needs.

NFPA 1901: Standard for Automotive Fire Apparatus is a nationally recognized industry standard for the design, maintenance, and operation of fire suppression apparatus. The issue of replacement cycles for various types of apparatus has been discussed in the committee that develops the standard for many years. In developing its latest edition, the committee calls for a life cycle of 12 years in front-line service and five years in reserve status for engines, and 15 years in front-line service and five years in reserve status for ladder trucks.

Does this mean that a fire engine cannot be effective as a front-line pumper beyond 12 years? A visit to many departments in the United States might prove otherwise. Small, volunteer fire departments with only a hundred or so calls per year often get up to 25 years from a pumper, though the technology is admittedly not up-to-date. Likewise, busy downtown city fire stations in some urban communities move their engines out of front-line status in as little as eight years.

The reality is that it may be best to establish a life cycle that would be used in the development of replacement funding for various types of apparatus, while applying a different method for determining the replacement date in real life to achieve greater cost efficiency where possible.



A conceptual model that may be used when a replacement cycle is considered is the Economic Theory of Vehicle Replacement. The theory states that, as a vehicle ages, the cost of capital diminishes and its operating cost increases. The combination of these two costs produces a total cost curve. The model suggests the optimal time to replace any piece of apparatus is when the operating cost begins to exceed the capital costs. This optimal time may not be a fixed point but rather a range over time.

Shortening the replacement cycle to this window allows for an apparatus to be replaced at optimal savings to the department. If the department does not routinely replace equipment in a timely manner, the overall reduction in replacement spending can result in a quick increase in maintenance and repair expenditures. Officials who assume that deferring replacement purchases is a good tactic for balancing the budget need to understand that two events may occur:

1. Costs are transferred from the capital budget to the operating budget.
2. Such deferral may increase overall fleet costs.

Regardless of its net effect on current apparatus costs, the deferral of replacement purchases unquestionably increases future replacement spending needs.

The following figures demonstrate the recommended replacement schedule for CCFD. The current replacement cost and life expectancy of that type of unit are shown in the first table. The annual rate of 3.09%² is used for inflationary increases. Using these figures, CCFD front line fleet is shown in the second table. This table calculates the replacement cost with inflation and shows the total amount needed over the life of the fleet and the annual contribution that should be made to the replacement fund to fully fund the schedule.

Figure 29. Apparatus Life Expectancy and Replacement Costs

Vehicle	Life Expectancy	Replacement Costs
Command Vehicle	12-15	\$ 125,000
Engine	15-20	\$ 800,000
Tender	20-25	\$ 500,000
*Aerial	20-25	\$ 1,500,000
Brush	15-20	\$ 400,000
Light Rescue	15-20	\$ 250,000

² 10-Year Average 2014-2024 inflation rate. <https://www.usinflationcalculator.com/inflation/current-inflation-rates/>



Figure 30. Apparatus Replacement Financial Requirements – Current Apparatus

CCFD Apparatus Replacement							
Unit ID	Model Year	Base Replacement Cost	Estimated Replacement Cost with Inflation (At Year of Replacement)	Current Cash Requirements	Annual Cash Requirements for Replacement	Current Age	Replacement Year
B-32	2000	\$400,000		\$400,000		24	Overdue
C-31	2019	\$125,000	\$135,570	N/A	\$13,557	5	2034
C-32	2006	\$125,000		\$125,000		18	Overdue
E-33	1986	\$800,000		\$800,000		38	Overdue
T-32	1980	\$500,000		\$500,000		44	Overdue
B-31	1999	\$400,000		\$400,000		25	Overdue
E-31	2021	\$800,000	\$1,258,179	N/A	\$74,011	3	2041
E-32	1996	\$800,000		\$800,000		28	Overdue
R-31	1993	\$250,000		\$250,000		31	Overdue
T-31	2018	\$450,000	\$802,281	N/A	\$42,225	6	2043
U-35	1993	\$75,000		\$75,000		31	Overdue
UTV31	2022	\$30,000		N/A		2	Agency Identified
W-30	1996	Agency Identified		N/A		28	Agency Identified
Total/Average				\$3,350,000	\$129,793	21.8	

Based upon the replacement cost calculations, a fully funded vehicle replacement plan would have a current balance of \$3,300,000 and be increased by \$345,750 annually. The average age of the fleet is 21.8 years. All but 3 vehicles are beyond the recommended useful life.

One option for an apparatus replacement plan could include only maintaining the following apparatus, or adjusting based upon local agency needs.



Figure 31. Apparatus Replacement Financial Requirements – Minimized Fleet

CCFD Apparatus Replacement							
Unit ID	Model Year	Base Replacement Cost	Estimated Replacement Cost with Inflation (At Year of Replacement)	Current Cash Requirements	Annual Cash Requirements for Replacement	Current Age	Replace Year
B-32	2000	\$400,000		\$400,000		24	Overdue
C-31	2019	\$125,000	\$150,041	N/A	\$15,004	5	2034
C-32	2006	\$125,000		\$125,000			Overdue
E-31	2021	\$800,000	\$1,342,058	N/A	\$78,945	3	2041
**E-33	1986	\$800,000		\$800,000		38	Overdue
T-31	2018	\$475,000	\$846,853	N/A	\$44,571	6	2043
U-35	1993	\$75,000		\$75,000		31	Overdue
UTV3 1	2022	\$30,000		N/A		2	Agency Identified
W-30	1996	Agency Identified		N/A		28	Agency Identified
Total/Average				\$1,400,000	\$138,520	17.1	

**Additional items, such as trailers, or specialized equipment should be budgeted appropriately, along with an appropriate replacement plan in a capital improvement plan.*

***E33 could be a type III/type I capable engine to support wildland/and structure fire response on the 'high streets,' with a minimum pump size of 1,250 GPM and ladder/tool complement to meet ISO requirements. An option of this vehicle would be the Rosenbauer Timberwolf (all manufacturers have similar vehicles) that could meet NFPA and ISO requirements.*

****Engines, Tenders, etc. Pricing is based upon commercial apparatus, not custom apparatus.*

Even with the reduced fleet size, the Central City Fire Department would maintain a fleet size of 9 vehicles. This would include 3 vehicles that could be used for staff/take home vehicles to support response from home and daytime use. In addition, there would be 2 engines to support fireground operations, one of which would be a smaller type III/I capable unit to support response on the 'high streets' in addition to supporting wildland response. Having 2 engines, the department would not need any additional reserve engines. Additional apparatus for response, if necessary, would be requested from mutual/auto aid agencies.



At times, there is an extended lead time for apparatus, with certain departments experiencing longer-than-normal delays due to ongoing supply chain disruptions. These delays can vary depending on the specific equipment needed and availability from manufacturers, suppliers, and shipping channels. As a result, some departments may face longer waiting times than anticipated, impacting their ability to receive necessary apparatus in a timely manner. It is strongly recommended that Central City take proactive measures and plan well in advance to address this issue.

Equipment

Equipment, such as personal protective equipment and self-contained breathing apparatus, complies with current and appropriate National Fire Protection Association (NFPA) standards. Equipment maintenance meets appropriate NFPA and manufacture recommendations.

CCFD should ensure that items such as SCBA, personal protective equipment, radios, EMS equipment, extrication equipment, etc. that have expected 'shelf life' are included in the capital improvement plan.

Storage needs for equipment need to be continually evaluated, specifically based upon newer fire station construction processes where items such as personal protective equipment and other equipment are not stored in the same area as apparatus. In addition, the Fire Chief identified there have been issues with equipment due to mice and other rodents, specifically at Station 2.

Capital Improvement Plan

Central City Fire Department, under the City of Central budgetary process, has a Public Safety Fund to support capital purchases and needs of the organization. The capital improvements plan provided does not provide a 3, 5, 10-year projection and is an annual request used in the budget. It is recommended that the agency develop a 3, 5 and 10-year capital improvement plan to allow the department to maintain a similar annual capital outlay for each fiscal year. As part of this plan, all capital assets should be identified and outlined for replacement/purchase to ensure that all costs can be accounted for with annual updates for anticipated pricing. This will ensure that the city can forecast and budget appropriately for current replacement and future growth. Items that are often considered in a capital improvement plan include (list is not all encompassing):

- Personal Protective Equipment
- Self-Contained Breathing Apparatus
- Apparatus/Vehicles/Trailers
- Radio Equipment



- Appliances
- Hose/Nozzles
- Extrication Equipment
- Non-disposal Medical Equipment
- Gear Washers
- Station Remodels/Signifiant Maintenance Items



Service Delivery & Performance

Service delivery and performance are the metrics which best illustrate the services provided by the fire department to the community. The key components of this include:

- Service demand
- Resource distribution
- Resource concentration
- Resource reliability
- Response performance
- Automatic and mutual aid

Service Demand Analysis

When a resident or visitor requests assistance, this creates a demand for services from the fire department. 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 response to incidents includes recording the type of incident. The National Fire Incident Reporting System (NFIRS) is an industry standard method used to record this information and is comprised of 178 incident types which are grouped into series as illustrated in the following figure.

Figure 32. 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

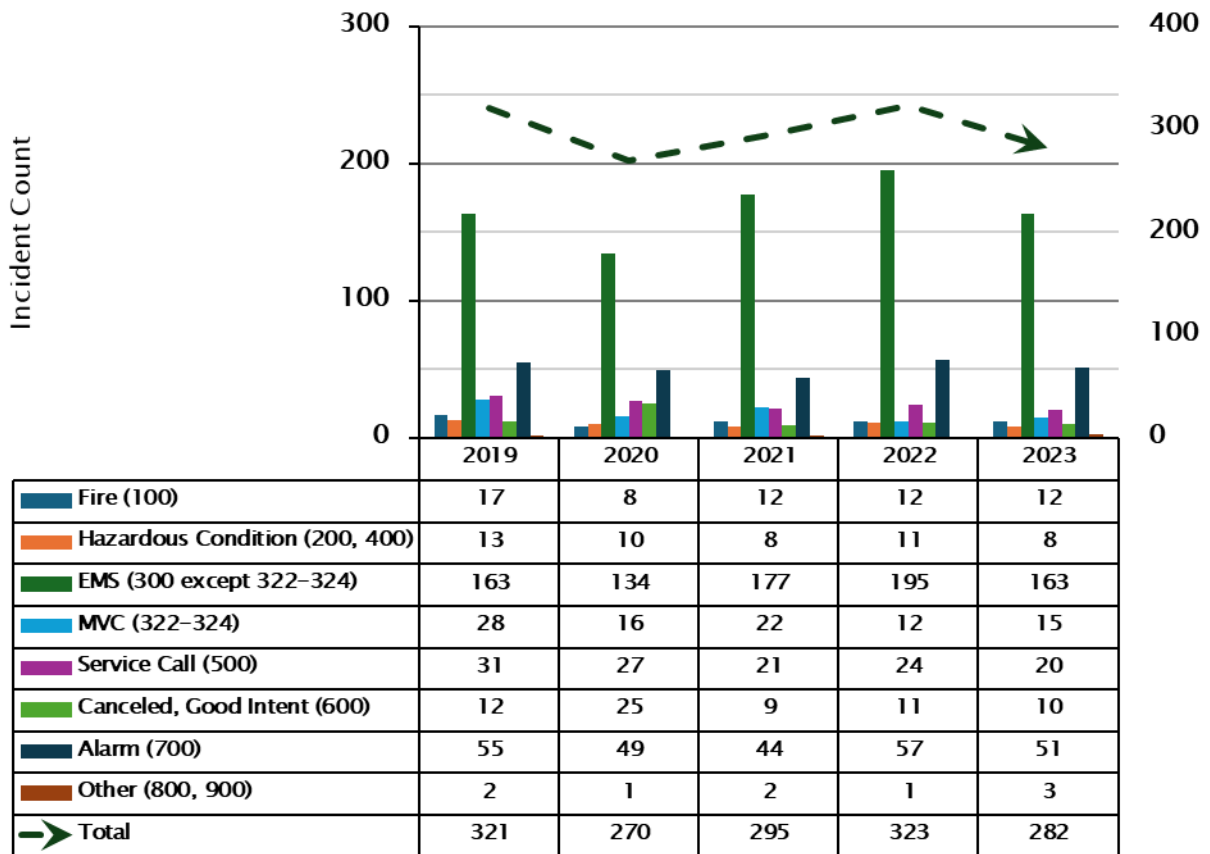
As illustrated in the following figure, there was an overall decrease of 12.2% in service demand from 2019 to 2023—15.9% decrease in 2020, 9.3% increase in 2021, 9.5% increase in 2022, and 12.7% decrease in 2023. This resulted in a compounded annual growth rate of -0.03%.

It is important to note that many fire departments experienced a lower-than-average call volume in 2020 due to the COVID-19 pandemic. In Central City, this decline can be



attributed to fewer visits to the casinos and a decrease in tourism resulting from various shutdowns. Additionally, while the 2024 call volume was not considered in the analysis, as the data was completed before the end of the year, ESCI did have access to the total call data for 2024. The total number of calls in 2024 was 346, indicating a significant increase in call volume from 2023 to 2024.

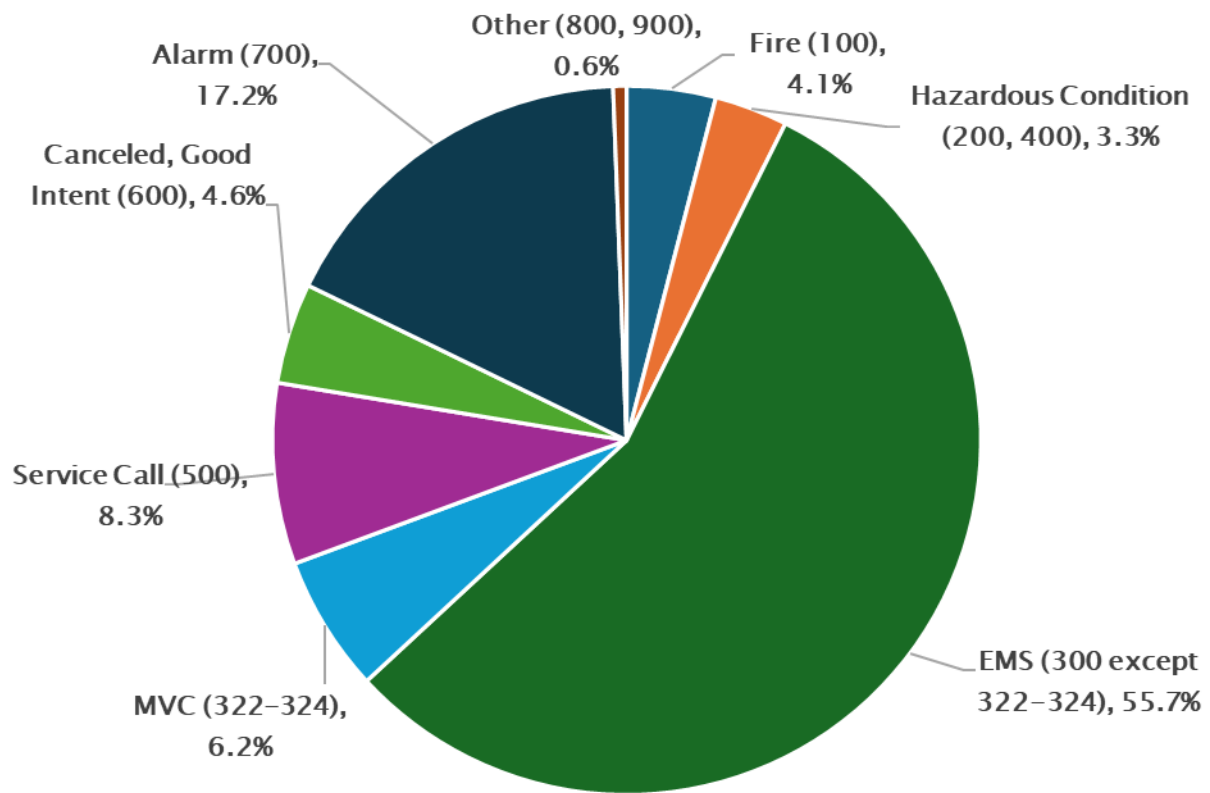
Figure 33. CCFD Service Demand by NFIRS Series, 2019–2023



Another consideration is to determine the percentage represented by each category comprising the entirety of service demand. As illustrated in the following figure, the greatest service demand falls within the emergency medical services category and the lowest service demand falls within the other category.



Figure 34. CCFD Service Demand by NFIRS Series, 2019–2023

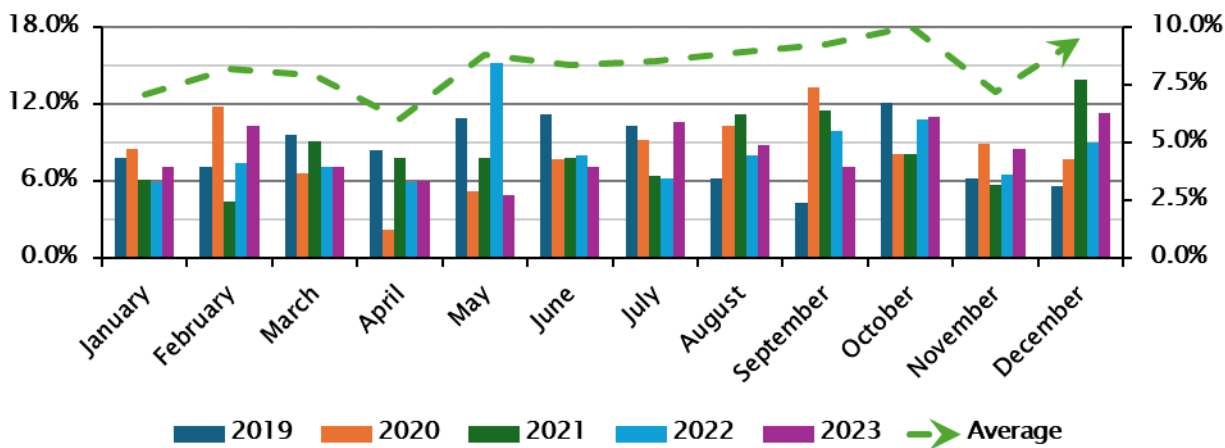




Temporal Analysis

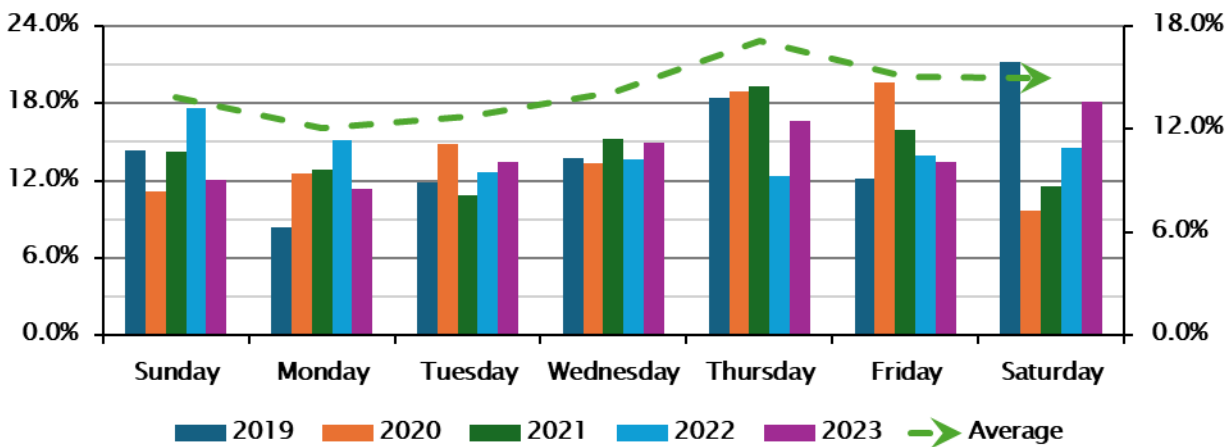
Another datapoint documented for each incident response is the time at which it occurs. This may be analyzed from three different views—month, day, and hour. From the perspective of month, the greatest demand occurs in October at 10.1% and the lowest demand occurs in April at 6.1%, as illustrated in the following figure.

Figure 35. CCFD Service Demand by Month, 2019–2023



From the perspective of day, the greatest demand occurs on Thursday at 17.1% and the lowest demand occurs on Monday at 12.1%, as illustrated in the following figure.

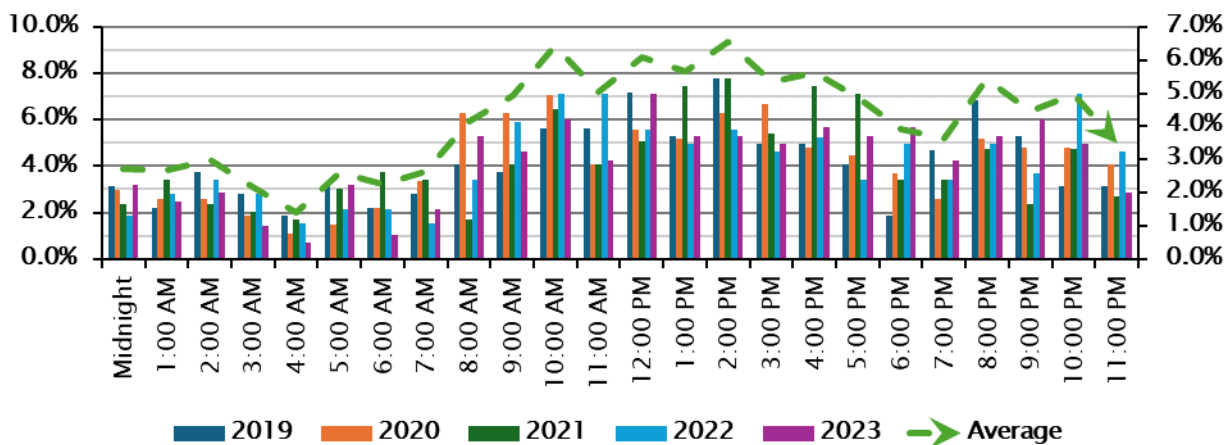
Figure 36. CCFD Service Demand by Day, 2019–2023





As illustrated in the following figure, from the perspective of hour, the lowest demand occurs at 4:00 AM at 1.4%. As the day begins for most residents and visitors, demand increases until leveling off at 10:00 AM at 6.4%. With minor changes, demand reaches a peak at 2:00 PM at 6.6%, followed by decreases until 7:00 PM, at which time there are additional increases before decreasing to the lowest level.

Figure 37. CCFD Service Demand by Hour, 2019-2023

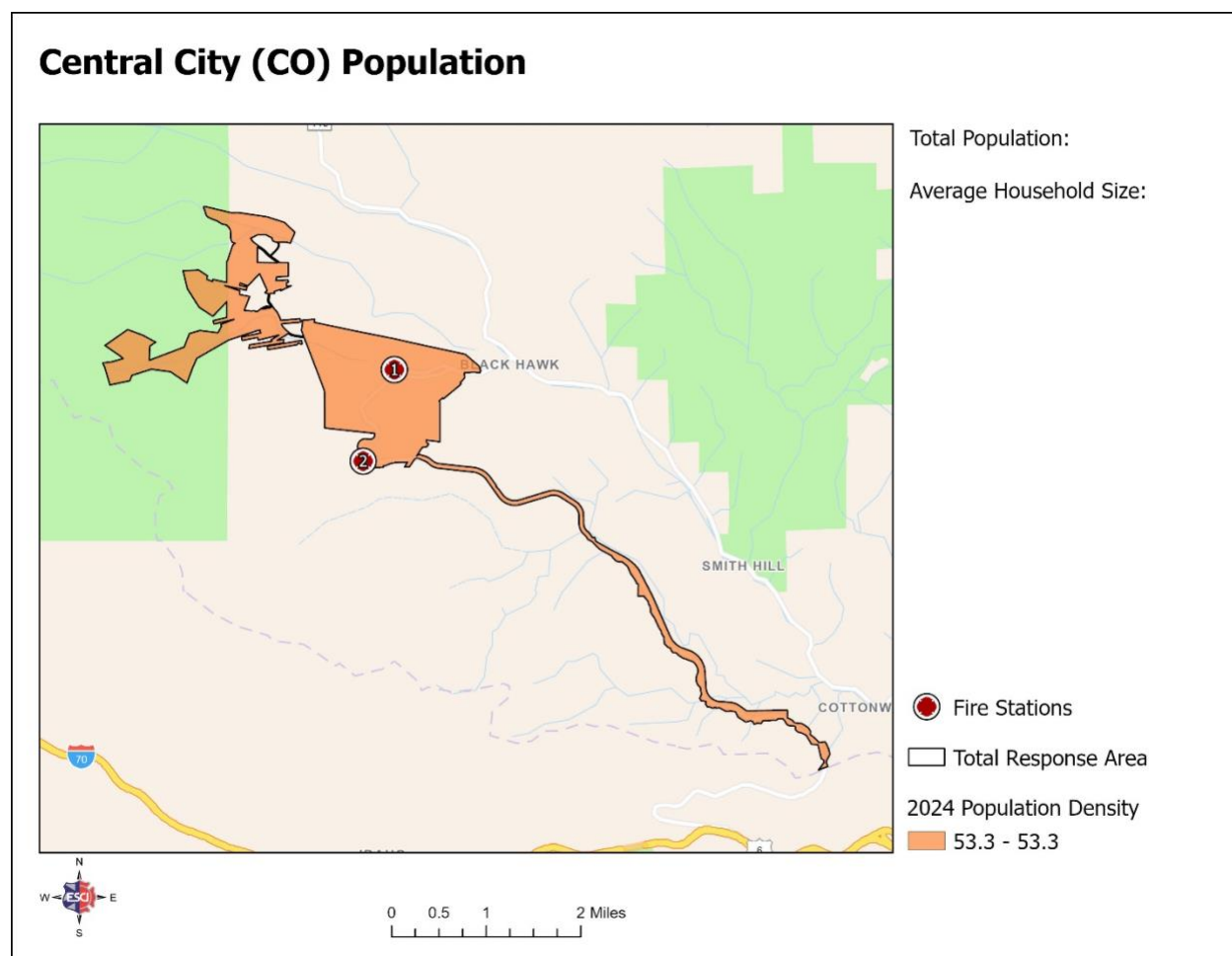


While the preceding figure illustrates that demand for service is at its lowest during the late night and early hours, leadership should ensure adequate staffing is still in place to quickly respond and mitigate structure fire incidents. Based on a national study recently published, from 2018 to 2020, the occurrence of residential structure fires with fatalities was highest between midnight and 1:00 AM. The 8-hour peak period (11:00 PM to 7:00 AM) accounted for 45% of residential fatal fires³.

Geographic Analysis

Where incidents occur is closely related to the population within the community. In other words, where there is greater population density, there is also greater incident density. To compare this relationship, the first information needed is the population density, as illustrated in the following figure.

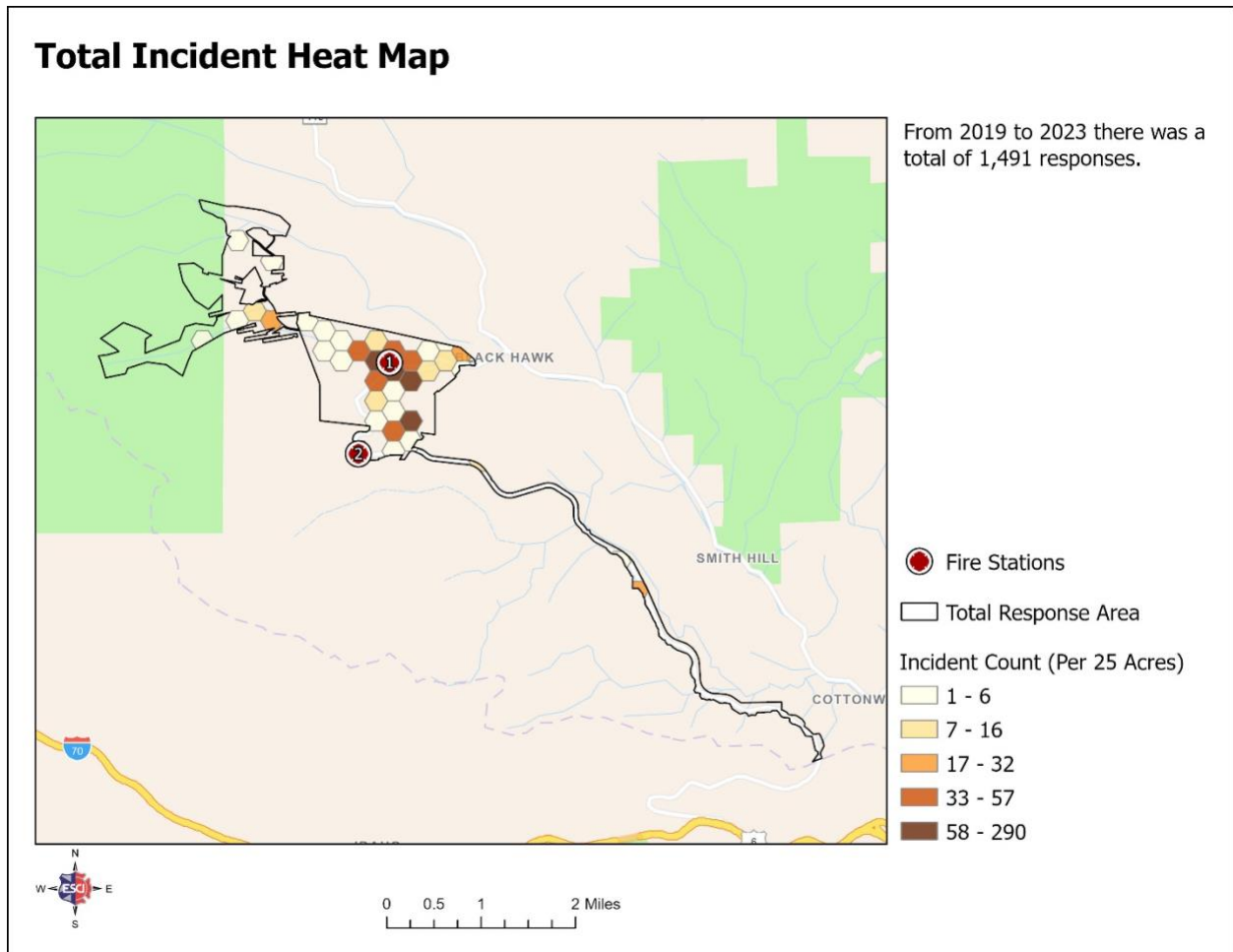
Figure 38. Central City Population Density, 2024



³ *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.*

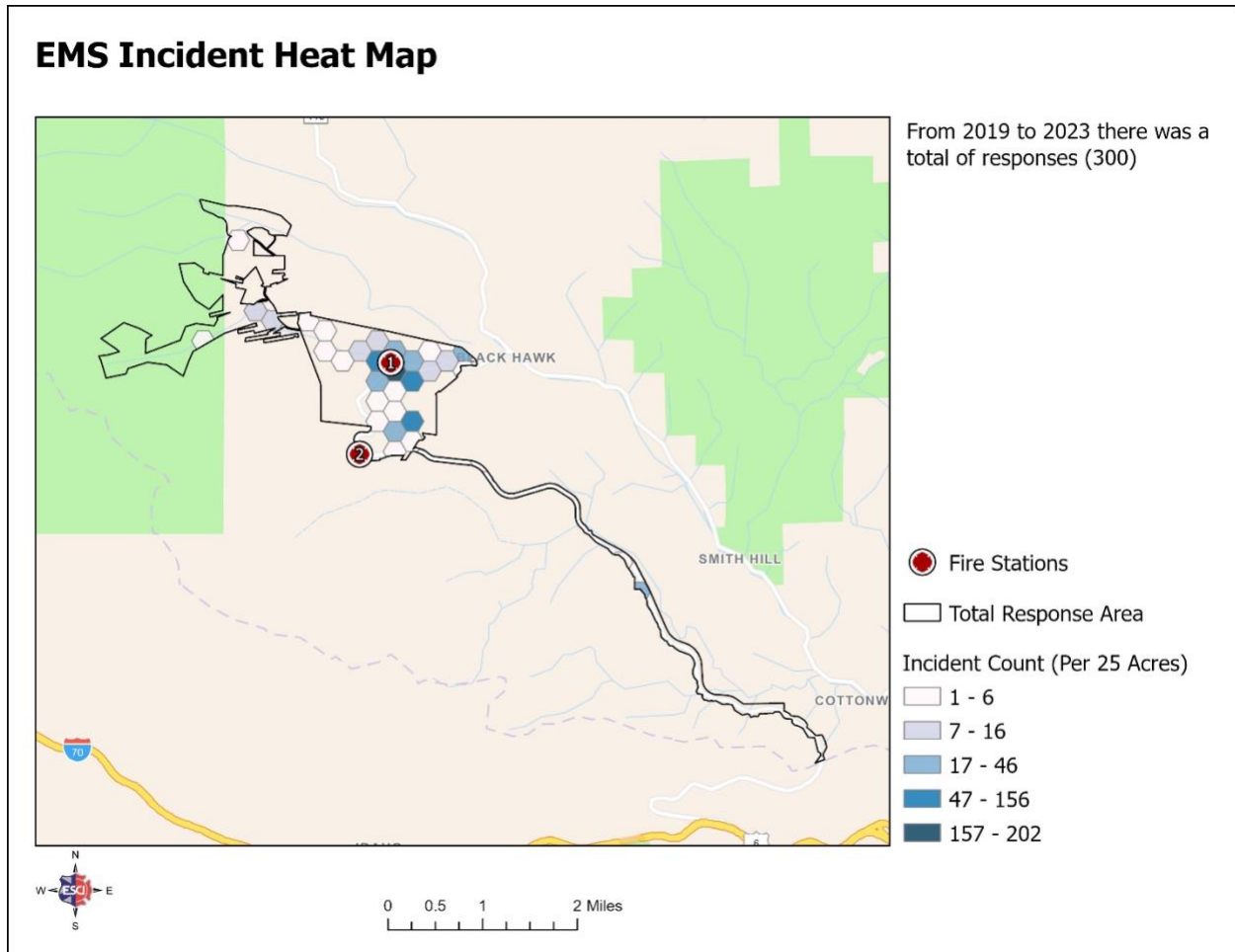
Another datapoint documented for each incident response is the address and/or the latitude and longitude where the incident occurred. The first view of incident density includes all responses within the service area, regardless of incident type. As illustrated in the following figure, the greater density of service demand centers near Station 1, with another area to the extreme southeast.

Figure 39. CCFD Incident Density (All Incidents), 2019–2023



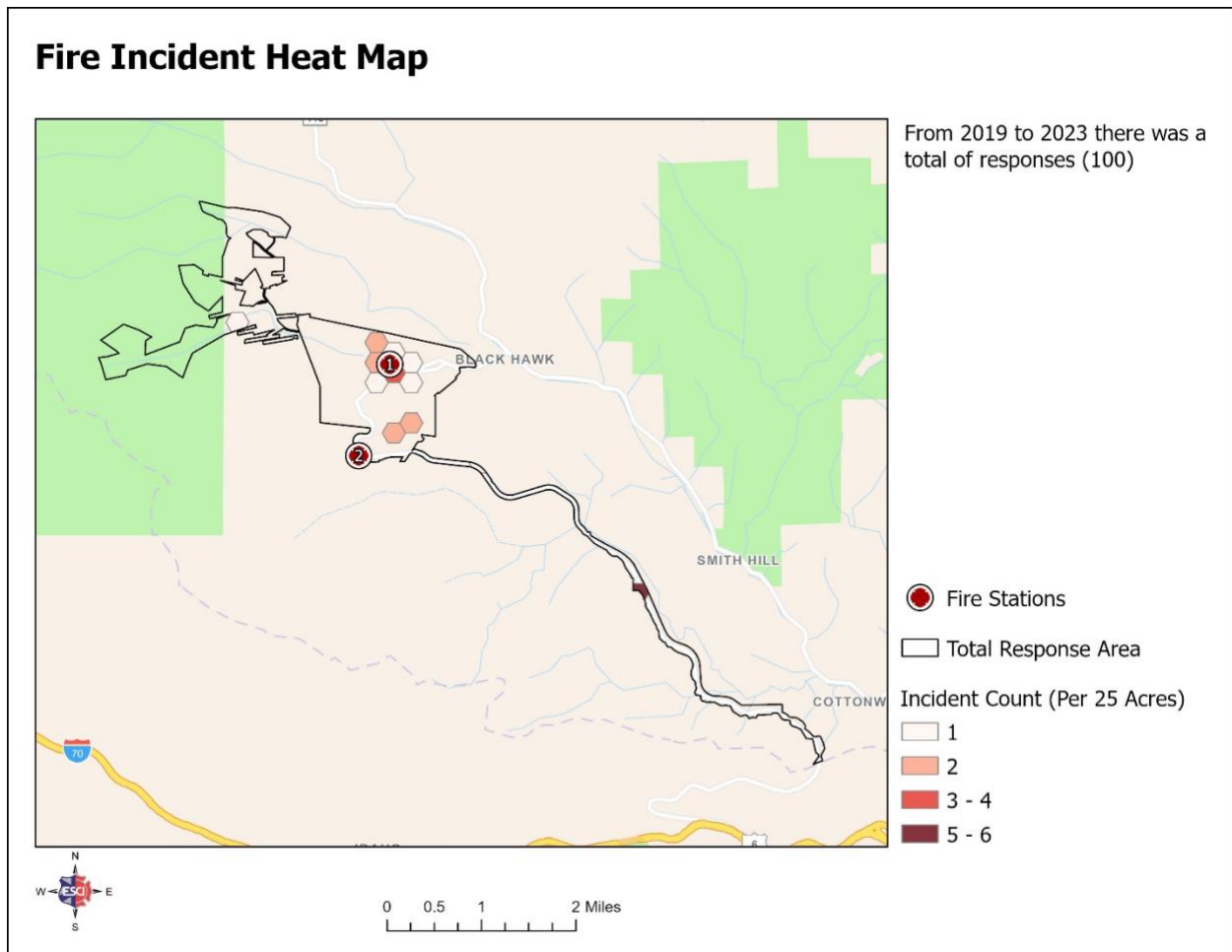
The second view of incident density includes only emergency medical services incidents as these comprise the greatest percentage of responses but generally require fewer resources. As illustrated in the following figure, this follows the same pattern as that of all incidents.

Figure 40. CCFD Incident Density (EMS), 2019-2023



The third view of incident density includes only fire incidents as these generally require the greatest number of resources. As illustrated in the following figure, this follows the same pattern as that of all incidents.

Figure 41. CCFD Incident Density (Fire), 2019–2023



Resource Distribution Analysis

Location of emergency services resources within the community should be compared to the location of incident density as well as various industry standards and best practices.

ISO Distribution

The Insurance Services Office, Inc. (ISO) is a national insurance industry organization that evaluates fire protection for communities across the country. ISO assesses all areas of fire protection as broken down into four major categories including emergency communications, fire department, water supply, and community risk reduction. Following an on-site evaluation, an ISO rating, or specifically, a Public Protection Classification (PPC®) number is assigned to the community ranging from 1 (best protection) to 10 (no protection). The PPC® score is developed using the Fire Suppression Rating Schedule

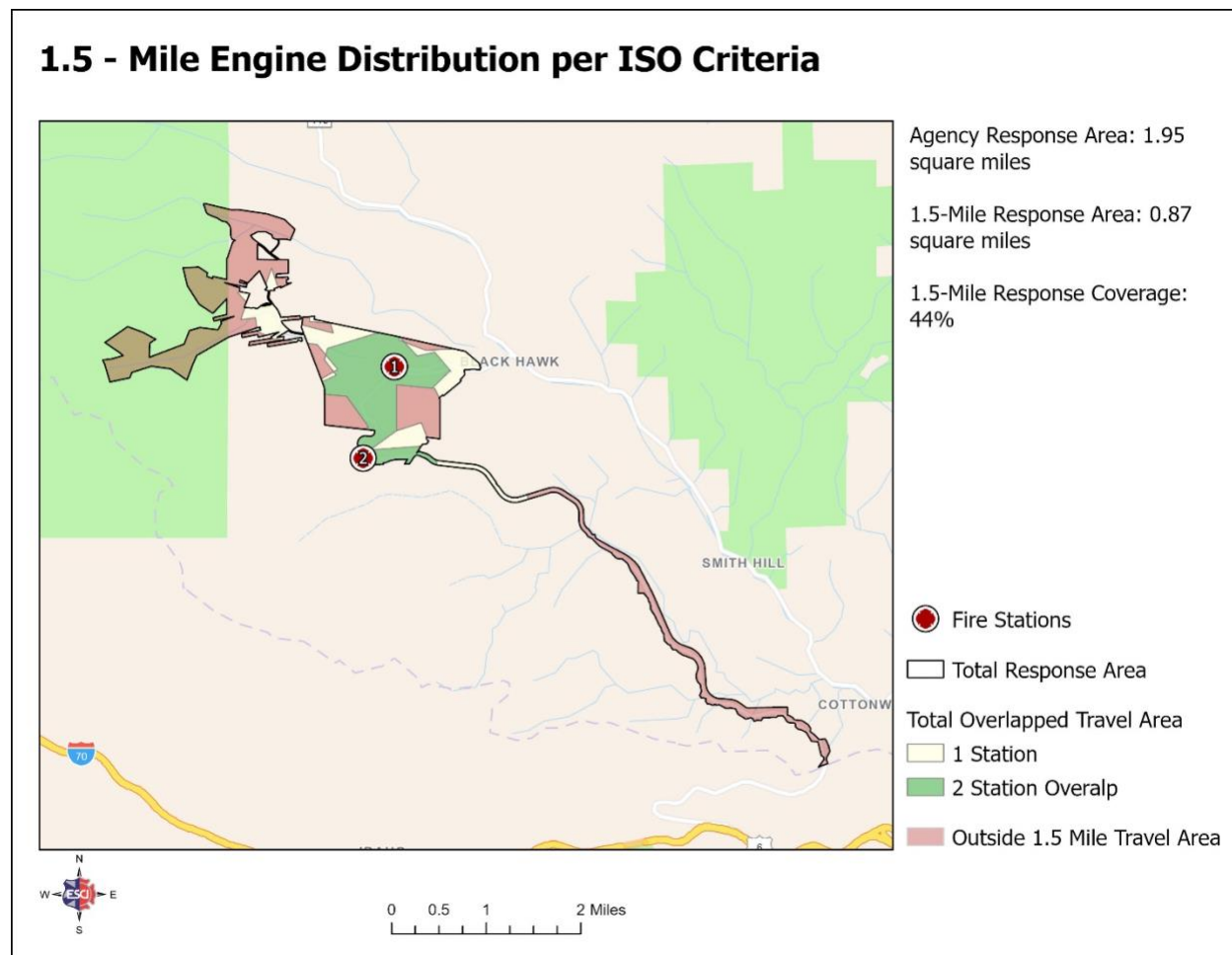
(FSRS), which outlines sub-categories of each of the major four, detailing the specific requirements for each area of evaluation.

A community's ISO rating is an important factor when considering fire station and apparatus concentration, distribution, and deployment due to its effect on the cost of fire insurance for the residents and businesses. To receive maximum credit for station and apparatus distribution, ISO evaluates the percentage of the community (contiguously built upon area) that is within specific distances of fire stations, central water supply access (fire hydrants), engine/pumper companies and aerial/ladder apparatus.

1.5-Mile Distribution

The first distance measure evaluated by ISO is the overall percentage of the service area that is within a 1.5-mile travel distance of a fire engine. As illustrated in the following figure, 44% of the CCFD service area meets this measure.

Figure 42. CCFD Engine Distribution per ISO Criteria



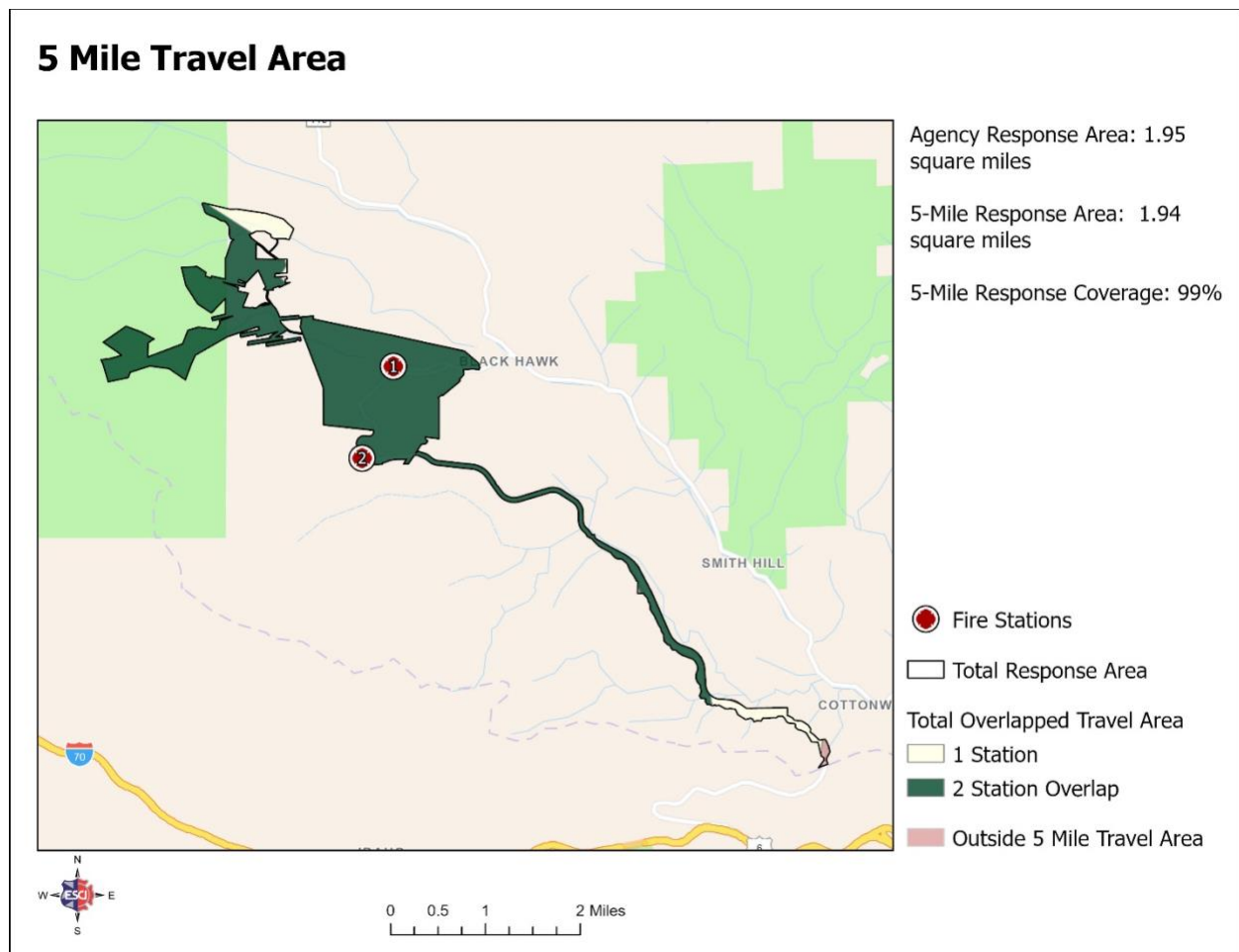
2.5-Mile Aerial Distribution

In many jurisdictions, ladder companies are deployed only to certain types of incidents and are not necessarily considered the first due unit for all other incident types. The use of an aerial apparatus is more specifically needed in areas of the community where there are five or more buildings of three stories (or 32-feet) or more in height, or with five or more buildings requiring a needed fire flow of greater than 3,500 gallons per minute, or five or more buildings meeting any combination of these requirements. However, there are no ladder companies located within 2.5 miles of the city. Many of Central City’s structures, including those in the town core, Gold Mountain Village, and the Prospector’s Run townhomes, are at least three stories tall or higher.

5-Mile Station Distribution

The third distance measure evaluated by ISO is the overall percentage of the service area that is within a 5-mile travel distance of a fire station. Areas outside of the 5-mile travel distance are subject to a PPC® rating of 10 (no fire department protection available). As illustrated in the following figure, 99% of the CCFD service area meets this measure.

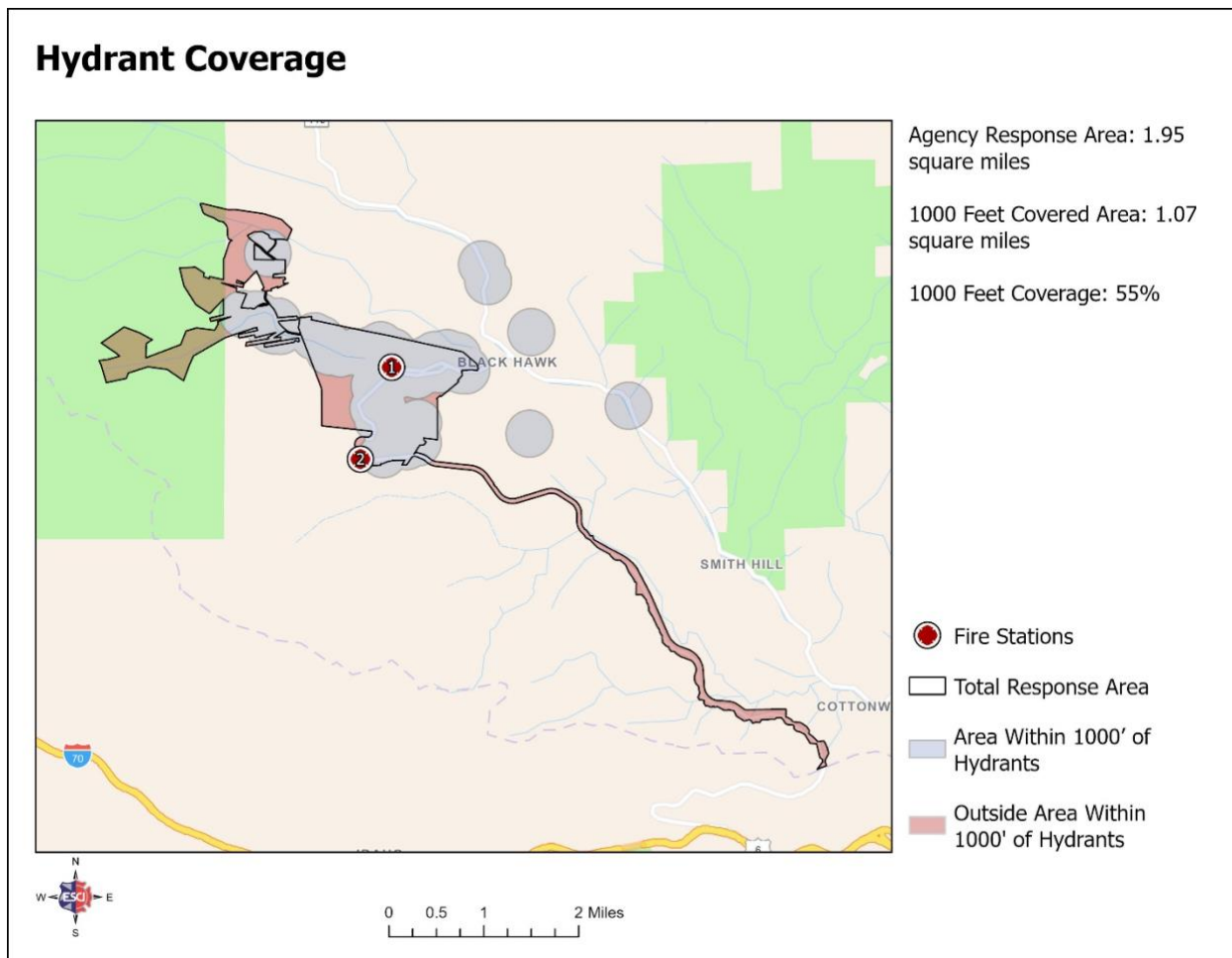
Figure 43. CCFD Station Distribution per ISO Criteria



Water Supply

The final distance measure evaluated by ISO is the overall percentage of the service area that is within 1,000 feet of a fire hydrant. Exceptions are made when a fire department can show that either a dry hydrant or a suitable water tanker operation is possible to provide the volume of water needed for fire suppression activities for a specific period. As illustrated in the following figure, 55% of the CCFD service area meets this measure.

Figure 44. CCFD Hydrant Distribution per ISO Criteria





Resource Concentration Analysis

The response to fire incidents, more specifically structure fires, generally require a greater number of apparatus and personnel to achieve mitigation of the incident. The ability to have sufficient apparatus and personnel on the scene is referred to within the industry as an effective response force (ERF). As a combination fire department with primarily volunteer staffing, CCFD falls beneath *NFPA 1720, Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*. The NFPA 1720 response time standard is illustrated in the following figure.

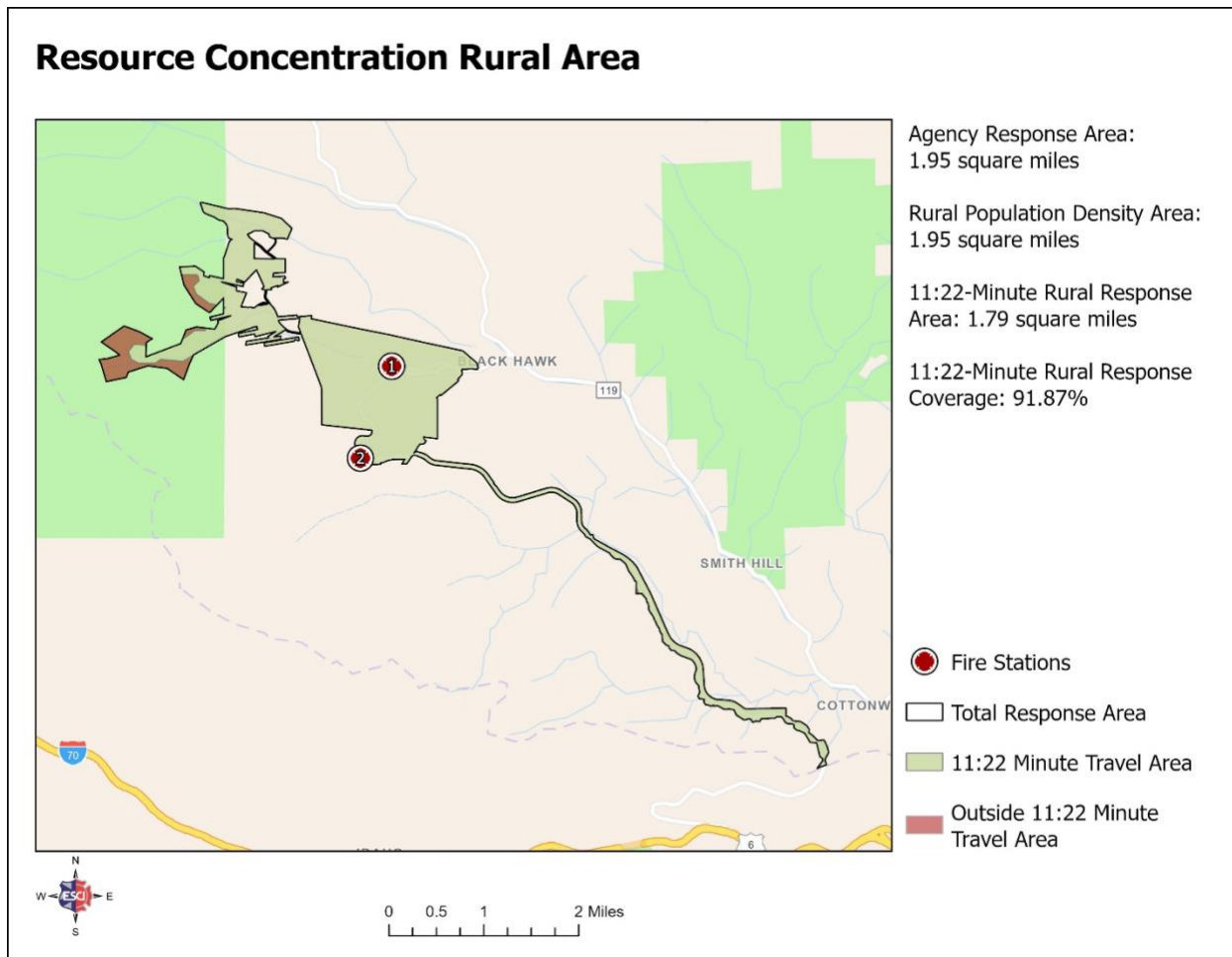
Figure 45. NFPA 1720 Response Time Standard

Demand Zone	Population	Firefighters	Response Time	Percentile
Urban	>1,000	15	9 Minutes	90 th
Suburban	500-1,000	10	10 Minutes	80 th
Rural	<500	6	14 Minutes	80 th

As illustrated previously, the population density for the entire service area of CCFD meets the NFPA definition of rural. To illustrate this concept for leadership, ESCI analyzed turnout times (measure of time between dispatch and unit responding) to determine the 80th percentile value of 2 minutes, 38 seconds. This value was then subtracted from the rural response time of 14 minutes to create a travel area of 11 minutes, 22 seconds to approximate the overall response time (measure of time between dispatch until arrival).

As illustrated in the following figure, 92% of the rural population density areas fall within the 11 minute, 22 second travel area from a fire station (2 minutes, 38 seconds turnout plus 11 minute, 22 second travel equals response time of 14 minutes).

Figure 46. CCFD Resource Concentration





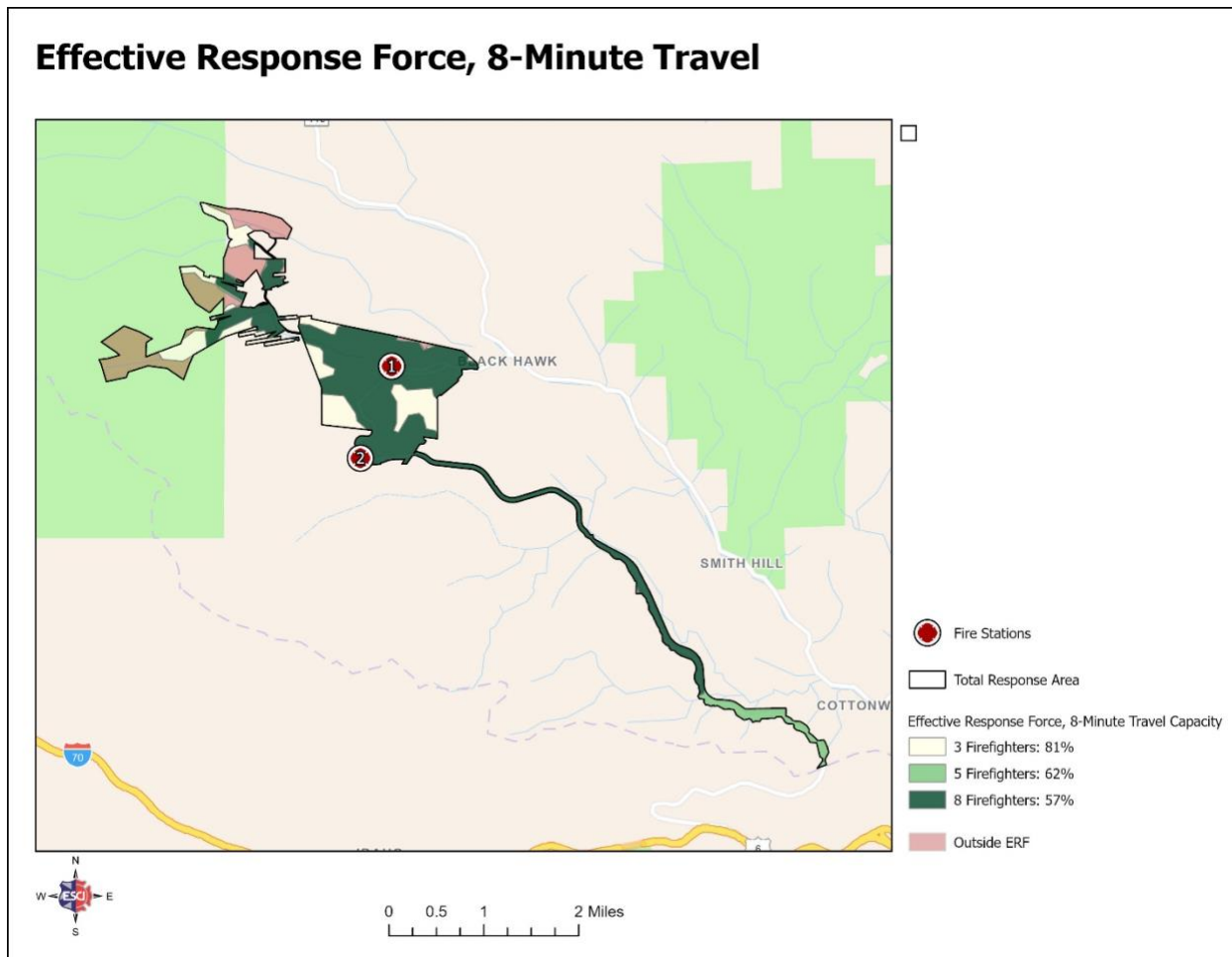
While most staff are volunteers, CCFD has some on-duty career staff. Another standard which applies to departments that are primarily career is NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*. This and other industry standards recommend the arrival of sufficient personnel, within an 8-minute travel time, to adequately manage the incident, based on risk, as illustrated in the following figure. This is referred to as an effective response force (ERF).

Figure 47. NFPA 1710 ERF Recommendations Based on Risk

Function/Task	Single-Family Residence (2,000 ft ²)	Open Air Strip Shopping Center (13,000–196,000 ft ²)	3-Story Garden Apartment (1,200 ft ²)
Command	1	2	2
Apparatus Operator	1	2	2
Handlines (2 members each)	4	6	6
Support Members	2	3	3
Victim Search and Rescue team	2	4	4
Ground Ladders/Ventilation	2	4	4
Aerial Ladder Operator (If ladder used)	(1)	(1)	(1)
Initial Rapid Intervention Team	4	4	4
Initial Medical Care Component	N/A	2	2
Total	16 (17)	27 (28)	27 (28)

The following figure illustrates the effective response force for CCFD based on daily career staffing. Where 8-minute travel areas from each station overlap, there is an increase of ERF, as it includes personnel from both stations.

Figure 48. CCFD Effective Response Force





Resource Reliability Analysis

To consider the reliability of a unit responding to incidents within their area, zone workload and zone unit first arrived should be analyzed. ESCI was unable to evaluate the zone unit first arrival as CCFD does not have established station planning zones.

Commitment Time

A fair measure of workload by each unit within the department is to evaluate the amount of time assigned to incidents as compared to the total time the unit is in service. While there are limited formal performance measures to use as a target measure, in May 2016, Henrico County (VA) Division of Fire published an article after studying their department's EMS workload.⁴ Due to the study, Henrico County Division of Fire developed a general commitment factor scale for their department. The next figure is a summary of the findings as it relates to commitment factors and may be utilized by CCFD leadership as a base for developing internal workload measures. These internal workload measures may vary based on the type of apparatus (i.e., fire engine versus transport ambulance).

Figure 49. Commitment Factors as Developed by Henrico County (VA) Division, 2016

Factor	Indication	Description
16%-24%	Ideal Commitment Range	Personnel can maintain training requirements and physical fitness and can consistently achieve 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—community has less than a 70% chance of timely emergency service and immediate relief is vital. Personnel assigned to units at or exceeding 30% may show signs of fatigue and burnout and may be at an increased risk of errors. The required training and physical fitness sessions are not consistently completed.

⁴ *How Busy Is Busy?*; Retrieved from <https://www.fireengineering.com/articles/print/volume-169/issue-5/departments/fireems/how-busy-is-busy.html>



As illustrated in the following figures, none of the CCFD units are approaching a high level of workload.

Figure 50. CCFD Commitment Time (Station 1), 2019–2023

Unit	2019	2020	2021	2022	2023	Change Over Study Period
B-32	0.9%	1.2%	1.9%	1.5%	1.2%	0.2%
E-33	0.0%	0.0%	0.0%	0.3%	0.2%	0.2%
T-32	0.0%	0.0%	0.2%	0.0%	0.1%	0.1%

Figure 51. CCFD Commitment Time (Station 2), 2019–2023

Unit	2019	2020	2021	2022	2023	Change Over Study Period
B-31	2.6%	0.7%	0.5%	0.3%	0.3%	-2.3%
E-31	0.2%	0.2%	0.1%	0.0%	0.0%	-0.2%
E-32	0.1%	0.2%	0.2%	0.5%	0.2%	0.1%
R-31	0.4%	0.7%	0.9%	0.7%	0.7%	0.4%
T-31	0.3%	0.2%	0.3%	0.1%	0.1%	-0.2%

Figure 52. CCFD Commitment Time (Command/Other), 2019–2023

Unit	2019	2020	2021	2022	2023	Change Over Study Period
C-31	2.4%	1.6%	1.9%	1.3%	1.4%	-1.0%
C-32	1.3%	0.9%	1.5%	1.5%	0.9%	-0.4%

Response Performance Analysis

How quickly a unit arrives to the scene of the resident or visitor’s emergency is a key factor in their valuation of the services provided. Industry standards and best practices recommend that departments regularly monitor this performance (total response time), as well as all the following time performance measures that are subsets of total response time:

- Alarm handling time
- Turnout time
- Travel time
- Response time
- Total response time

In analyzing response performance, ESCI generates percentile measurements of time performance, which follows the recommendations of industry standards and best practices. Percentile measurements are a better measure of performance because they



show that most of the data set has achieved a particular level of performance. The 90th percentile means that 10% of the values are greater than the value stated, and all other data are at, or in, the following figure this level. This can be compared to the desired performance objective to determine the degree of success in achieving the goal.

As this report progresses through response performance analysis, it is important to keep in mind that each component of response performance 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.

Also, it should be noted that because CCFD is a combination fire department with primarily volunteer personnel, the only time standards which apply are alarm handling time and response time.

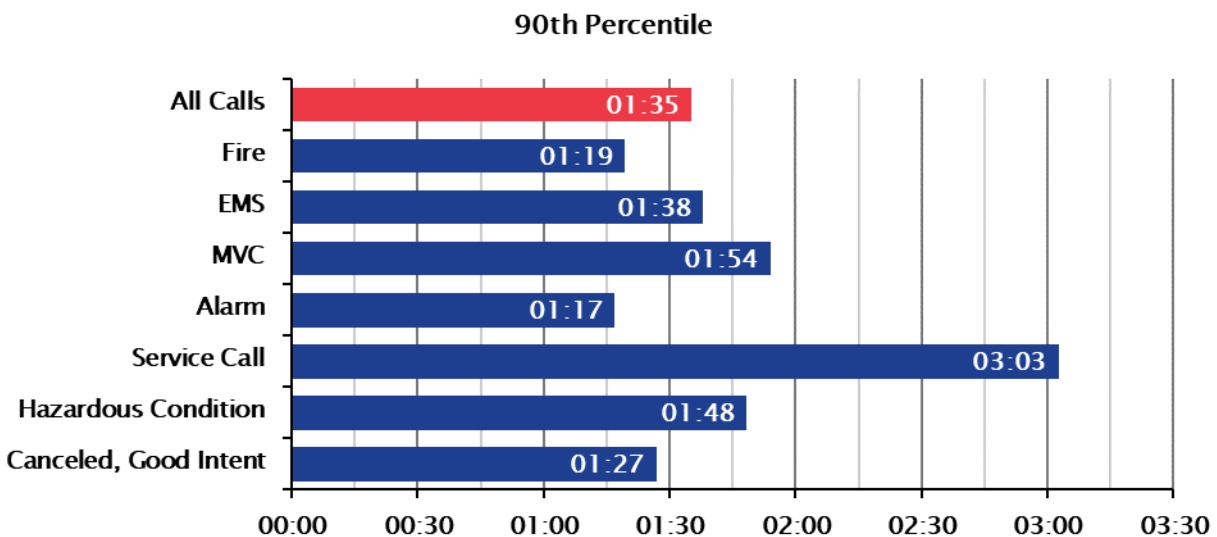
Alarm Handling Time

The measure of time between answering the 911 call and dispatch of resources is known as alarm handling time. For this measure there is one applicable standard as illustrated below.

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

As illustrated in the following figure, CCFD overall alarm handling performance is 1 minute, 35 seconds.

Figure 53. CCFD Alarm Handling Time Performance, 2019-2023





Response Time

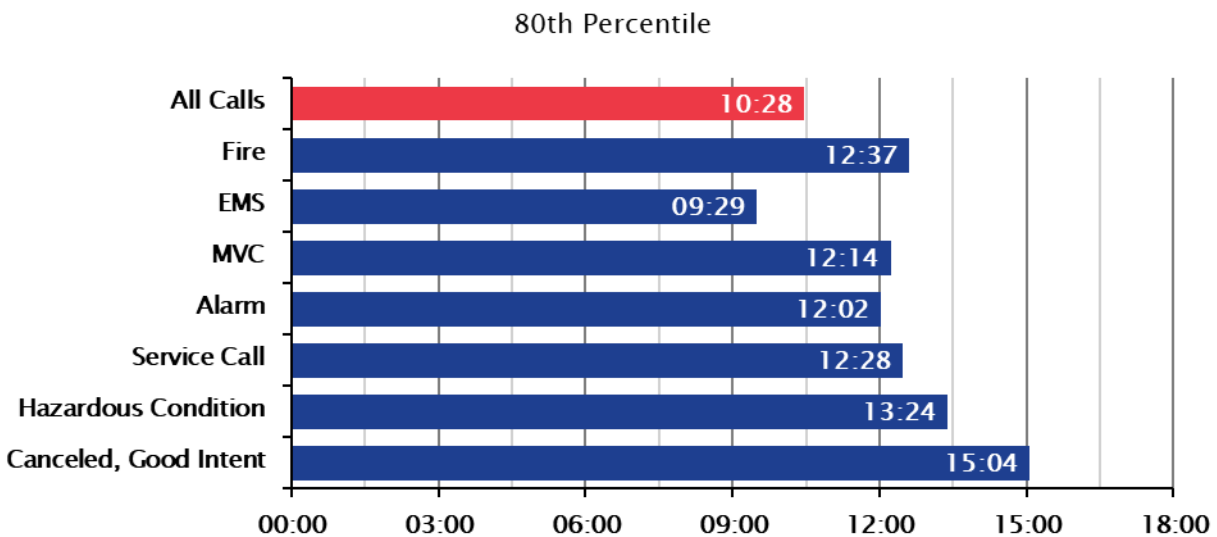
Response time is defined as the length of time between dispatch time and arrival at scene time. For this measure, there is not a specific applicable standard. The applicable standard is NFPA 1720: *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments*. The following figure illustrates this standard.

Figure 54. NFPA 1720 Response Time Standard

Demand Zone	Population	Firefighters	Response Time	Percentile
Urban	>1,000	15	9 Minutes	90 th
Suburban	500-1,000	10	10 Minutes	80 th
Rural	<500	6	14 Minutes	80 th

As illustrated in the following figure, CCFD overall response time performance is 10 minutes, 28 seconds, well below the 14-minute benchmark.

Figure 55. CCFD Response Time Performance, 2019-2023



Automatic and Mutual Aid

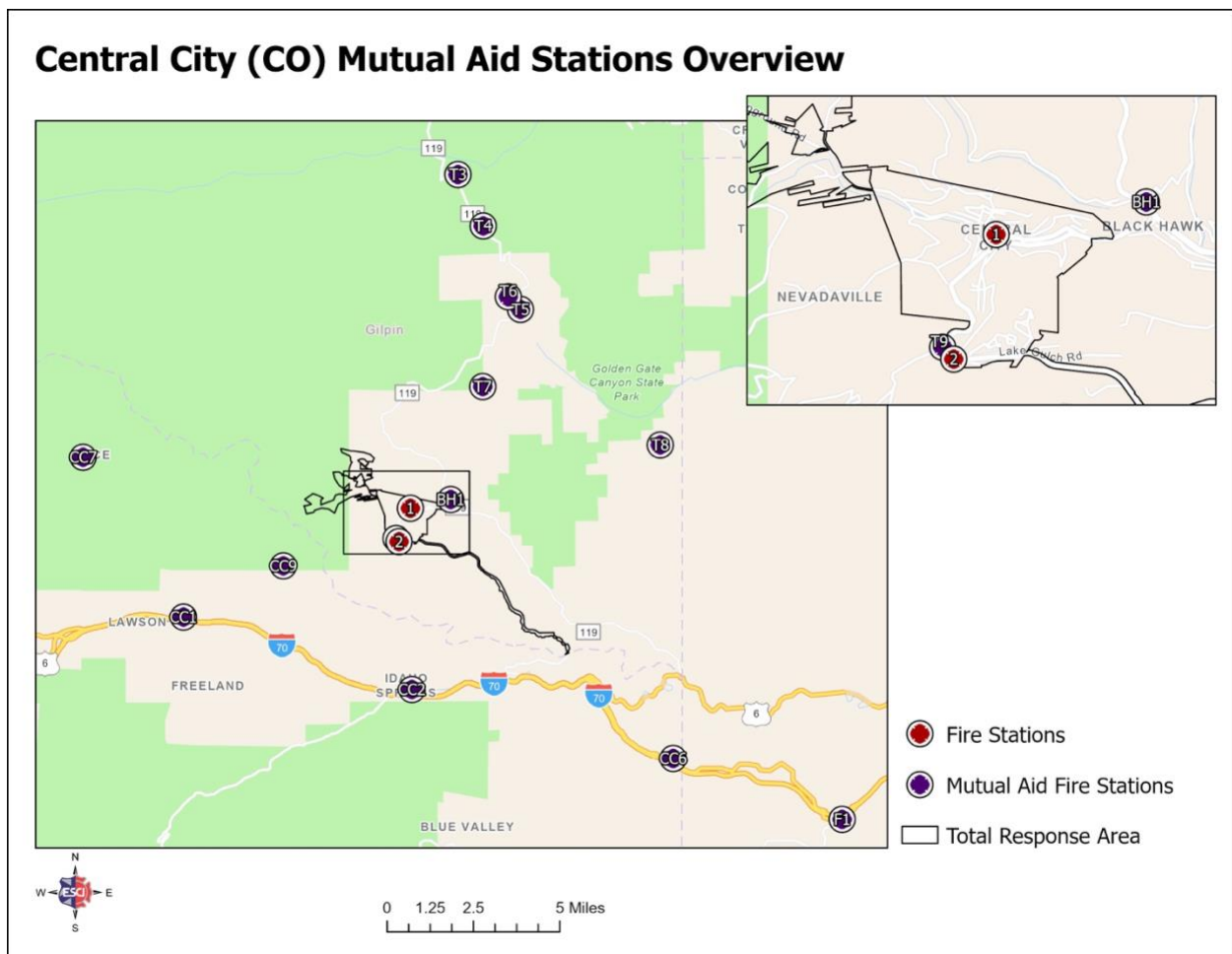
CCFD, as with many fire departments nationwide, has entered agreements with neighboring agencies where resources are shared. Within an automatic aid agreement, resources from all agencies are included in the initial dispatch to the incident. Within a mutual aid agreement, outside agency resources are only dispatched upon the primary agency's request. The following figure illustrates the agreements currently in place for CCFD.

Figure 56. CCFD Aid Agreements

Agency	Agreement Type
Black Hawk Fire Department	Mutual
Clear Creek Fire Authority	Mutual
Foothill Fire Protection District	Mutual
Timberline Fire Protection District	Mutual

The following map illustrates the locations of Central City’s mutual aid stations in relation to the city itself.

Figure 57. CCFD Mutual Aid Station Locations



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 58. CCFD Aid Given/Received, 2019–2023

Description	2019	2020	2021	2022	2023
Mutual aid received	1	6	1	3	1
Automatic aid received	0	0	1	0	0
Mutual aid given	19	7	8	8	7
Automatic aid given	0	0	0	0	0
Other aid given	2	0	3	0	2



Planning for Fire Protection and Emergency Medical Services

Current Planning Process

The Fire Chief has a general, unwritten strategic plan to deliver the level of service that has been informally identified as requested. Formalizing this strategic plan, along with the expectations of the community and elected officials, should be considered to guide the Fire Department effectively. During interviews and discussions with the Fire Chief and Mayor, it was recognized that the current capabilities of the Central City Fire Department do not meet the desired level of service, primarily due to the limited availability of paid staff and volunteer firefighters.

As this plan is being drafted, the City of Central is working with an additional consultant on overall master planning for the entire city. For the Fire Department, it will be crucial to ensure that planning addresses the needs of fire suppression and all-hazards response to meet the demands of anticipated growth.

The Fire Department has identified 21 occupancies that they consider target hazards. These occupancies should be considered during planning related to their anticipated impact on the Fire Department and the community regarding emergency response. The target hazards include government buildings, assembly occupancies, several casinos (also assembly occupancies), and multi-family residential buildings. It was noted that the potential for a catastrophic wildland fire or a major fire in the downtown core area should be factored in for adequate staffing and response capabilities. Along with the 21 target hazards, there are about 25 additional occupancies the Fire Department inspects; these involve target hazards and other businesses located in the community's core section.

The Fire Chief has identified at least two possible sites for a new fire station, along with a vision for responding to community needs. This operational planning for ongoing and future responses directly ties into the strategic planning process and impacts the City Master Plan. Additionally, the Central City Fire Department should consider developing a Community Risk Assessment/Standards of Cover to assist in identifying hazards and evaluating current performance against desired performance.

Together, this report, combined with an enhanced strategic planning process and the potential Community Risk Assessment/Standards of Cover, supports overall short-term and long-range planning efforts. All these processes would produce formal written plans that would be adopted by the City Council and city leadership to guide the future of the Fire Department.



Future Projections

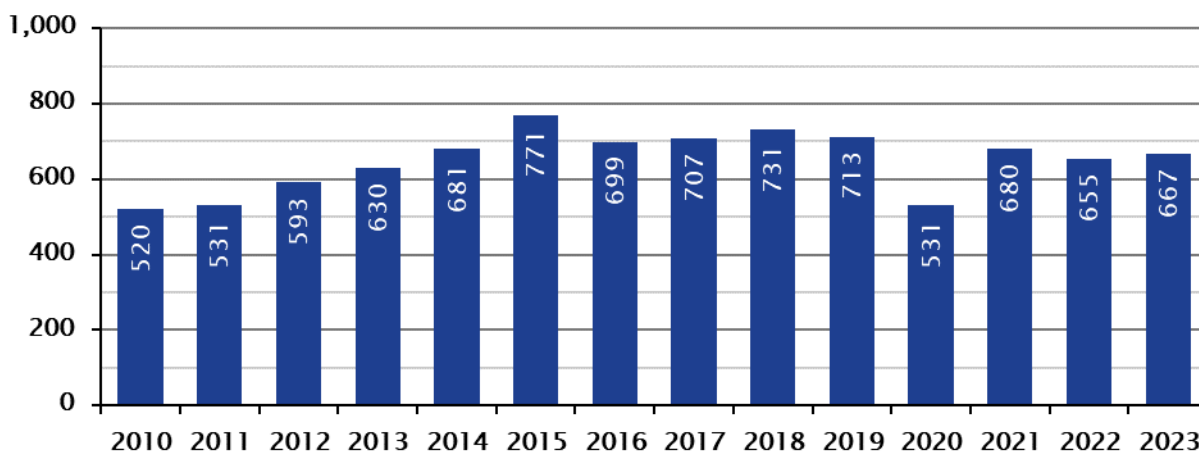
The project assesses the future community conditions, service demand, and fire protection risks that the CCFD can be expected to serve. ESCI will analyze county growth projections and interpret their impact on emergency service planning and delivery.

Population Growth Projections

Population History

Based on data from the American Community Survey (U. S. Census Bureau), there was an increase of population within Central City of 26% from 2010 to 2022, as illustrated in the following figure. This equates to a compounded annual growth rate of 1.8%.

Figure 59. CCFD Population, 2010–2023

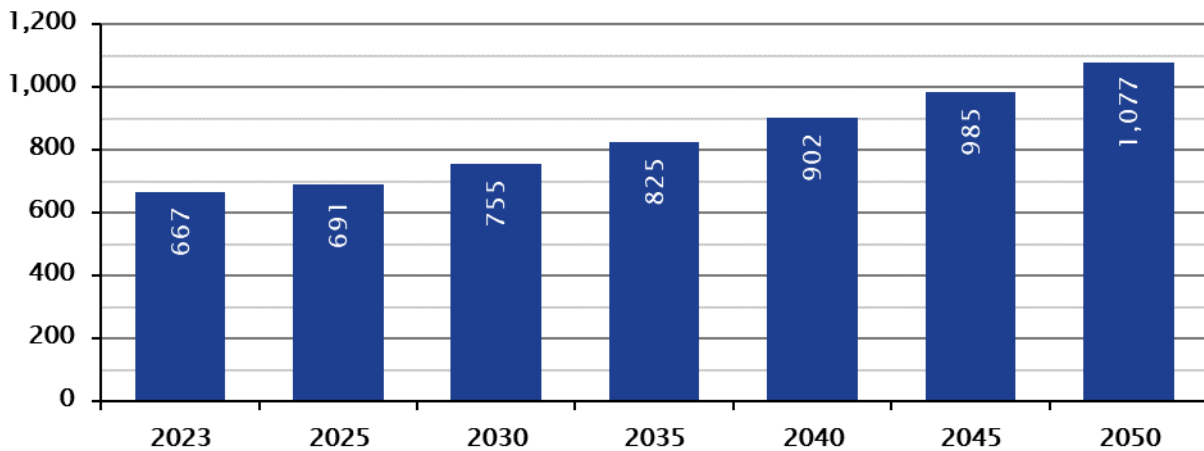




Population Projection

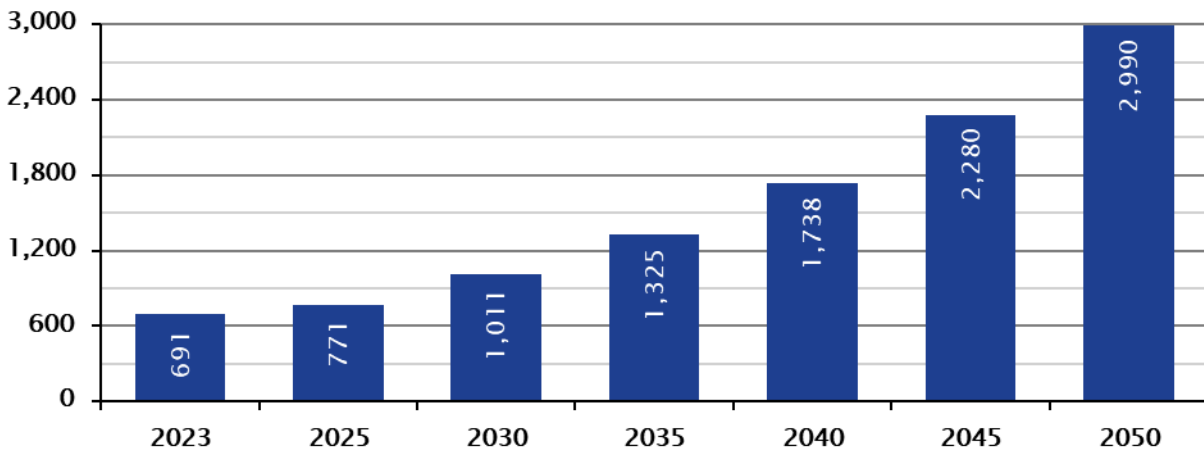
Using the compounded annual growth rate of 1.8%, future population growth may be theorized, as illustrated in the following figure.

Figure 60. CCFD Population Based on Compounded Annual Growth Rate, 2023–2050



To account for specific projected growth identified in the land density plan prepared by Obermeier Sheykhet Architecture, the compounded annual growth rate was adjusted to 5.57% which achieves an increase of 2,280 residents by 2045. The following figure illustrates the projected population changes based on that adjustment.

Figure 61. CCFD Population Based on Planned Growth, 2023–2050



One challenge of the growth analysis is that while the permanent population may only be growing at a rate of 1.8% to 5.57%, with the community supporting adult gaming, this growth will also bring in additional guests that may be there for hours or stay in lodging facilities.

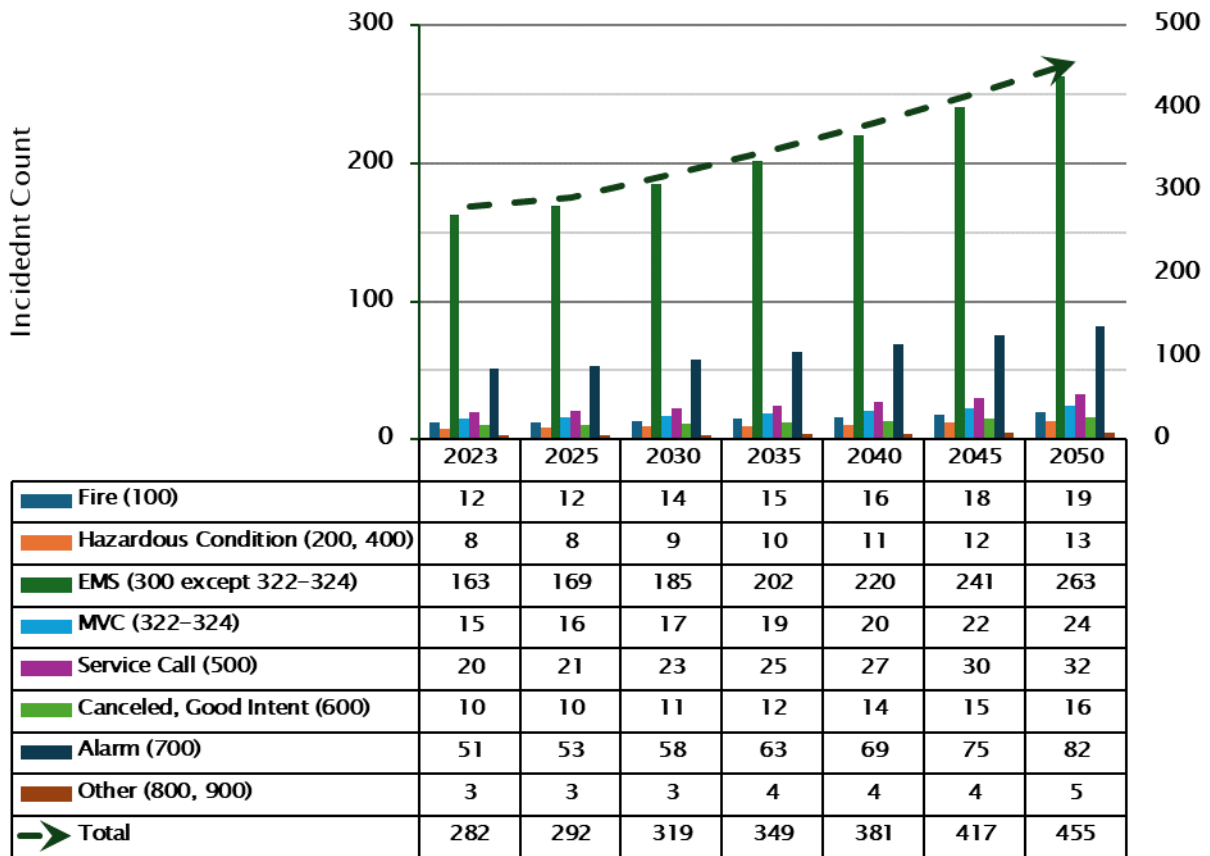


Service Demand Projections

Future Service Demand by Population

By evaluating the current number of incidents per 1,000 in population and applying that to the projected population growth from the preceding figure, it is possible to predict future service demand within the community, as illustrated in the following figure. This represents the higher estimated service demand.

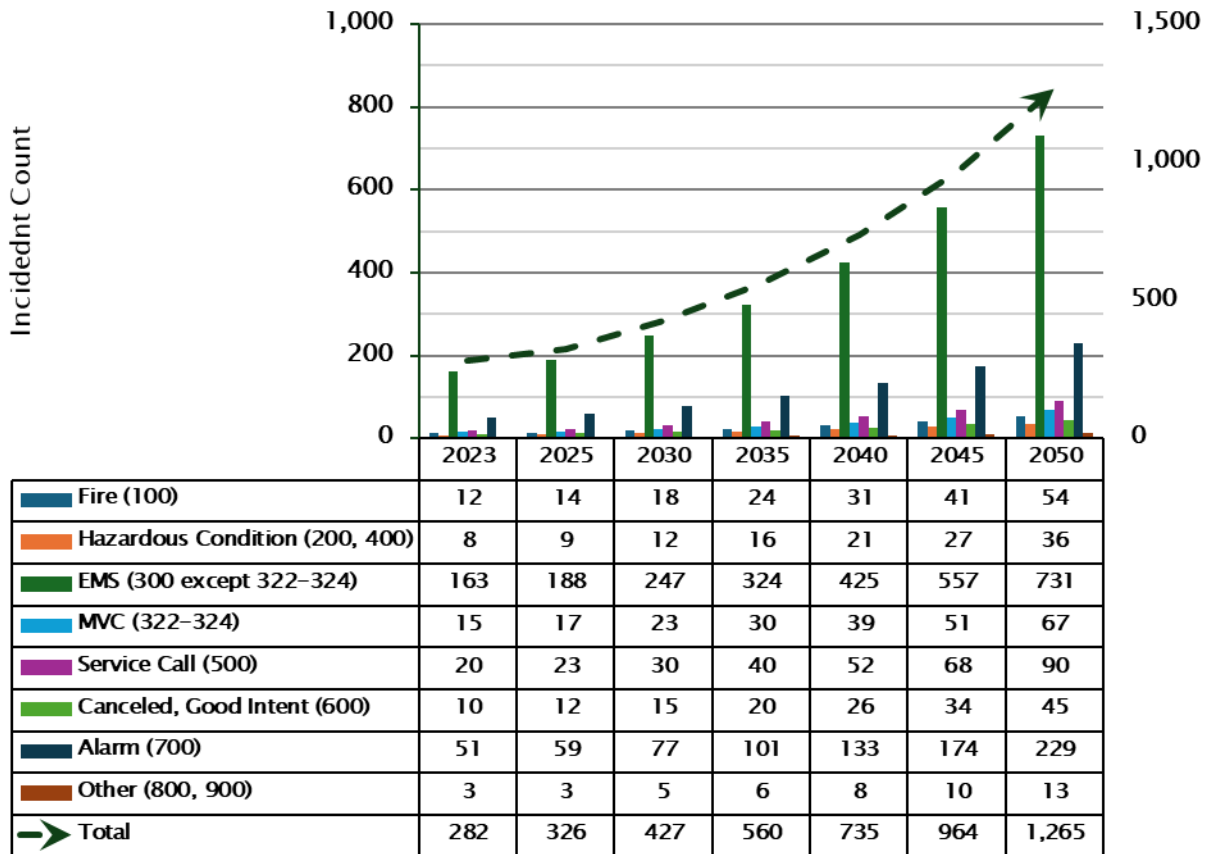
Figure 62. CCFD Projected Service Demand by Population Change (Historical), 2025–2050





To account for specific projected growth identified in the land density plan prepared by Obermeier Sheykhet Architecture (See Appendix A), the compounded annual growth rate was adjusted to 5.57% which achieves an increase of 2,280 residents by 2045. The following figure illustrates the projected service demand based on that adjustment.

Figure 63. CCFD Projected Service Demand by Population Change (Based on Planned Growth), 2025-2050





Future Delivery System Modeling

Response Standards and Targets

The establishment of fire and EMS response time standards and targets is a process undertaken by the local jurisdiction, based on their assessment of community risk, citizen expectations, and CCFD capabilities. As consultants, ESCI's role is not to set response standards for the community, but, rather, to help with data analysis and comparison to industry standards to assist CCFD in developing service delivery goals.

ESCI emphasizes the importance of establishing and regularly monitoring performance metrics for the deployment of resources. These metrics serve as the foundation for determining if the organization is meeting the expectations of the community it serves. Without regular and consistent performance evaluation, it is impossible to set and achieve goals established to meet community expectations.

Response standards established by the CCFD must originate from the community served to create a balance between what it desires and what it can afford. Because of this, ESCI cannot establish baseline and benchmark performance metrics for the CCFD, or any given organization, for that matter. However, recommendations based upon the analysis conducted throughout this report may help serve as a starting point for these discussions with the community being served or may serve as a reevaluation tool for the organization's current standards.

Response standards are individual to each organization. Multiple factors such as staffing, financial constraints, size of the service area, and politics will influence each department's ability to set achievable goals and objectives for response. For a fire department to plan effectively and make appropriate decisions regarding the deployment of resources, it needs to use clearly identified criteria, response performance objectives (targets), and quantifiable means of measuring actual response relative to targeted objectives.

To do so, ESCI advises that performance objectives and measures be developed using the "SMART" acronym, meaning that targets should be:

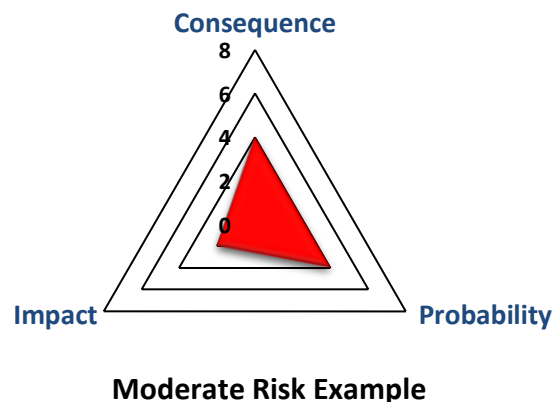
- ✓ **S**pecific
- ✓ **M**easurable
- ✓ **A**ttainable
- ✓ **R**elevant
- ✓ **T**ime-Bound

Critical Tasks, Risk, and Staffing Performance

The goal of any fire service organization is to provide adequate resources within a period of time to reasonably mitigate an emergency event. However, all emergency events inherently carry their own set of special circumstances and will require varying levels of staffing, based on factors surrounding the incident. Properties with high fire risk often require greater numbers of personnel and apparatus to mitigate fire emergencies effectively. CCFD should make staffing and deployment decisions with consideration of the level of risk involved.

Risks are classified as low, moderate, high, or maximum where the department gauges threats considering the probability of occurrence, hazard, danger, or loss and measures it in consequence. These risk categories are based on a three-axis risk calculation method. This method allows an agency to assign a numeric value to each axis, which represents Probability, Consequence, and Impact. The surface area of the triangle helps to determine the magnitude of the risk. The higher the surface area, the greater the risk score. The next figure is an example of a medium risk score—moderate risk.

Figure 64. Three-Axis Calculation Method Example



The Three-Axis Calculation Method assesses community risks based on the preceding model. Specifically, the three factors are defined below:

1. **Probability:** What is the likelihood that an incident will occur at the location?
 - **Community Consequence:** What is the level of impact on the community an incident would have if the property were destroyed or deemed unusable? The consequence to the community is based on the loss of life or debilitating injury, the financial loss to the community, and the effect on community infrastructure.
2. **Agency Impact:** What would be the potential impact of an incident at this location against the available operational forces of the fire department based on the critical tasks associated with the incident? Specifically, would an incident require a greater



number of resources because of the property's characteristics, use, or location, and would this affect the department's ability to fulfill its mission in other areas?

The following figure is an example of the staffing needs based on the risk presented based on fire risk classification.

Figure 65. Example of Critical Task Staffing Analysis (Firefighters Needed) Based on Risk⁵

Task	Structure Maximum Risk	Structure High Risk	Structure Moderate Risk	Non-Structure Low Risk
Attack Line	4	4	2	2
Back-Up Line		2	2	(2)
Support for Hose Lines/Water Supply		3	2#	
Ventilation	4	2	2	
Search and Rescue	4	2	2	
Forcible Entry/Support		2	2	
Standby/Rapid Intervention Team	4	2	2	
Driver/Pump Operator	1	1	1	1
2nd Apparatus/Ladder Operator		1		
Command	2	1	1	1#
Communications/Safety	1	1	1	
Accountability		1		
Rehabilitation	2			
Building Fire Pump Monitor	(1)			
Attack Line—Floor Above the Fire	2			
Evacuation Management Teams	4			
Elevator Operations Manager	1			
Lobby Operations	1			
Transport Equipment to Staging	2			
EMS Crews	4			
Division/Group Supervisors	4			
Total	40-41	22	16-17	3-6

() indicates tasks may not be required at all incidents.

Indicates task may be completed concurrently with others.

⁵ Adapted from "Community Risk Assessment and Standards of Cover," 6th edition, Center for Public Safety Excellence.



As a comparison, the next figure is from 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* illustrates the critical staffing for tasks associated with various types of structural fires.

Figure 66. Example of Tasks and Staff Required as defined from NFPA 1710⁶

Task	Single-Family Dwelling ¹	Open-Air Strip Mall ²	Apartments ³	High-Rise ⁴
Command	1	2	2	2
Apparatus Operator	1	2	2	1
Handlines (2 members on each)	4	6	6	4
Support Members	2	3	3	
Victim Search & Rescue Team	2	4	4	4
Ground Ladders/Ventilation	2	4	4	
Aerial Operator (if ladder used)	(1)	(1)	(1)	
Initial Rapid Intervention Team ⁵	4	4	4	
Initial Medical Care Component		2	2	
Building Fire Pump Monitor (if equipped)				(1)
Hoseline—Floor Above Fire				2
Rapid Intervention Team				4
Accountability Officers (fire floor & floor above)				4
Evacuation Management Teams				4
Elevator Operations Manager				1
Incident Safety Officer				1
Interior Staging Manager				1
Member Rehabilitation				2
Vertical Ventilation Crew				4
Lobby Control				1
Transport Equipment				2
External Base Operations				1
EMS Crews with Transport ⁶				4
Total Required:	16 (17)	27 (28)	27 (28)	42 (43)

¹ Typical 2,000 ft., two-story single-family dwelling without a basement and no exposures.

² Typical open-air strip mall/shopping center ranging from 13,000–196,000 feet.

⁶ 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, 2020.



³ Typical 1,200-foot apartment within a three-story, garden-style apartment building.

⁴ Building with the highest floor greater than 75 feet above the lowest level of fire department vehicle access.

⁵ At a minimum, an initial rapid intervention crew (IRIC) assembled from the initial attack crew and, as the initial alarm response arrives, a full and sustained rapid intervention crew (RIC) established.

⁶ For Single-Family Dwellings: When the incident escalates beyond an initial full alarm assignment, or when significant risk is present to the members due to the magnitude of the incident, the Incident Commander shall request an EMS crew consisting of a minimum of two members to provide treatment and transport for injured members and civilians.

The first 15 minutes is the most crucial period in the suppression of a fire. How effectively and efficiently firefighters perform during this period significantly impacts the outcome of the event. This general concept applies to fire, rescue, and medical situations. Critical tasks must be conducted promptly to control a fire or to treat a patient.

Distribution Performance Criterion

A fire department's distribution is essentially the location of resources to ensure an initial intervention within the specific time frame identified in the community's performance goals.

Tasks that must be performed at a fire can also be broken down into two key components: life safety and fire flow. First responder's base life safety tasks on the number of building occupants, and their location, status, and ability to take self-preservation action. Life safety-related tasks involve search, rescue, and evacuation of victims. The fire flow element involves delivering enough water to extinguish the fire and create an environment within the building that allows entry by firefighters.

The number and types of tasks needing simultaneous action will dictate the minimum number of firefighters required to combat different types of fires. In the absence of adequate personnel to perform concurrent action, the commanding officer must prioritize the tasks and complete some in chronological order, rather than concurrently. These tasks include:

- Command
- Scene Safety
- Search and Rescue
- Fire Attack
- Salvage
- Water Supply
- Pump Operation
- Ventilation
- Backup/Rapid Intervention
- Environmental Protection



Critical Tasking

Critical tasks are those activities that must be conducted promptly by firefighters at emergency incidents to control the situation, to stop-loss, and to perform necessary tasks required for a medical emergency. CCFD is responsible for ensuring those responding resources can perform all the tasks described in a prompt, efficient, and safe manner. Critical tasking defines the minimum number of personnel needed by incident type. More personnel will be needed for incidents of increased complexity or size.

Dynamics of Fire in Buildings

Most fires within buildings develop predictably unless influenced by highly flammable materials. Ignition, or the beginning of a fire, starts the sequence of events. It may take several minutes, or even hours, from the time of ignition until a flame is visible. This smoldering stage is very dangerous, especially during times when people are sleeping, since large amounts of highly toxic smoke may be generated during this phase.

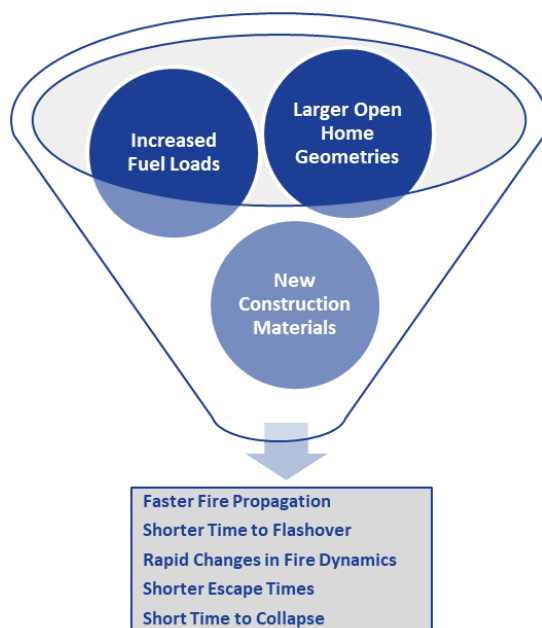
Once flames do appear, the sequence continues rapidly. Combustible material adjacent to the flame heat and ignite, which, in turn, heats and ignites other adjacent materials if sufficient oxygen is present. As the objects burn, heated gases accumulate at the ceiling of the room. Some of the gases are flammable and highly toxic.

The spread of the fire from this point continues quickly. Soon the flammable gases at the ceiling as well as other combustible material in the room of origin reach ignition temperature. At that point, an event termed “flashover” occurs; the gases and other material ignite, which, in turn, ignites everything in the room. Once flashover occurs, damage caused by the fire is significant, and the environment within the room can no longer support human life.

There have been changes in the residential fire environment over the past several decades. These changes include larger homes, different home geometries, increased synthetic fuel loads, and changing construction materials.⁷

⁷ Stephen Kerber, Analysis of Changing Residential Fire Dynamics, and their Implications on Firefighter Operational Timeframes. Underwriters Laboratories.

Figure 67. Changes in the Fire Environment & Effect on Fire Dynamics



Since flashovers have such a dramatic influence on the outcome of a fire event, the goal of any fire agency is to apply water before flashover occurs.

Although modern codes tend to make fires in newer structures more infrequent, today's energy-efficient construction (designed to hold heat during the winter) also tends to confine the heat of a hostile fire. In addition, research has shown that modern furnishings generally ignite more quickly and burn hotter (due to synthetics).

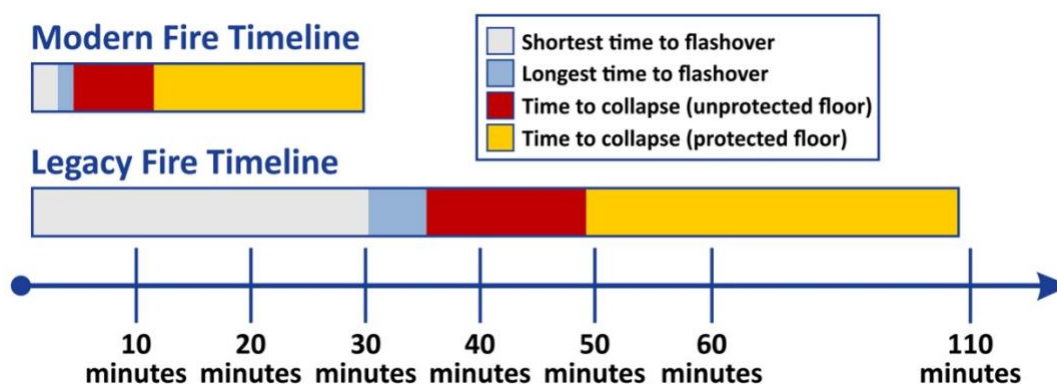
In the 1970s, scientists at the National Institute of Standards and Technology found that after a fire broke out, building occupants had about 17 minutes to escape before being overcome by heat and smoke. Today, that estimate is as short as three minutes. The necessity of effective early warning (smoke alarms), early suppression (fire sprinklers), and firefighters arriving on the scene of a fire in the shortest span of time is more critical now than ever.

Perhaps as important as preventing flashover is the need to control a fire before it does damage to the structural framing of a building. Materials used to construct buildings today are often less fire-resistive than the heavy structural skeletons of older frame buildings. Roof trusses and floor joists are commonly made with lighter materials that are more easily weakened by the effects of fire. "Lightweight" roof trusses fail after five to seven minutes of direct flame impingement. Plywood I-beam joists can fail after as little as three minutes of flame contact. This creates a dangerous environment for firefighters. Lightweight construction is common within new residential construction in Central City.

Additionally, the contents of buildings today have a much greater potential for heat production than in the past. The widespread use of plastics in furnishings and other building contents rapidly accelerates fire spread and increases the amount of water needed to control a fire effectively. These factors make the need for early application of water essential to a successful fire outcome.

Several events must take place quickly to make it possible to achieve fire suppression before flashover. The next figure illustrates the sequence of events with a comparison of modern materials vs. legacy materials.

Figure 68. Fire Growth vs. Reflex Time⁸



As is apparent by this description of the sequence of events, the application of water in time to prevent flashover is a serious challenge for any fire department. It is critical, though, as studies of historical fire losses demonstrate.

The National Fire Protection Association found that fires contained to the room of origin (typically extinguished prior to or immediately following flashover) had significantly lower rates of death, injury, and property loss when compared to fires that had an opportunity to spread beyond the room of origin (typically extinguished post-flashover). As shown in the following figure, fire losses, casualties, and deaths rise significantly as the extent of fire damage increases.

⁸ Stephen Kerber, Analysis of Changing Residential Fire Dynamics, and their Implications on Firefighter Operational Timeframes. Underwriters Laboratories.



Figure 69. Loss Rates by Fire Spread, Home Structure Fires (2012–2016)⁹

Flame Spread	Rate Per 1,000 Fires		Average Dollar Loss
	Civilian Deaths	Civilian Injuries	
Confined fire or fire spread confined to origin	0.4	11.1	\$1,200
Confined to room of origin, including confined fire and fire confined to object	1.8	23.8	\$4,000
Spread beyond the room of origin but confined to floor of origin	16.2	76.3	\$35,000
Spread beyond the floor of origin	24.6	55.0	\$65,900

Emergency Medical Event Sequence

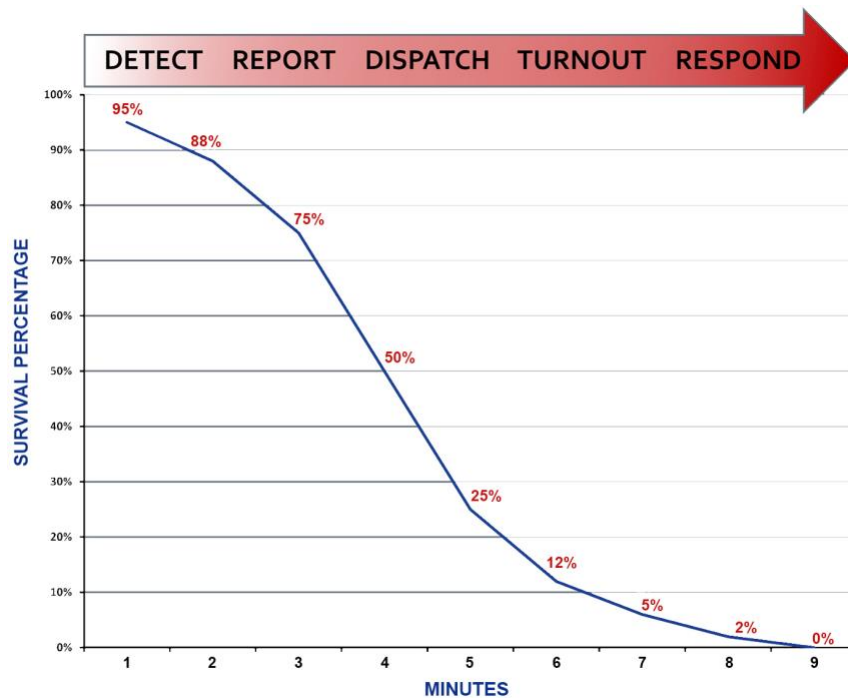
Cardiac arrest is the most significant life-threatening medical event in emergency medicine today. A victim of cardiac arrest has mere minutes in which to receive lifesaving care if there is to be any hope for resuscitation.

The American Heart Association (AHA) issued a set of cardiopulmonary resuscitation guidelines designed to streamline emergency procedures for heart attack victims and increase the likelihood of survival. The AHA guidelines include goals for the application of cardiac defibrillation to cardiac arrest victims. Cardiac arrest survival chances fall by 7 to 10% for every minute between collapse and defibrillation. Consequently, the AHA recommends cardiac defibrillation within five minutes of cardiac arrest.

As with fires, the sequence of events that lead to emergency cardiac care can be graphically illustrated, as in the following figure.

⁹ Term “home” includes one- & two-family homes, manufactured homes, & apartments or other multi-family housing, regardless of ownership. Source: National Fire Protection Association Standard 1710, 2020 Edition.

Figure 70. Cardiac Arrest Event Sequence



The percentage of opportunities for recovery from cardiac arrest drops quickly as time progresses. The stages of medical responses are very similar to the components described for fire responses. Research stresses the importance of immediate CPR, rapid cardiac defibrillation, and administration of certain medications to improve the opportunity for successful resuscitation and survival. CCFD can increase survival rates by educating citizens on how to do CPR or hands-only CPR.

Response Standards for People, Tools, & Time

Time matters a great deal in the achievement of an effective outcome to an emergency event. Time, however, is not the only factor. Delivering enough properly trained and appropriately equipped personnel within the critical period of time completes the equation.

For medical emergencies, this can vary based on the nature of the emergency. Some medical emergencies are not time critical. However, for serious trauma, cardiac arrest, strokes, or conditions that may lead to cardiac arrest, a rapid response is essential.

Equally critical is delivering enough personnel to the scene to perform all the concurrent tasks required to deliver quality emergency care. For a cardiac arrest, this can be up to six personnel: two to perform CPR, two to set up and operate advanced medical equipment, one to record the actions taken by emergency care workers, and one to direct patient care.



Thus, for a medical emergency, the real test of performance is the time it takes to provide the personnel and equipment needed to deal effectively with the patient's condition, not necessarily the time it takes for the first person to arrive.

Fire emergencies are even more resource critical. Again, the true test of performance is the time it takes to deliver sufficient personnel to initiate the application of water to a fire. This is the only practical method to reverse the continuing internal temperature increases and ultimately prevent flashover. The arrival of one person with a portable radio does not provide fire intervention capability and should not be counted as "arrival" by the fire department.

Optimization of Fire Station Locations

ESCI evaluated CCFD service delivery system regarding current station locations and system performance metrics gathered during the evaluation to determine if the current system is poised to be able to handle the future expected service demands. As with any emergency services system, the ability to provide current service needs and prepare for future community needs becomes a delicate balancing act for government officials who are trusted with community funds generated for such purposes. These funds are all too often torn between competing priorities. Fire and EMS departments are faced with systems that often experience fewer fires than previous generations but still require an appropriate level of preparedness "just in case" to prevent catastrophic results of potential emergencies.

It is imperative that Central City take advantage of nationally established consensus standard metrics to justify and ensure they have the needed proof and back up to support their requests for the needed people, tools, and time to deliver these components of the system. The key components of any system are listed in the following figure.

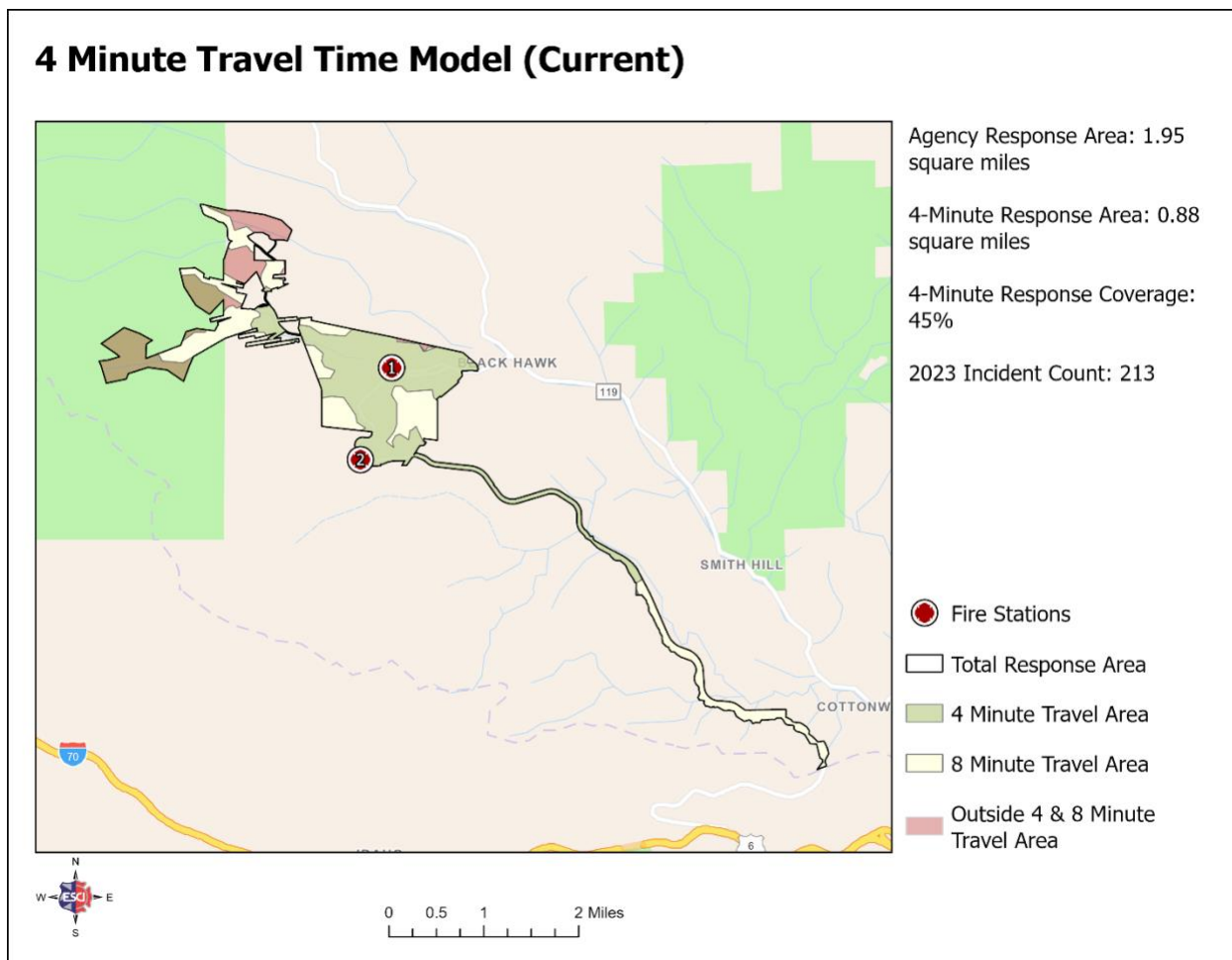
Figure 71. Measuring System Effectiveness



There is a direct relationship between available personnel and equipment, and the timing of their application in an emergency on fire department effectiveness. Increasing or decreasing one or more of these components can significantly affect the system's ability to mitigate an emergency incident efficiently, safely, and effectively.

The following figure illustrates the current 4-minute travel time from existing stations and identifies the number of incidents during calendar year 2023 that fall within that 4-minute travel time. While each of the following potential station location scenarios will include an expanded service area based on projected growth, the number of incidents covered may be a key consideration in evaluating the scenarios. As it is not possible to plot the actual location of potential future incidents, each scenario will compare the 2023 incident data.

Figure 72. CCFD 4-Minute Travel Area (Current)



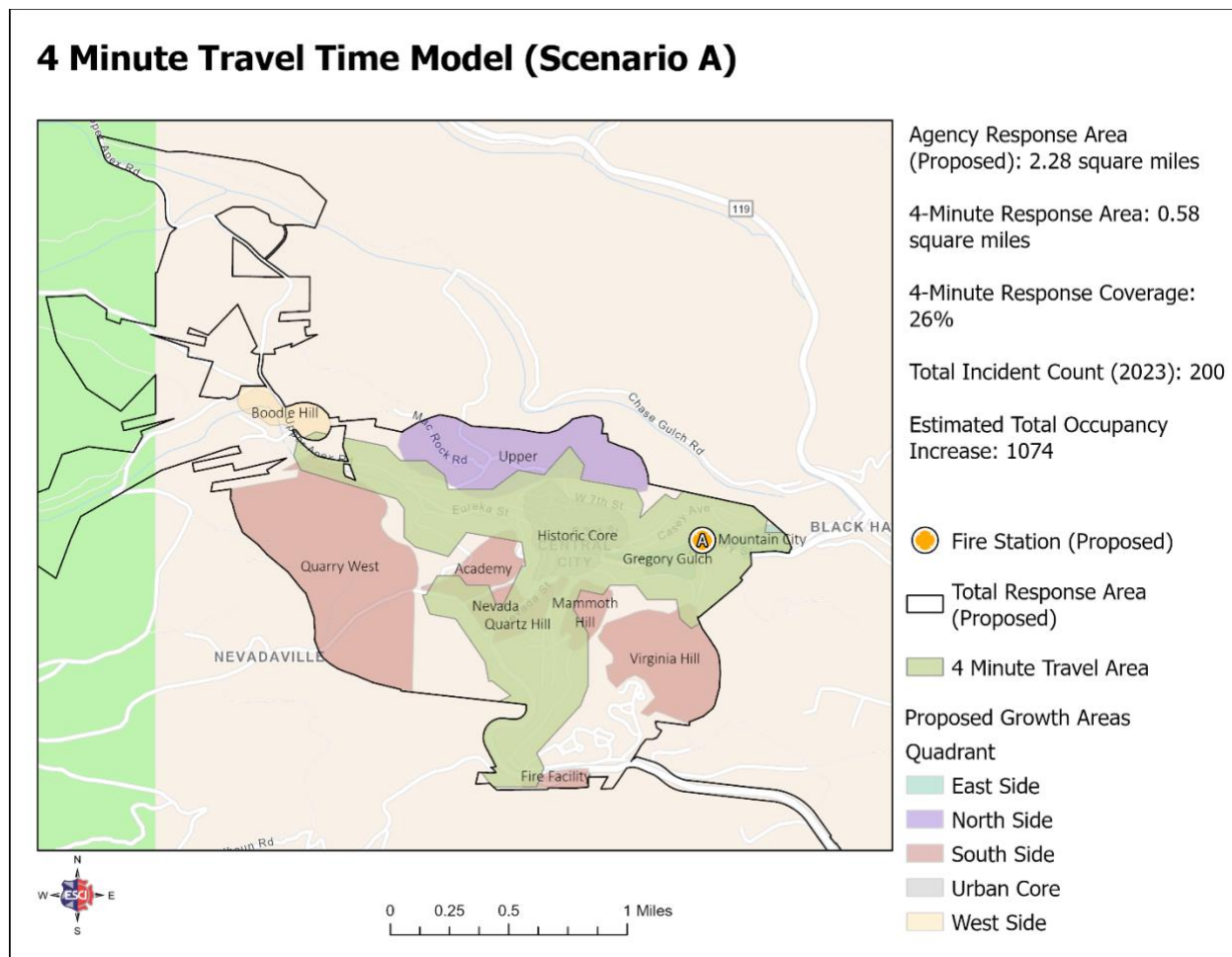
Single Station Scenarios

With the consideration of closing the existing headquarters station and rebuilding it at another location, these scenarios will evaluate the response from the single station location.

Scenario A

The following figure shows the potential location of the new headquarters station along the city's eastern side, including the proposed growth areas not currently part of the city. This location would have reduced the 2023 incidents within the 4-minute travel time by 13, as compared to the current headquarters station location.

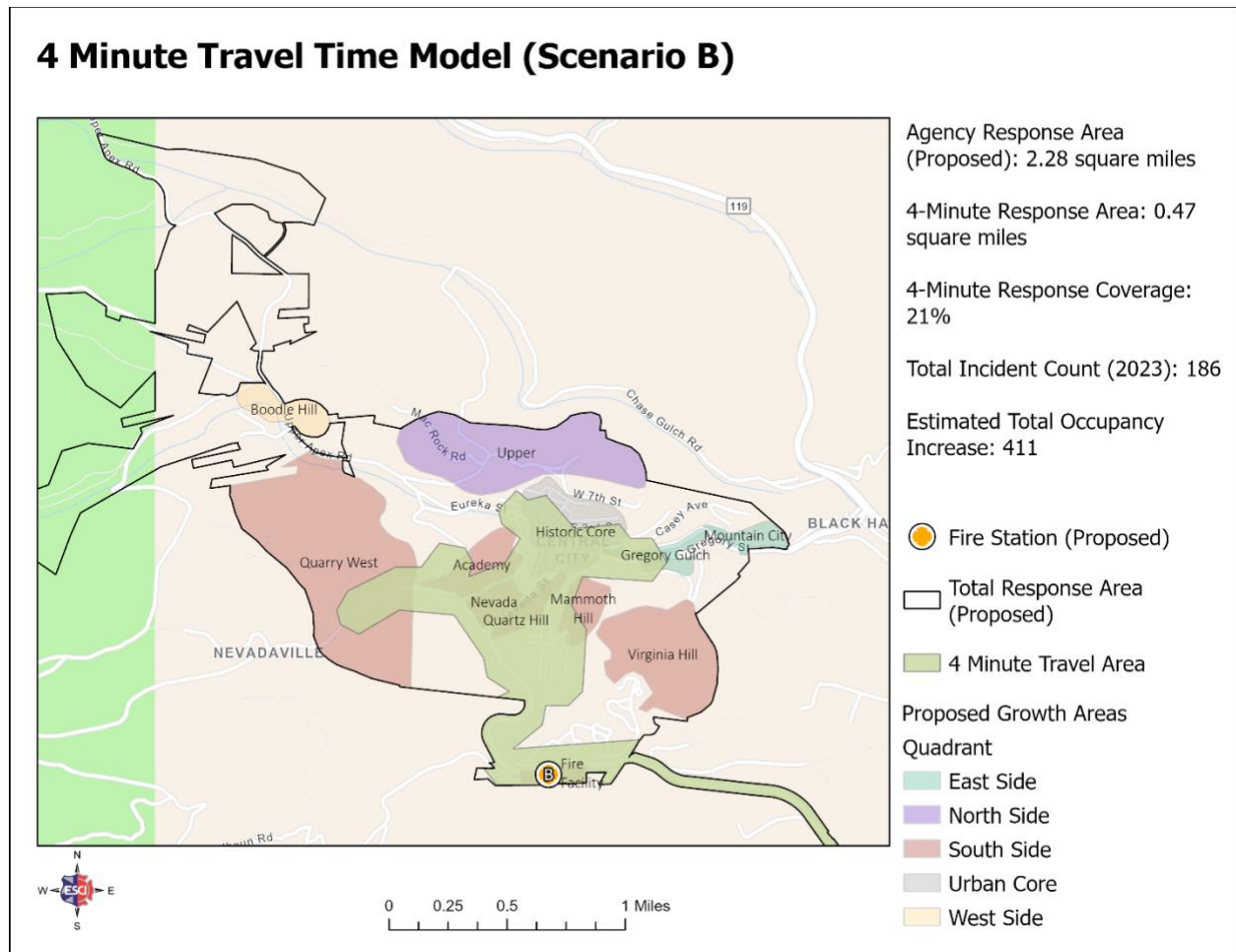
Figure 73. Single Station Scenario A



Scenario B

The following figure shows the potential location of the new headquarters station along the city's southern side, including the proposed growth areas not currently part of the city. This location would have reduced the 2023 incidents within the 4-minute travel time by 27, as compared to the current headquarters station location.

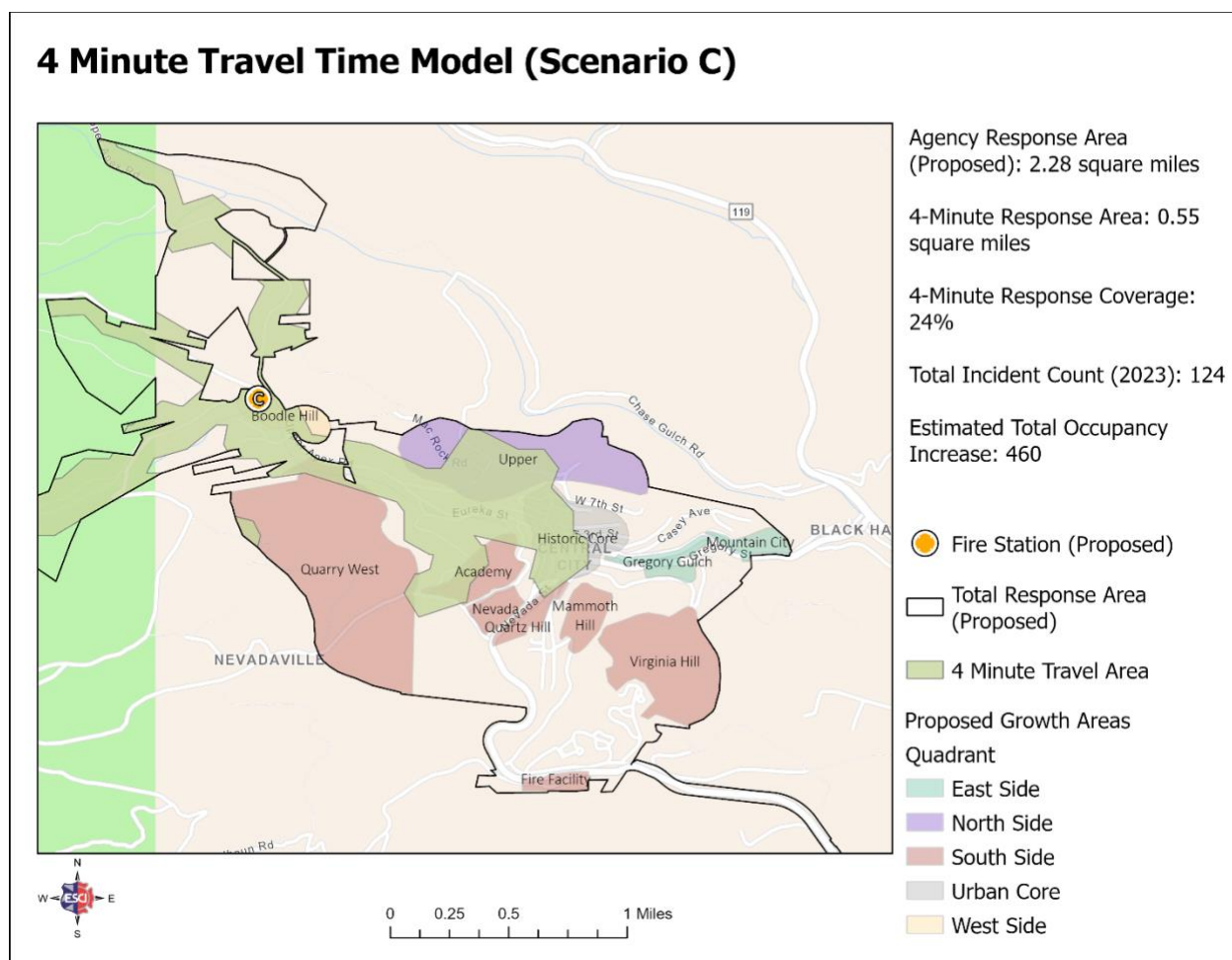
Figure 74. Single Station Scenario B



Scenario C

The following figure illustrates the potential location of the new headquarters station along the northwestern side of the city, including the proposed growth areas not currently part of the city. This location would have reduced the 2023 incidents within the 4-minute travel time by 89, as compared to the current headquarters station location.

Figure 75. Single Station Scenario C



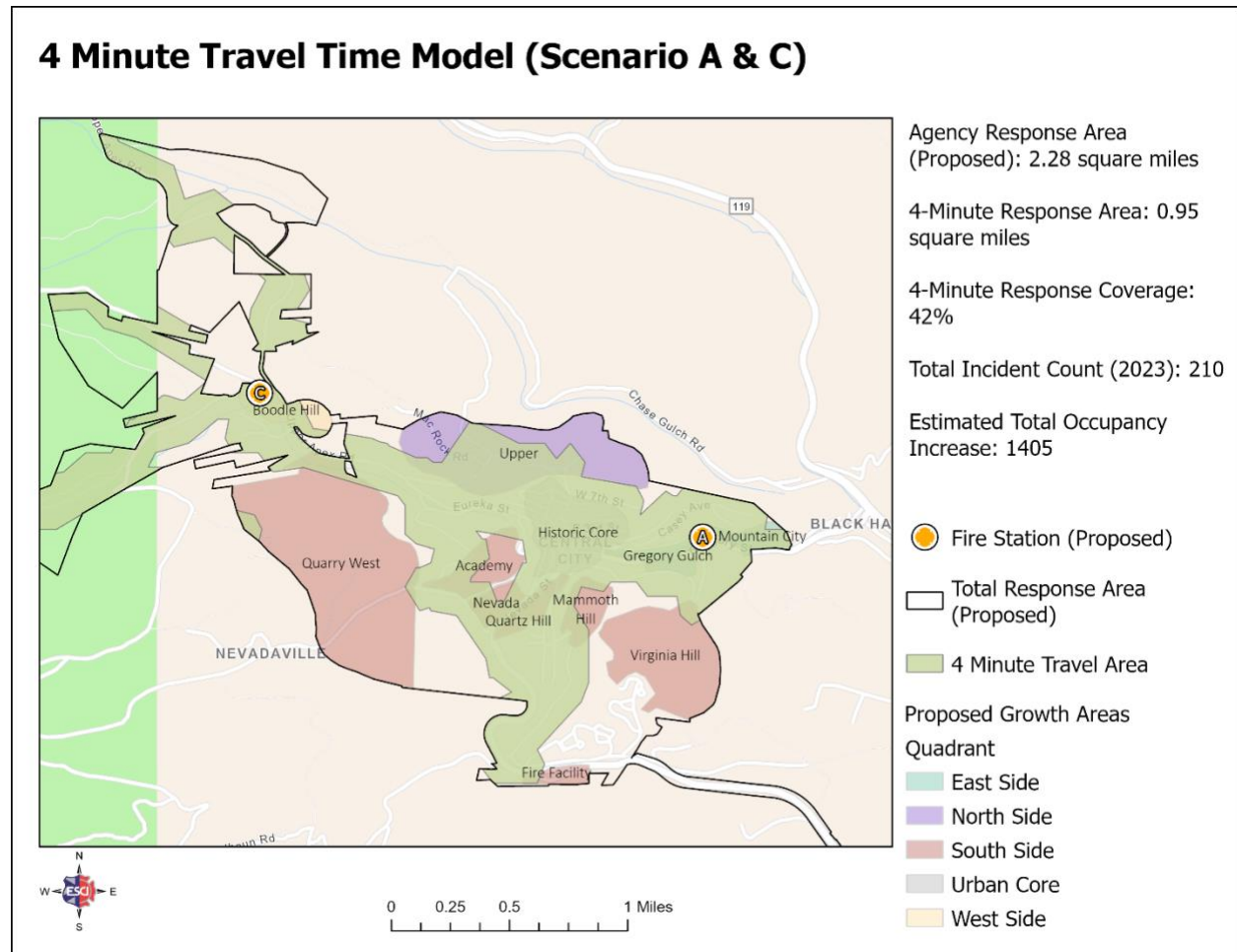
Two Station Scenarios

While available funding may only be available to construct a single station, consideration may be given to a two-station model which would allow future construction of the second station.

Scenario A/C

The following figure illustrates constructions of one station along the northwestern side of the city and the other along the eastern side of the city, including the proposed growth areas not currently part of the city. These locations would have reduced the 2023 incidents within the 4-minute travel time by 3, as compared to the current headquarters station location.

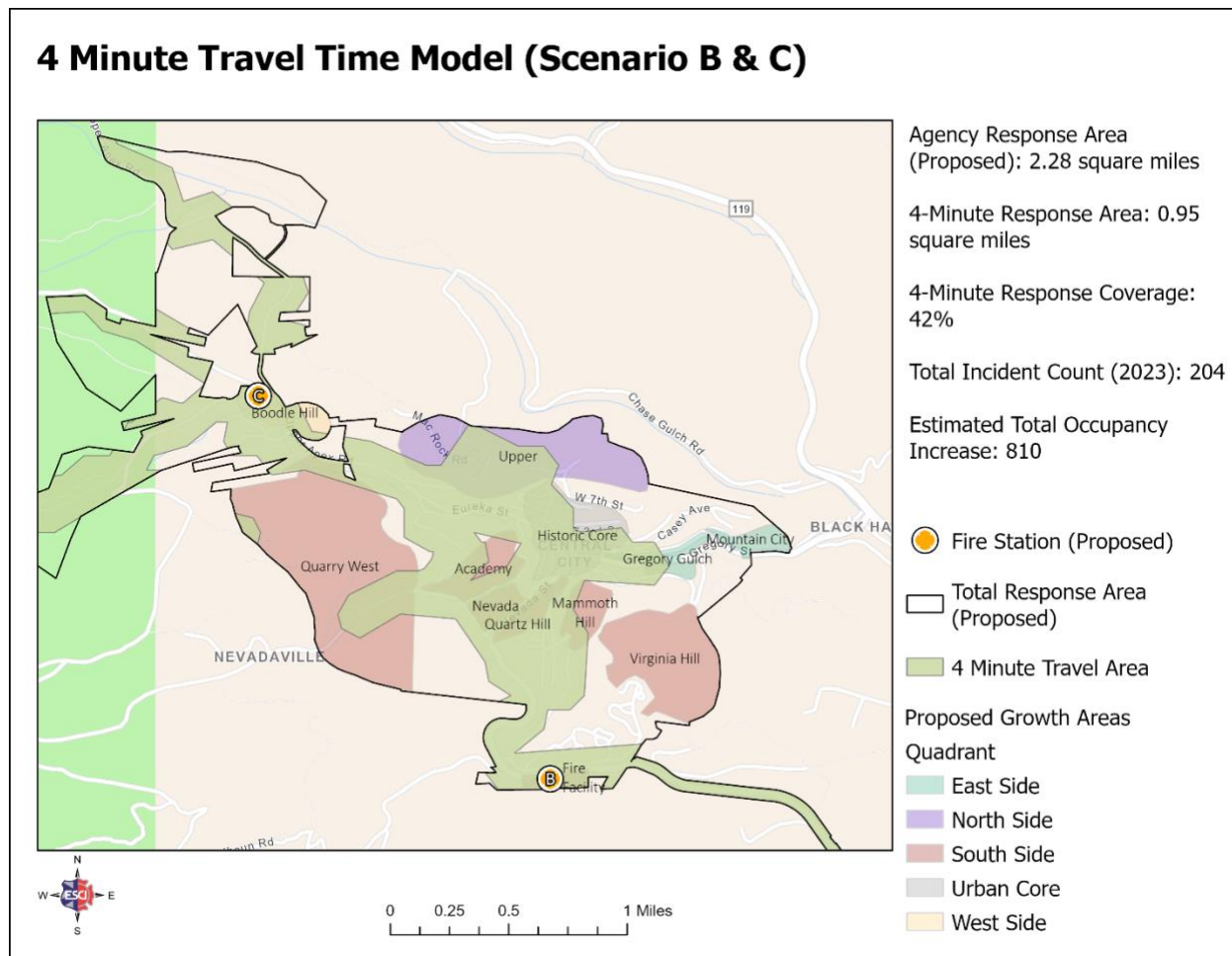
Figure 76. Two Station Scenario A/C



Scenario B/C

The following figure illustrates constructions of one station along the northwestern side of the city and the other along the southern side of the city, including the proposed growth areas not currently part of the city. These locations would have reduced the 2023 incidents within the 4-minute travel time by 9, as compared to the current headquarters station location.

Figure 77. Two Station Scenario B/C





Summary

The following figures provide a summary of all scenarios for easier comparison. This summary does not compare to the current model as they all include a greater service area than currently exists.

Figure 78. Single Station Scenario Summary

Description	Percent of Service Area	Total Incidents Within 4-minute Travel
Scenario A	26%	200
Scenario B	21%	186
Scenario C	24%	124

Figure 79. Two-Station Scenario Summary

Description	Percent of Service Area	Total Incidents Within 4-minute Travel
Scenario A/C	42%	210
Scenario B/C	42%	204

Based on the proximity and data similarity across the three station scenarios, ESCI recommends that land availability, cost, and size be carefully considered when deciding. ESCI recognizes that Scenario A is in an area zoned for gaming. Since placing a fire station there offers only a marginal advantage over the other two scenarios, it may not be the most strategic choice to sacrifice valuable gaming land, which could generate additional revenue for the city.

Additionally, ESCI has taken future growth into account. If Central City is planning for a two-station model, it is essential to analyze the anticipated growth patterns to determine the optimal location for the first station. This analysis will help ensure the city is best positioned now and in the near future, before moving forward with the construction of the second station at a later date.



Conclusions and Recommendations

This master plan culminates in a series of recommendations and strategies based on the observations and analysis previously discussed. Addressing these recommendations should be approached pragmatically. As such, ESCI grouped them into recommended time frames to address.

Facilitating the adoption and implementation of many of these recommendations will take significant commitment, time, and resources (including finances). The suggested timeframes are intended to introduce a realistic “blueprint” for implementation. However, conditions and circumstances may provide challenges or opportunities to address a recommendation(s) outside of the timeframes identified here.

ESCI has grouped the recommendations into three implementation timeline categories: short-term (1 to 3 years), mid-term (3 to 7 years), and long-term (7 to 15 years).

Lastly, these recommendations are just that—recommendations. They are ESCI’s best effort in providing guidance in addressing issues and deficiencies identified during the study period. City leaders and citizens hold the ultimate authority in embracing, revising, or discounting the following guidance.

Data Collection and Analysis

The data collection and analysis process involved a comprehensive approach to gathering information. This included the collection of department documents and data. In addition, in-person and virtual interviews were conducted with key stakeholders to gain insights into the department's operations, challenges, and needs. Observations were also made during an on-site visit to assess the physical facilities and operational procedures firsthand. These combined methods provided a thorough understanding of the department's current state and helped form the basis for recommendations and strategies.

Key Findings

The key findings that helped shape the recommendations for this project include:

1. The need for updated and modernized facilities to better support department operations.
2. Addressing staffing challenges, both through the expansion of paid staffing and the enhancement of volunteer recruitment and retention efforts.
3. Leveraging regional partnerships to create mutual benefits for the entire region.
4. The necessity for formal planning processes, including the development of annual reports, a strategic plan, and a capital improvement plan.



Short-Term Strategies

The strategies and recommendations that fall under the 'short-term' category constitute immediate action plans that Central City and the Central City Fire Department are advised to initiate and incorporate into their operational practices within the next one to three years. These strategies are aligned with near-term objectives and are designed to provide immediate enhancements to the department's performance and service delivery.

Recommendation 1 –A: Fire Station(s) Plan

Many of the recommendations in this report will depend on the location and size of fire station(s) upon which Central City decides. ESCI conducted an analysis of various options for station placements and evaluated the impact these locations would have on response times, considering projected growth within Central City. The current fire stations do not meet modern health and safety requirements, current building codes or emergency response needs moving into the future.

A new fire station will provide numerous benefits to the Central City Fire Department. First and foremost, it will serve as a valuable recruitment tool, attracting both volunteer firefighters and future career personnel. Currently, the department's facilities lack essential modern amenities such as workout and exercise spaces, cancer prevention measures, proper sleeping facilities, and dedicated training areas. These upgrades are crucial for maintaining the health, safety, and readiness of personnel.

Furthermore, many volunteer fire departments across the United States have designed new stations with independent office spaces to accommodate members who work remotely or have "work-from-home" jobs. This innovative approach allows volunteers to remain available for emergency responses while working from the station.

Beyond functional improvements, a new station will also serve as a morale booster for current members. It provides them with a facility they can be proud of, demonstrating that the city is committed to investing in their well-being and honoring their dedicated service to the community. A modern, well-equipped station shows that the city values its first responders and is focused on supporting them in their vital roles.

Best Practices

ESCI recognizes fire station design best practices have changed significantly within the last ten years due to research and new technology. ESCI recommends that CCFD consider these when designing new facilities and remodeling existing facilities.

Automatic Sprinkler Protection

NFPA 1: *Fire Code* requires that "new buildings housing emergency fire, rescue, or ambulance services shall be protected throughout by approved supervised automatic sprinkler systems." The requirement for sprinkler protection not only protects the



emergency services personnel occupying the facility but also reduces the risk of disrupting the provision of emergency services to the community because of a fire.

Cancer Prevention Engineering

The occupation of a firefighter is recognized as one where those working in the industry are more likely to be diagnosed with cancer than the public. Firefighters have a 9% higher risk of being diagnosed with cancer and a 14% higher risk of dying from cancer than most Americans.¹⁰ The danger for firefighters does not stop when the fire is extinguished, but returns to the fire stations through their gear, equipment, and vehicles that were exposed to, and contaminated by, smoke or other vapors. When contaminated gear and equipment are returned to the station via their respective response apparatus, the potential for cross-contamination occurs.

The International Agency for Research on Cancer rates diesel engine exhaust as a Group 1 carcinogen, which means it is known to cause cancer in humans.¹¹ Many grants are available to provide fire stations with exhaust systems.

To limit/reduce firefighter exposure to toxic products of combustion which occur *after the fire*, turnout gear should be stored in well-ventilated rooms to prevent additional firefighter exposure to off-gassing of chemicals absorbed into turnout gear during a fire.

Drive Through Bays

All stations primarily use back-in bays currently as opposed to drive-through bays. Back-ins are a serious safety concern as many firefighter injuries and accidents occur when emergency vehicles are backed into the fire station. CFFD should consider a design that allows for drive-through bays that are large enough to accommodate all frontline and reserve apparatus.

Facility Security

Fire stations have typically been open environments where residents and visitors from the community have been allowed access to any part of a fire station with very few limitations.

The current social environment requires emergency services providers to implement specific security measures limiting and controlling access to public safety facilities. This is driven by the need to protect firefighters, expensive equipment, and sensitive data from inadvertently being accessed by individuals desiring to harm the community.

¹⁰ "Registry aims to track firefighters' higher cancer risk."

<https://www.cancercenter.com/community/blog/2019/11/firefighter-registry>

¹¹ Fire Station Design: Best Practices to Reduce Exposures. https://www.iaff.org/wp-content/uploads/FFCancer_FireStationDesign.pdf



ESCI lists the following security measures that CCFD should consider incorporating into future fire station(s).

1. Dedicated secure parking

Dedicated parking areas for staff are a start, while fenced or walled secure parking areas are even better, providing physical and visual separation from the public.

2. Protection of building infrastructure

Facility infrastructure like emergency generators, fuel storage, transformers and communications equipment are often outside the building enclosure. It is best to locate these items out of public view in a secure portion of the site, which might be within the secure parking area, as recommended previously. This keeps infrastructure from being tampered with and avoids the possibility of children playing on sensitive or dangerous equipment.

3. Secure building zones

While most facilities want to project a friendly and welcoming atmosphere at the entrance, lobby, and reception desk, it is advantageous to create distinct control points with restricted access doors, solid walls, and lockable transaction counters. This can be accomplished at the lobby zone, enabling the public to enter the lobby, pick up literature, view antique rigs or historical photographs and gear, access a community room or restrooms, and even speak with someone at a reception desk without entering secure staff-only areas.

4. Community room access

When developing a dual-purpose training/community room, consider having two means of entry: one adjoining the lobby where the public can enter and a second from the secure portion of the facility. This strategy enables staff to come and go from training without having to circulate through the unsecured portion of the facility. This maintains visual and physical separation of staff from the public.

5. Video monitoring and access control

Digital and/or electronic security measures add a higher level of security and can reduce theft and vandalism. Cameras and electronic locks can serve as an added deterrent against thieves and vandals, and, if the situation arises, provide evidence in the prosecution of suspects. This includes video monitoring in parking areas and at entrance points. This allows crews to see who is at the door without having to walk to the door.

6. Secure apparatus bay access

Overhead doors are frequently left open to aid in ventilation, cooling, or access with the apparatus bay. This reduces security for the staff, equipment, and building. Implementing a means to mitigate the doors being left open will improve security.



Consider securing all doors off the apparatus bay by electronic means (electric lock, electric strike, or magnetic lock). This enables staff to gain access to the apparatus bay from secure portions of the building without any restriction, and limits potential unauthorized personnel to the bay itself.

Separate Administrative and Operational Areas

Fire service leaders, such as fire chiefs and other administrative officers, are problem solvers by nature. When these leaders have easy access to operational personnel there is a tendency to solve and work on low level problems that should and can be solved at the company officer level.

Separate Sleeping Quarters

Even though common sleeping quarters are common among many fire departments across the United States, it is not ideal for various reasons. Many departments are now designing fire stations with individual living quarters. Improved and effective sleep is a major benefit of having individual living quarters. Firefighters often work a 24-hour shift, or longer, and the need for sleep to keep firefighters alert during their shift is paramount for them to be at their best when they respond to an emergency. Studies have shown that being awake for a period of 17 hours straight can impair cognitive abilities that are equivalent to a person with a blood alcohol level of 0.05 percent.¹² Individual living quarters limit sleep interruptions with proper alerting systems allowing members to only be alerted for responses for the specific unit they are assigned to during that shift. Other distractions found in communal living quarters, such as snoring and cell phones, are eliminated with individual living quarters. Recent research has increased understanding of the importance of effective sleep hygiene environments relative to mental and physical health. Sleep deprivation has been linked to cardiovascular disease, cancer, Alzheimer's disease, and immune system malfunctions.¹³ Individual living quarters can help improve the ability of CCFD members to perform on emergency incidents and improve their long-term physical and mental health.

Another important reason for individual sleeping quarters is that it provides privacy. As CCFD seeks to improve the number of women within the department, moving towards individual living quarters can help the CCFD recruit and retain women firefighters, making

¹² "EMS: Sleep-Deprived on the Job." <https://www.firehouse.com/careers-education/article/12159596/ems-sleepdeprived-on-the-job>

¹³ "The Dangers of Sleep Deprivation - Firehouse." <https://www.firehouse.com/safety-health/news/12268164/the-dangers-of-sleep-deprivation-for-emergency-workers>



them feel more comfortable in the workplace.¹⁴ In an International Association of Women in Fire & Emergency Services survey, almost half of women reported that they had problems with privacy within a firehouse.¹⁵ Sharing sleeping facilities can be uncomfortable not just for women, but for all genders. A 2020 Civil Grand Jury of Santa Clara County, California report highlights the need for gender-separate accommodations in fire departments moving forward.¹⁶ Individual sleeping quarters can also meet the requirement of a suitable private location for a lactation room.

Heart Safe Alert Tones

The tones that alert firefighters to a response in the fire stations are another concern. Historically, fire departments have used a loud and quick tone to alert firefighters of the need to respond. This tone causes a tachycardic response in firefighters, which means it makes their heart rate spike. Studies have shown that ramp-up tones are better for the heart health of firefighters. Experts say ramp-up alerting could be an effective way to deal with fatigue, tachycardia, and potentially long-term physical and psychological disorders.¹⁷ Ramp-up tones gradually increase the volume of alert tones.

Decontamination Area

A facility layout can encourage the proper decontamination process a firefighter must follow when returning from a call. Placement of the decontamination room, turnout cleaning, and turnout storage in a linear circulation pattern on the way to the apparatus bay supports the process of decontamination and turnout cleaning prior to entering the apparatus bay. The addition of handwashing sinks and boot cleaning stations at any entrance to the living area in addition to the decontamination zone helps firefighters maintain a clean-living area called the “Clean Zone.” This “Clean Zone” should be separated from the “Hot Zone” of the apparatus bay and support area. A facility also should provide air lock vestibule “Transition Zone” at the connection points of the “Clean” and “Hot” zones to assure the vehicle exhaust from the apparatus bay does not enter the area where

¹⁴ “Breaking the ‘brass ceiling’: Women face unique obstacles in the fire service.”

<https://www.firerescue1.com/leadership/articles/breaking-the-brass-ceiling-women-face-unique-obstacles-in-the-fire-service-am49Nem3qPWdEBWO/>

¹⁵ “Women in the Fire Service.” <https://www.powerdms.com/policy-learning-center/women-in-the-fire-service>

¹⁶ “Why Aren’t There More Female Firefighters in Santa Clara County?” Civil Grand Jury of Santa Clara County.

https://www.scscourt.org/court_divisions/civil/cgj/2020/Why%20Arent%20There%20More%20Female%20Firefighters%20in%20Santa%20Clara%20County.pdf

¹⁷ “Ramp-up tones cut firefighter, paramedic rapid-heart response to station alarms.”

<https://www.ems1.com/ems-products/fitness-mental-health-wellness/articles/ramp-up-tones-cut-firefighter-paramedic-rapid-heart-response-to-station-alarms-Z3C9s9Cbs4AuUUVC/>



firefighters live and sleep. These processes will protect the long-term health of the firefighters living at the station. A layout that features these zones can embed healthy practices into the culture of the department.

Recommendation 1–B: Add Paid Staffing

ESCI recommends that the Central City Fire Department add paid staffing. This paid staffing is not intended to replace volunteer staffing, but to augment staffing to provide the best possible emergency response capabilities to the citizens and visitors of Central City.

The Volunteer and Combination Officers Section of the International Association of Fire Chiefs identified five “Indicators for Change” in its Red Ribbon Report. While there is no established rule about when a community should consider hiring additional paid firefighters, these Indicators do provide guidance for when a community should expect to increase paid staffing.

ESCI recommends that the Central City Fire Department begin tracking the metrics listed in the following table and monitoring them quarterly to identify trends.

Figure 80. IAFC Indicators for Change

IAFC Indicators for Change	Description
1. Community Growth	A history of community growth and projected increases in demand can help forecast and plan for changes in the delivery of emergency services.
2. Community Aging	A fire department’s ability to recruit new members is in part dependent on the supply of new, younger people who can be tapped for service. A community’s age profile can be an indicator of potential volunteer firefighter recruitment problems ahead.
3. Reduced Staffing	Units responding with fewer than the required number of people needed to perform that unit’s functions pose a serious problem for the safety of citizens and the responders.
4. Extended Response Times	When units regularly fail to get out of the fire station in a timely manner because of inadequate staffing resources, the community is endangered, and fire department managers have a reliability problem.
5. Missed Calls	When an emergency call goes unanswered, the fire department has a serious problem, not just because life and property are at stake, but also because it is a failure highly visible to the public.



During site visit interviews and analysis, it was determined that daytime hours are often the hardest for volunteer availability. Figure 37. CCFD Service Demand by Hour, 2019–2023 shows the daytime hours are the busiest for CCFD.

The recommendation is to staff a three-member crew from Monday through Friday, between 07:00 and 19:00. This staffing level can be achieved through a combination of part-time employees, full-time employees, or a mix of both. Part-time positions may be particularly appealing to full-time fire service professionals from neighboring departments who are seeking additional compensation.

During this study, it was brought to the attention of ESCI that Central City has recently approved the addition of one full-time firefighter. As the city moves forward in filling this position, it is important to carefully consider the most appropriate work schedule for the new hire. Central City should consider the following key factors when determining the firefighter's schedule:

1. **Desire for Schedule to Support Recruitment and Retention:** The schedule should be structured in a way that attracts qualified candidates and helps retain current staff. Flexibility and work-life balance are significant factors for both recruitment and employee satisfaction, so understanding the preferences of potential and existing firefighters will be essential in creating a schedule that aligns with their needs.
2. **Call Volume by Time of Day and Day of the Week:** It is crucial to analyze when the highest call volumes occur to ensure adequate coverage during peak times. This includes reviewing historical data on emergency calls to identify trends based on both the time of day and the days of the week. By aligning the full-time firefighter's schedule with these peak periods, Central City can optimize response times and ensure the safety of its residents.
3. **Availability of Other Staff:** Central City relies on a combination of full-time, volunteer, and part-time firefighters to meet its staffing needs. Coordination with these other staff members is necessary to ensure that the full-time firefighter's schedule complements the availability of volunteers and part-time personnel. This collaborative approach will help maintain consistent staffing levels while offering sufficient coverage.

Recommendation 1–C: Fleet Needs Analysis

Based upon the current availability of part-time, full-time, and volunteer firefighters, the Central City Fire Department owns and maintains a large fleet of apparatus and equipment. As the price of owning/replacing a large fleet continues to grow exponentially



each year, it is recommended that the agency conduct a formal needs assessment to determine the number of apparatus necessary to adequately protect the community, with the limited personnel available. This could mean not replacing current apparatus/vehicles as they age and/or selling surplus vehicles that are not needed. An additional strategy may be to coordinate with neighboring fire service agencies for cooperative ownership or resource sharing for items like reserve apparatus. Lastly, there is currently only a limited need for an aerial apparatus in Central City; however, there may be opportunities to resource share/purchase this asset with another neighboring district. In all instances, the personnel available must meet the anticipated apparatus availability to effectively respond to a scene. The Volunteer and Combination Officers Section (VCOS) of the International Association of Fire Chiefs (IAFC) has tools available to support needs assessments.

Recommendation 1–D: Improve Volunteer Recruitment and Retention

Recruitment and retention are significant challenges for the U.S. fire and emergency services. According to the National Fire Protection Association, the number of volunteer firefighters has decreased from 897,750 in 1984 to 676,900 in 2020.

Understanding the factors contributing to the decline is crucial in finding solutions. Time demands, increased training requirements, and poor leadership are among the challenges faced by volunteer fire departments.¹⁸

The United States Fire Administration published a guide in 2023 for agencies to use in the recruitment and retention of volunteers for emergency response. While this challenge is not unique to the Central City Fire Department, there may be possibilities of additional strategies that could be implemented to attract and/or retain members.

In addition, the Central City Fire Department should evaluate grant funding, specifically related to the United States Fire Administration Program on Staffing for Adequate Fire and Emergency Response (SAFER)¹⁹ that has potentials to not only support hiring career firefighters, but, also, can support recruitment and retention efforts of volunteers. The VCOS of the IAFC has tools available to support needs assessments.

Recommendation 1–E: Improve Relationships with Neighboring Agencies

Through interviews with mutual aid leadership, the Central City Fire Department maintains good working relationships with many of its mutual aid partners. However, there remain areas where these relationships can be improved, particularly when personal conflicts or past decisions influence interactions. CCFD leadership should actively work to build and

¹⁸ United States Fire Administration Manual on Retention and Recruitment (2003)
<https://www.usfa.fema.gov/blog/retention-and-recruitment-manual/>

¹⁹ United States Fire Administration SAFER Grant Information
<https://www.fema.gov/grants/preparedness/firefighters/safer>



nurture professional relationships with all neighboring agencies to foster collaboration, improve communication, and strengthen mutual aid efforts.

The following are examples of how Central City can partner with neighboring agencies to improve the overall efficiency and effectiveness of fire service in the region.

Adopt a “Closest Unit Dispatch” System

One potential partnership is to transition to a system that dispatches the closest available unit to an incident, irrespective of jurisdictional boundaries. In an emergency, the priority is the rapid arrival of trained personnel to mitigate the crisis, not the jurisdictional boundaries of the responding unit. A "closest unit dispatch" system ensures that the fastest possible response time is achieved, enhancing service delivery for all communities. Given the regional interconnectedness of fire and emergency services, this practice would reduce response times, improve efficiency, and ultimately, save lives. In an urgent situation, what matters most is not the name on the fire apparatus, but that it arrives promptly with the right resources.

Regional Sharing of Reserve Apparatus

Another potential partnership is to establish agreements with neighboring fire departments to share reserve apparatus. Reserve apparatus are essential for ensuring continuous service in the event of mechanical failures, accidents, or scheduled maintenance of front-line vehicles. However, maintaining a reserve fleet can place a significant strain on budgets. By sharing reserve apparatus regionally, fire departments can reduce individual costs and increase the reliability of the reserve fleet. This collaboration would ensure that no department is left short-handed while also optimizing the usage of limited resources.

Specialized Equipment Sharing

A third opportunity is to pursue partnerships with neighboring jurisdictions to share specialized equipment, such as a ladder truck. While the need for a ladder truck in Central City may not justify the expense of purchasing and maintaining one independently, the justification for such equipment grows when considering the larger regional response area. By pooling resources and sharing costs, neighboring jurisdictions can maintain a ladder truck that benefits the entire region. This shared model would reduce the burden on individual departments while ensuring that critical resources are available when needed. In discussions with CCFD staff, a previous ISO report recommended the placement of an aerial apparatus (ladder truck) in Central City. Additionally, such a collaboration would enhance cross-jurisdictional response capabilities, allowing for a more robust and effective response to commercial fires or complex rescues.



Regional Specialized Teams (HazMat, Technical Rescue, Special Operations)

A fourth potential partnership is to create regional teams for specialized incidents such as hazardous materials (HazMat) responses or technical rescues. Incidents requiring specialized teams are less frequent but often demand expertise beyond that typically available within a single department. A regional approach to HazMat and Technical Rescue teams allows for the pooling of resources, specialized training, and more effective incident management. CCFD personnel can participate in these regional teams, ensuring that local responders are fully integrated into multi-agency responses. This collaboration not only improves response capacity but also provides valuable training opportunities for all personnel. It can also enhance recruitment efforts by offering potential recruits the opportunity to gain specialized skills and participate in complex incidents.

Shared Training Facilities

It is recommended to explore partnerships with neighboring agencies to share fire training facilities. The construction and upkeep of training facilities are costly for individual departments. By sharing training areas, costs can be distributed across multiple agencies, making it more financially viable to create and maintain high-quality training environments. A regional training facility would also foster interdepartmental cooperation, allowing personnel to train alongside their counterparts from different jurisdictions.

Duty Officer Programs for Command Coverage

It is recommended to establish a duty officer program to ensure a chief level officer is available 24/7, particularly during evenings and weekends. Many fire departments, including CCFD and neighboring agencies, have limited command staff, which can leave gaps in leadership availability during off-hours. A regional duty officer program would create a rotating schedule where command officers are available around the clock. This would guarantee that a senior officer is always on hand to provide oversight and support in the event of major incidents. Moreover, this program could provide additional support during critical incidents, such as designating a second chief officer to serve as the Incident Safety Officer, thereby enhancing incident command and safety.

Streamlined Volunteer Training Across Agencies

CCFD should develop a regional approach to training new volunteer firefighters, with rotating courses hosted by various departments. Volunteer personnel not only take on operational and administrative responsibilities, but they also play a crucial role in training new recruits. The faster new members can complete their training and become operationally ready to respond to emergencies, the greater the benefit to the organization. Swift integration into active duty not only helps the department maintain its staffing levels but also significantly improves the likelihood that volunteers will remain engaged and committed. Conversely, if training is prolonged or overly complex, recruits may become disheartened, lose interest, and eventually drop out.



To expedite the training process and enhance retention, it is recommended that surrounding agencies collaborate to share training responsibilities for new volunteers. By pooling resources and expertise, departments can offer more comprehensive and quicker training experience while also reducing the burden on any single department. For example, Central City could lead a week focused on turnout gear, Timberline could conduct a week on hose operations, and Clear Creek could provide a week of training on ladders. This example is simply one possible model, but the key is to establish a rotating schedule that maximizes efficiency and minimizes redundancy across participating agencies.

Consortium or Cooperative Purchasing for Equipment and Apparatus

It is recommended to initiate discussions with neighboring agencies to explore opportunities for consortium or cooperative purchasing of fire apparatus and equipment. Purchasing fire apparatus and equipment can be a significant financial burden for individual departments. By leveraging collective buying power, agencies can secure better pricing and more favorable terms with vendors. A regional purchasing consortium would allow departments to purchase equipment in bulk, reducing per-unit costs and ensuring access to the best technology available. Additionally, this approach would streamline procurement processes and allow departments to pool resources for large capital investments, ensuring that all agencies have access to the necessary tools and technology for effective operations.

Recommendation 1–F: Develop a Department Vision Statement

The Central City Fire Department (CCFD) currently does not have a formal vision statement. A vision statement is a crucial component of strategic planning, as it articulates the ideal future the organization aspires to achieve. It should answer key questions such as, "Where are we headed?" and "What would the department look like 10 years from now if we successfully achieved all of our strategic goals?" Without a clear vision statement, it may be difficult for CCFD to communicate its long-term objectives and align its efforts across all levels of the organization.

To strengthen its strategic planning and provide clear direction for the future, it is recommended that CCFD work closely with both internal and external stakeholders—such as fire service personnel, community leaders, and local government representatives—to develop a vision statement.

Recommendation 1–G: Develop Strategic Plans

ESCI recommends that the Central City Fire Department initiate a community-centered strategic planning process. This process should include a comprehensive review and refinement of the CCFD's Mission Statement, Vision Statement, Organizational Values, and Strategic Goals. These foundational elements should be carefully updated to ensure they



accurately reflect both the current state of the department and the evolving needs of the community it serves.

Given the rapid pace of change in many industries, including public safety, traditional five-year planning horizons are increasingly being shortened to three years. This shift allows organizations to remain agile and responsive to emerging challenges and opportunities. For fire departments, the effectiveness of strategic planning is critical to success.

Strategic goals are essential for guiding the prioritization of initiatives, resource allocation, capability development, and budget planning. By aligning goals with community needs, CCFD can ensure that resources are used efficiently, services are optimized, and outdated programs are reassessed or phased out. This focused approach will help the department continuously adapt and improve its service delivery to meet the dynamic demands of the community.

Recommendation 1–H: Develop and Release Annual Reports

ESCI recommends that the Central City Fire Department develop annual reports. These reports provide an opportunity to assess the department's progress in achieving the goals outlined in the strategic plan, allowing for a clear evaluation of successes and areas for improvement. Additionally, annual reports serve as a valuable tool for tracking service delivery trends and comparing performance year-over-year.

Beyond performance metrics, annual reports offer an important opportunity to recognize and celebrate the accomplishments of department members. Highlighting individual and team achievements not only boosts morale but also enhances motivation and supports retention efforts. By acknowledging the hard work and dedication of personnel, the department can develop a culture of appreciation.

Recommendation 1–I: Develop a Long-Range Capital Improvement Plan

It is recommended that the agency develop a 3, 5, and 10-year capital improvement plan to maintain a similar annual capital outlay for each fiscal year. Additionally, this plan serves as a valuable tool for community leaders to track expenditures of the past, along with project capital improvements in the future.

Recommendation 1–J: Additional Social Media Platforms

Although the department is active on Facebook, it is recommended that they explore other social media platforms, such as Instagram. Expanding communication to Instagram could help the department reach a broader audience across different age groups, which may aid in recruitment efforts. ESCI recognizes that this may increase administrative duties; however, there is an option to cross-post content between Facebook and Instagram, which could streamline the process and reduce the need for creating multiple separate posts.



Recommendation 1–K: Part–Time Admin Assistant

CCFD is fortunate to have a volunteer lieutenant who serves as the department's office manager. However, it is not advisable for the department to rely on a volunteer member to fulfill these critical administrative duties. CCFD should employ a part-time administrative assistant. This position is essential in supporting the Fire Chief with the department's administrative responsibilities. It is recommended that this position remain in place until the department progresses with Recommendation 2-A. At that time, the department should conduct a thorough needs analysis to determine whether this administrative position is still required or if the responsibilities can be redistributed among the three shift company officers.

Mid–Term Strategies

Mid-term recommendations and strategies are ones that Central City should attempt to put into practice within the next three to seven years.

Recommendation 2–A: Full–Time Career Staffing

Central City should implement a staffing model of three shifts, each with a Company Officer (Lieutenant or Captain) and two Firefighters, working 24/7 on a 48-hour on/96-hour off schedule. This schedule would ensure continuous coverage for emergency response while maintaining the department's operational effectiveness.

As Central City continues to grow, the fire department is expected to see a corresponding increase in call volume. Coupled with the ongoing decline in volunteerism, the city will face significant challenges in maintaining an adequate workforce for emergency response. To address these challenges, it is essential to transition to full-time career staffing, ensuring the fire department can meet the growing demands of the community.

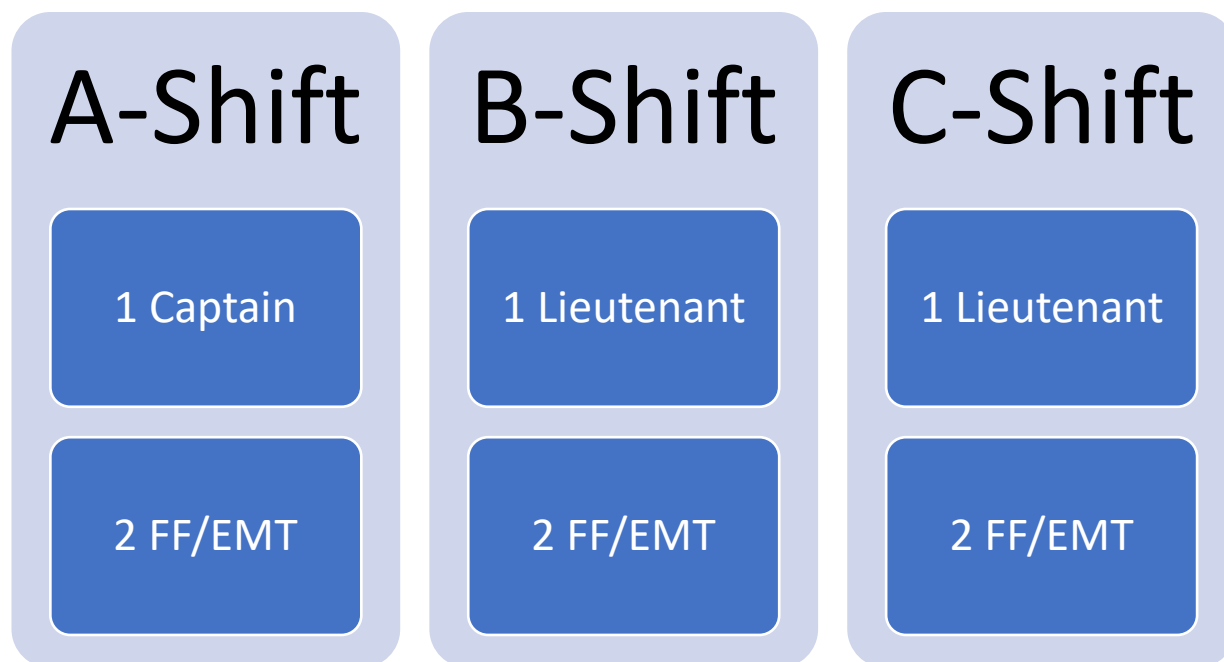
This recommendation is not intended to replace the city's volunteer firefighters, but rather to complement their efforts and ensure that the department has reliable, consistent staffing available around the clock. Volunteers will continue to be recruited and retained, and their invaluable contributions will remain integral to the department's operations. However, as call volumes rise and volunteer availability fluctuates, full-time staff will provide the stability needed to effectively respond to emergencies.

The 48-hour on/96-hour off schedule is increasingly popular within fire departments in the area because it allows for extended time off while ensuring adequate coverage and continuity in staffing. Under this proposed model, each shift will be staffed with a company officer and two firefighters. The company officer will provide leadership and oversight, while the firefighters will carry out operational duties. This structure ensures that there is always a senior officer on duty to manage incidents, supervise personnel, and maintain

departmental standards, while the firefighters are available for response, training, and station duties.

This staffing approach will enhance the department's capacity to handle emergencies effectively, improve response times, and ensure that the fire department is adequately prepared to meet the needs of a growing population. It will also help mitigate the pressures of declining volunteerism and ensure continuity of service 24/7.

Figure 81. Example 48/96 Schedule Layout



Recommendation 2-B: Utilize National Fire Academy for Professional Development

During the site visit interviews, it was noted that much of the knowledge on leadership held by company officers and chiefs is self-taught. While this recommendation does not suggest that individuals in these positions are unprepared or unqualified, it is less than ideal. The CCFD should consider implementing formal professional development opportunities for its members, such as those offered by the National Fire Academy, to enhance their skills and expertise.

Active members of fire or emergency management organizations are eligible for a stipend reimbursement to attend the National Fire Academy in Emmitsburg, Maryland. All tuition, instruction, and course materials for National Fire Academy courses are provided at no cost. All active members of fire and emergency management organizations are eligible for



stipend reimbursement once every fiscal year. There are multiple leadership course opportunities available.

The National Fire Academy's Managing Officer Program is a multi-year curriculum that introduces emerging emergency services leaders to personal and professional skills in change management, risk reduction, and adaptive leadership. This program is ideal for CCFD lieutenants and captains.

The Executive Fire Officer (EFO) Program is the flagship program of the National Fire Academy. It provides senior fire officers with a broad perspective on various facets of fire and emergency medical services administration. The courses and accompanying research examine how to exercise leadership when dealing with difficult or unique problems within communities. This program is ideal for CCFD chief level positions.

Recommendation 2-C: Administrative Duties for Company Officers

If Central City moves forward with Recommendation 2-A, it is recommended that administrative duties be added to the responsibilities of the company officers. While call volume is expected to increase, it is anticipated to remain within manageable limits for on-shift personnel. Given the size of the fire department, Central City will not be able to justify having dedicated administrative staff to handle the necessary administrative and support functions for the department. Therefore, it is recommended that each company officer be assigned specific administrative duties to ensure that these critical tasks are carried out efficiently.

As Central City's fire department grows and its operations become more complex, administrative tasks such as training management, health and safety, and equipment logistics will require dedicated attention. However, due to the department's size and budget constraints, it is not feasible to hire additional administrative staff. Instead, assigning these duties to company officers will allow the department to efficiently manage these functions while still maintaining a manageable workload for personnel on shift.

By incorporating administrative responsibilities into the company officers' roles, the department can streamline its operations, ensure accountability, and better utilize existing personnel. The following are specific administrative duties that could be assigned to each company officer:

1. **Training Officer** – This officer would be responsible for managing and overseeing the department's training programs. While the Training Officer does not need to be the sole instructor, they should serve as the primary point of contact for all training-related matters, ensuring that all personnel are properly trained and compliant with department standards and regulations.



2. **Health and Safety Officer** – Health and safety are critical components of fire service operations. This officer would oversee the department’s risk management plan and provide necessary health and wellness resources to personnel. Additionally, they would conduct post-incident safety analyses for major incidents, identifying any risks or safety concerns that should be addressed to improve future operations and protect the health and well-being of firefighters.
3. **Logistics Manager** – This officer would be tasked with managing the department’s supplies, gear, uniforms, and equipment. With the significant costs associated with these items, it is crucial to have a single point of accountability to ensure that all equipment is maintained, replaced, and properly accounted for. The Logistics Manager would ensure that the department’s inventory is well organized and that resources are available when needed.

By assigning these administrative duties to company officers, the Central City Fire Department can ensure that essential functions are maintained without the need for additional administrative staff. This approach will allow for efficient use of existing personnel while ensuring that the fire department can continue to operate effectively and safely as it grows.

Recommendation 2–D: Cross Train Personnel for Fire Inspections

If Central City moves forward with Recommendation 2-A, it is also recommended that the Central City Fire Department train at least one person per shift in conducting adequate fire inspections. This training will ensure that the department always has a sufficient number of qualified personnel available to perform fire inspections, helping to meet safety standards, mitigate risks, and promote fire prevention efforts within the community.

Fire inspections are a crucial aspect of fire prevention and public safety. By training at least one individual per shift, the department will ensure that inspections are carried out consistently and in compliance with local and national fire codes. Regular inspections help identify hazards such as fire code violations, unsafe building materials, blocked exits, or improperly stored hazardous materials.

Fire inspections are often mandated by local ordinances, state regulations, and national standards (such as those outlined by the National Fire Protection Association, NFPA). Having qualified personnel on every shift ensures that the department can meet these regulatory requirements, which may include periodic inspections of commercial properties, residential complexes, schools, and other high-risk buildings. By being proactive in fire prevention, the department demonstrates its commitment to public safety and regulatory compliance.



Training personnel in fire inspection also offers professional development opportunities for firefighters, which can increase job satisfaction and retention. Having a diverse skill set within the department improves overall workforce morale and fosters career advancement. It can also serve to prepare individuals for leadership roles in the future, as fire inspection expertise is valuable for personnel looking to move up in the department.

Recommendation 2–E: Develop a Community Risk Assessment/Standards of Cover Document

The Commission on Fire Accreditation International (CFAI) and other fire service organizations have identified benefits for agencies/communities through the development of a Community Risk Assessment/Standards of Cover (CRA/SOC). These tools, together, work to synchronize valuable resources to ensure appropriate deployment and services are offered to meet community expectations.

In the development of a CRA/SOC, the Central City Fire Department would develop and apply methods to accurately measure fire and non-fire risks throughout the community. The community risk assessment (CRA) must recognize all hazards and categorize them into a manageable and sensible method that speaks to what is acceptable for the community to support and afford²⁰. In the SOC, the community and the fire department must come together in a realization that the identified risk is not only confirmed, but what current, or baseline, levels of performance the fire department can deliver. It will become very evident to the fire department that while response times are important to this measurement, the real measure of a successful response is in the outcome of the event²¹.

The CRA/SOC becomes the place for agency success. Defining the true risks, developing a response profile, measuring current performance, planning for improvement, and setting benchmark goals allows the department, elected leaders, and the community to understand all aspects of the organization and the level of performance/performance gaps.

Recommendation 2–F: Fire Chief Salary Review

It is recommended that Central City review the salary of the Fire Chief position to ensure it remains competitive with neighboring jurisdictions. Additionally, this report suggests an expansion of the career positions within the fire department, which will increase the Fire Chief's responsibilities. As these recommendations are implemented, there will be a clear justification for analyzing and adjusting the current salary range for the Fire Chief role.

²⁰21 Center for Public Safety Excellence – Community Risk Assessment/Standards of Cover
<https://www.cpse.org/accreditation/community-risk-assessment-standards-of-cover>

²¹ Center for Public Safety Excellence – Community Risk Assessment/Standards of Cover



Long-Term Strategies

Long-term recommendations and strategies are ones that Central City should attempt to put into practice within the next 7 to 15 years.

Recommendation 3-A: Add Deputy Chief/Fire Marshal

It is recommended that Central City create a Deputy Chief position, with responsibilities that include serving as the Fire Marshal. This new position would alleviate the workload of the Fire Chief and provide critical support in managing both the growing demands of the fire department and the city's expanding infrastructure.

Currently, the Fire Chief also serves as the Fire Marshal for Central City. However, with the city's anticipated growth, particularly in the number of buildings and developments, the workload for fire inspections, plan reviews, and fire code enforcement will significantly increase. The Fire Chief's dual role as both the head of the fire department and Fire Marshal will likely put a strain on their time and focus, potentially detracting from their ability to effectively oversee department operations.

The addition of a Deputy Chief who will also serve as the Fire Marshal would address this concern, ensuring that both fire protection services and fire prevention duties are adequately managed. This restructuring would allow the Fire Chief to focus more on strategic leadership and departmental management, while the Deputy Chief could handle the technical aspects of fire inspections, code enforcement, and plan reviews, ensuring compliance with fire safety regulations.

Furthermore, having a Deputy Chief in place would strengthen succession planning within the department, ensuring that there is always a trained second-in-command ready to step into the Fire Chief's role if needed. It would also improve operational efficiency by allowing the Fire Chief to delegate management duties. Additionally, having a second chief officer would provide the department with the ability to implement a better command officer duty schedule, ensuring that at least one chief officer is on call after hours to respond to and command major incidents.

This role would not only improve day-to-day operations but also ensure that the fire department can meet the demands of a growing city, while maintaining strong leadership and oversight.

There is an opportunity to initially establish this position as part-time, if the workload for a full-time Deputy Chief is not yet warranted, with the potential to transition to a full-time role as the demands of the position grow. A part-time arrangement may be particularly attractive to an experienced Captain or Battalion Chief from a nearby fire department in the Denver metro area, providing them with valuable Chief-level experience.



Recommendation 3–B: Add Additional Career Personnel

It is recommended that the Central City Fire Department add one to two additional personnel per shift (for a total of three to six additional personnel across all three shifts). This staffing enhancement will help ensure that the department consistently meets its minimum staffing requirement of at least three personnel per shift, improving operational capacity, safety, and the department’s ability to respond to emergencies effectively.

The primary reason for this recommendation is to maintain a minimum staffing level of three personnel per shift. This is crucial to ensure the fire department can consistently provide the necessary resources for emergency response operations. This will help eliminate the need for overtime, either voluntary or mandatory, to maintain staffing levels. Mandatory overtime factors negatively in regard to personnel retention in career fire departments.

If the decision is made to have two fire stations operational, adding two additional personnel will enable a staffing configuration where, when all five personnel are on duty, one station could be staffed with three members while the other could have two members. This approach allows for effective resource allocation and ensures that both stations are adequately staffed. Depending on the number of personnel available each shift, multiple staffing combinations could be achieved, offering flexibility to adjust to demand and staffing needs.

When staffing is adequate, it enables the department to meet national safety standards such as the two-in, two-out rule (NFPA 1500), which requires at least two firefighters to be inside a structure when two remain outside for safety. This enhances the department’s ability to conduct more complex operations, such as firefighting in high-risk environments, technical rescues, and multi-agency collaborations, while minimizing the risk to personnel.

Increasing staffing by one or two personnel per shift would reduce the burden on individual firefighters, preventing burnout, fatigue, and reducing the likelihood of operational errors. This enhancement would also improve employee wellness by allowing for more balanced workloads, which directly impacts overall morale and job satisfaction.

Recommendation 3–C: Create Internal Driver Position

It is recommended that the Central City Fire Department establish an internal promotion opportunity for the position of Apparatus Driver (also known as Fire Apparatus Operator, Engineer, or Technician in other departments). This position would be responsible for the day-to-day maintenance, inspections, and operations of fire engines and aerial units. By implementing a promotion pathway for this role, the department will enhance retention, improve operational efficiency, and foster greater team cohesion.

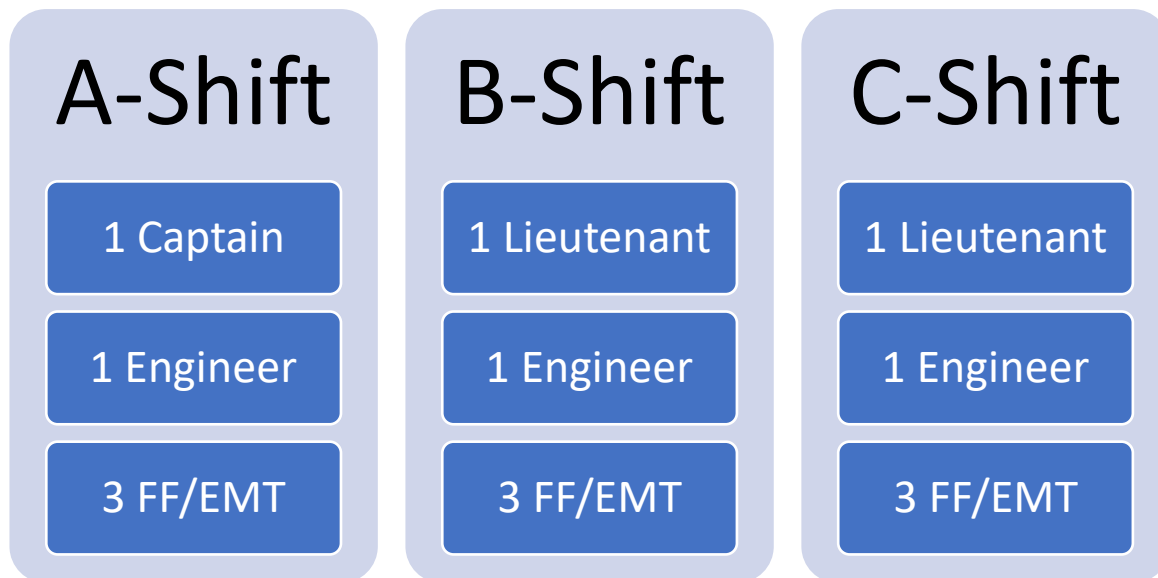


Retention is a critical challenge for smaller fire departments, where career advancement opportunities are often limited. By creating a formal promotion path to the apparatus driver role, the Central City Fire Department can provide valuable career growth opportunities for its personnel. This will not only help retain experienced staff but also improve morale, reduce turnover, and ensure that the department retains its best talent. A dedicated apparatus driver position allows for greater responsibility in managing apparatus maintenance, inspections, and readiness, which is essential for operational safety and efficiency.

The apparatus driver position is integral to the smooth functioning of fireground operations. A permanent driver allows for a stronger working relationship with the company officer, enhancing team cohesion and communication. This improves response times and ensures that critical information, such as the location of fire hydrants and equipment readiness, is immediately available to the officer, allowing them to focus on incident command and strategy. Having a dedicated driver also enables more effective management of apparatus operations during emergency calls, ensuring that equipment is deployed quickly and efficiently.

Additionally, cross-training apparatus drivers to serve as acting company officers in the absence of a permanent officer can provide the department with much-needed leadership flexibility. This ensures that staffing gaps due to illness, vacation, or injury do not disrupt operations. By promoting internally to this position, the department fosters leadership development and career progression, providing drivers with the skills and experience needed to step into higher leadership roles in the future.

Figure 82. Example 48/96 Schedule Layout w/ Addition of Recommendation 3-B and 3-C





Cost Projections

ESCI recognizes that implementing the recommendations outlined in the previous sections may incur associated costs. Budgetary constraints are a significant consideration for any organization, and as such, the following section is designed to provide detailed cost projections for each of the proposed initiatives. These projections will offer a clearer understanding of the financial commitments required, helping stakeholders make informed decisions about prioritization and resource allocation.

Fire Station Costs

Construction of any fixed facility, like a fire station, represents a considerable cost to a fire department and city. Not only is the cost of building a station significant, but the ongoing cost of a new facility's continued operation on an ongoing basis needs to be considered. The actual cost of construction varies widely based on factors and variations in design, function, capacity, and site conditions. Furthermore, costs are affected by local labor and materials pricing.

Traditionally, soft costs (design fees, geotechnical reports, FF&E, etc.) are around 25% of the construction costs. In addition to that, ESCI recommends a healthy project contingency of 15% for any new facility design and construction.

Taking soft costs of 25% and a 15% contingency into account, ESCI believes fire station construction can be expected to represent a range from \$700 to \$800 per square foot in the Denver Metropolitan Area and can be higher or lower in some instances. Due to the broad variations possible, ESCI is not able to provide specific cost projections. However, to offer some general guidance, the following information provides a five-year annual estimate of the cost to construct a 15,000-square foot fire station. The example is based on cost projections and recent cost history of commercial construction in the Denver Metropolitan Area supply chain impacts, and fire station costs in the broader western region of the US. While Central City may choose different designs, materials, square footage, and amenities, the estimate provides an idea of the costs to construct a modern fire station.

It is noted that the annual project cost estimates do not include the cost of acquiring land. A review of vacant residential and commercial properties for sale within Gilpin County yields a per acre cost range of \$200,000 to \$700,000 per acre. A single vacant commercial parcel of two acres is recommended to build a fire station. A two-acre site, given the average price per acre in the Gilpin County area, could be expected to cost \$400,000 on the low end and could run as high as \$1.4 million.

Some important caveats that will impact the cost and timing of fire facilities:



- It is possible to build a station for significantly more or less than these ranges, but a competent architect with expertise in fire station design should be able to guide Central City towards reliable station estimates.
- ESCI was not contracted to do space programming for new stations, so it is not validated that the 15,000-square foot number is accurate.
- These numbers do not include the cost of the fire apparatus or the costs to hire, train, and employ staff to the new station.

Figure 83. Estimated 2025 Fire Station Construction Costs

Projected Size – Square Feet	15,000
Site Size	Two Acres
Square Foot Cost Range	\$700 - \$800
Land Costs (Two Acres)	\$900,000 (Average)
2025 Total Project (No Land)	\$10.5M - \$10M
Bid 2026 (No Land)*	\$11.6M - \$13.3M
Bid 2027 (No Land)*	\$12.8M - \$14.7M
Bid 2028 (No Land)*	\$14.2M - \$16.2M
Bid 2029 (No Land)*	\$15.6M - \$17.9M
Bid 2030 (No Land)*	\$17.3M - \$19.8M
Foundation	Concrete
Exterior Wall	Masonry
Interior Wall	Wood frame/masonry
Roof Type	Metal clad
Floor Type	Concrete
<i>*5 percent inflation used for each year</i>	

Staffing Costs

One of the key issues identified both internally by CCFD and by the ESCI team is staffing. Throughout this report, ESCI recommends additional staffing to address this concern. The following are cost estimates for each of these recommendations, which include salary costs only.

It is important to note that Central City offers an excellent benefits package, which includes:

1. Medical, Dental, and Vision Benefits: The city covers 100% of the premiums for both employees and their dependents.
2. City-paid Long-Term Disability and Life Insurance is offered.



- 3. Paid Vacation and Sick Leave are included.
- 4. 401(a) and 457(b) Employer Retirement Contributions are offered.
- 5. Fifteen Paid Holidays annually are allotted.

These benefits should be considered along with the salary costs when evaluating the staffing recommendations' overall financial impact.

Recommendation 1-B

Recommendation 1-B calls for the staffing of three personnel, either part-time or full-time, to work Monday through Friday from 07:00 to 19:00. For this cost estimate, ESCI has used an hourly rate of \$24.01, which is the current part-time rate for the Fleet and Resource Specialist position. The projection does not consider current part-time employees.

Figure 84. Recommendation 1-B Cost Projections

Calculation	Total Hours/Year	Hourly Rate	Total
3 positions x 12 hours/day x 5 days/week x 52 weeks	9,360	24.01	\$224,734

Therefore, maintaining a daytime crew of three personnel 5 days a week from 07:00 to 19:00 is estimated to cost \$224,734 a year in wage expenses.

Recommendation 1-K

Recommendation 1-K suggests the need for a part-time administrative assistant. To estimate the cost, ESCI used the midpoint of the Officer Support Specialist position (Class Code 124) from the Central City Pay Chart and divided that figure by 2,080 (the number of hours a full-time, 40-hour-per-week employee works). This results in a suggested part-time hourly rate of \$20.69.

Figure 85. Recommendation 1-K Cost Projections

Calculation	Total Hours/Year	Hourly Rate	Total
20 hours per week x 52 weeks	1,040	20.69	\$21,518

Therefore, a part-time administrative assistant working 20 hours per week would incur \$21,518 in wage expenses annually.



Recommendation 2-A

Recommendation 2-A suggests adding nine full-time positions, including 1 captain, 2 lieutenants, and 6 firefighters/EMTs, to be distributed across three shifts. ESCI based the salary rates for these positions on comparable departments. It is important to note that this is a mid-term recommendation, so adjustments may be necessary if, and when, it is implemented, particularly due to inflation.

Additionally, these positions are intended to cover 24/7 operations, so the costs associated with Recommendation 1-B are subtracted accordingly. Part-time personnel can still be utilized to cover shift vacancies due to vacation, sick leave, or professional development time off.

Figure 86. Recommendation 2-A Cost Projections

Position	Number	Salary	Total
Captain	1	101,725	101,725
Lieutenant	2	89,550	179,100
Firefighter/ EMT	6	63,179	379,074
Total			658,899
Reduction of 1-B			224,734
New Costs			435,165

Therefore, to transition from a staffing level of 3 personnel working Monday through Friday from 07:00 to 19:00, as recommended in 1-B, to 3 personnel covering 24/7 operations, there will be an additional wage expense of \$435,165 per year.

Additionally, if the duties of the part-time administrative assistant can be transitioned to the three company officers, this would result in a further reduction of \$21,518 per year. As a result, the total increase in additional wage expenses would be \$413,647 per year.

Recommendation 3-A

Recommendation 3-A suggests the addition of a part-time or full-time Deputy Chief/Fire Marshal. ESCI used a full-time salary of \$110,000 per year to provide cost projections for both full-time and part-time options. Since this is a long-term recommendation, the salary estimate will need to be adjusted if, and when, it is implemented.



Figure 87. Recommendation 3-A Cost Projections

Position	Maximum
Part-Time Deputy Chief/Fire Marshal	55,000
Full-time Deputy Chief/Fire Marshal	110,000

Recommendations 3-B and 3-C

Recommendations 3-B and 3-C call for increasing full-time staffing from 3 to 5 personnel per shift, as well as transitioning one Firefighter/EMT position to an Engineer position. The suggested salary for the Engineer position was calculated as the midpoint between the Lieutenant and Firefighter/EMT salaries presented in the projections for Recommendation 2-A.

Figure 88. Recommendations 3-B and 3-C Cost Projections

Position	Number	Salary	Total
Engineer	3	76,365	229,094
Firefighter/ EMT	3	63,179	379,074
Total			418,631

Therefore, Recommendations 3-B and 3-C would result in an additional \$418,631 in wage expenses.

Options for Funding Strategies

There are multiple funding strategies available to support the recommendations and strategies outlined in this report. Many of these strategies involve grants, which will require time and effort to apply for and write. This further underscores the need for additional administrative support for the Fire Chief.

Assistance with Firefighters Grants

The Assistance to Firefighters Grants (AFG) program, administered by Federal Emergency Management (FEMA), is designed to enhance the health and safety of public and firefighting personnel and to provide support for emergency responders regarding fire, medical, and all hazard events. These grants can be used to fund training, equipment, personal protective equipment (PPE), wellness and fitness programs, modifications to



facilities, vehicle acquisition, and joint/regional interoperability projects. The AFG program could be used to assist the CCFD with multiple recommendations in this report.

Staffing for Adequate Fire and Emergency Response (SAFER) grants

The Staffing for Adequate Fire and Emergency Response (SAFER) grants are a part of the AFG Program. The goal of SAFER is to enhance the local fire departments' abilities to comply with staffing, response and operational standards established by the NFPA (NFPA 1710 and/or NFPA 1720). Many fire departments nationwide have bolstered staffing and deployment using funds from the SAFER program. There are various approaches that are used, and ESCI cautions that some funding strategies carry with them requirements to continue to employ personnel after the grant funds expire. CCFD should monitor the Notice of Funding Opportunity (NOFO) to fully understand the award criteria, funding priorities, and important special application instructions for completing the application. The CCFD must consider the SAFER Grant's expiration timeline and plan for incurring the cost of personnel hired with grant funds. While useful, SAFER Grants only defer the cost of additional staffing for a few years.

Federal Program (CDBG)

The most feasible funding from the Federal Government would be from the Community Block Grant program (CDBG). This program has been in force since 1974, and it is intended to serve low- and moderate-income areas. It is normally administered through city or county government, along with the regional development districts, with grants ranging up to \$900,000. This program has worked well as a match to other funds, and they seem flexible with schedules.

Federal Programs (USDA)

The United States Department of Agriculture has a funding program known as Rural Development. This program has limited direct grants but has readily available loans at 4% for 40 years. As an example, the annual debt service for 40 years at 4% would have an approximate annual cost \$45,000 per year per \$1,000,000.

Local Funding (General Obligation Bonds)

The city can issue General Obligation Bonds for part, or all, of the project. The greatest constraint will be the city's ability to retire the debt within the existing budget. The consultant understands that the city has very little outstanding General Obligation debt, so the statutory ceiling will not be a constraint. Interest rates vary with the bond market, but at current rates and a 25-year term, the annual debt service will be in the range of \$55,000 per \$1 million. If the project were done in phases, the city could issue short-term General Obligation Notes. With these funds, interest is paid annually, and the note is renewed. Within 10 years, the city will need to repay the notes in full, or "roll it over" into General



Obligation Bonds. This could expedite the project, especially if multiple grant programs are used.

Special District

Another potential funding option for the Central City Fire Department could be transitioning the department into a Special District, as outlined in Colorado Revised Statutes, Title 32. This would allow the department to levy taxes on real property within the district. Establishing a special district would also require reorganizing the governance structure of the department, including the election of a Board of Directors, along with other requirements specified in the Colorado Revised Statutes. This transition would require a vote by the citizens within the district, and, if approved, would provide a dedicated funding source for the department.

However, there are some downsides to consider. If the Fire Department becomes a special district, it would no longer fall under the guidance of the city. This shift would require the Fire Department to manage additional services such as human resources, IT, maintenance, legal services, and more. These added responsibilities could increase the department's overall funding needs. Also, if a special district were formed, community members would immediately experience an increase in their taxes due to the new district's formation.

A mill levy is a tax rate applied to the assessed valuation of a property, which is determined by the county and is tied to the assessment rate and value adjustments from the state. To calculate the taxes due, the mill levy is multiplied by the assessed valuation of the property. For example, if a home is valued at \$500,000, with a residential assessment rate of 6.7% and a \$55,000 adjustment, the formula would look like this:

$$(500,000 - 55,000) \times 6.7\% = 29,815 \text{ (assessed valuation)}$$

Then, the assessed valuation would be multiplied by the mill levy to determine the taxes owed. For instance, using a mill levy of 9.000, the calculation would be:

$$29,815 \times .0900 = 2,683.35$$

Thus, the taxes paid to the Fire Department for this example property would total \$2,683.35.



Figure 89. Area Fire Department Mill Levy Rates

Department	Mill Levy Rate
Timberline Fire Protection District	8.853
Foothills Fire Protection District	9.825
Evergreen Fire Department	11.463
Nederland Fire Protection District	19.317
Genesee Fire Protection District	10.116
West Metro Fire Protection District	12.807 (+.594)

Currently, in the State of Colorado, the assessment rates vary depending on the type of property. Residential properties are assessed at a rate of 6.7%, while commercial properties, vacant land, agricultural, and industrial properties are assessed at rates ranging from 26.4% to 27.9%. Oil and gas production properties are assessed at a significantly higher rate of 87.5%.

To project an appropriate mill levy and assess the actual impact on individual property owners, a finalized budget for the Central City Fire Department would need to be developed. This budget should encompass all services and requirements that the department needs to fund. Also, it would need to account for any potential contract services or agreements for services provided by Central City in-kind.

Colorado Division of Fire Prevention and Control (DFPC)

The Central City Fire Department should explore collaborating with the Colorado Division of Fire Prevention and Control (DFPC) to identify potential opportunities for a shared fire resource that could enhance both fire and EMS response capabilities within the region. This partnership, if available, could significantly strengthen wildland fire response efforts across Gilpin County while providing limited daytime staffing for the Central City at a reduced cost.

In various partnerships throughout Colorado, local communities offer facilities to house DFPC assets in exchange for DFPC support in local emergency and wildland fire response. Given the current facility options in Central City, one potential solution could involve co-hosting a DFPC asset with the Timberline Fire Protection District at their facility near Central City Fire Station 2.

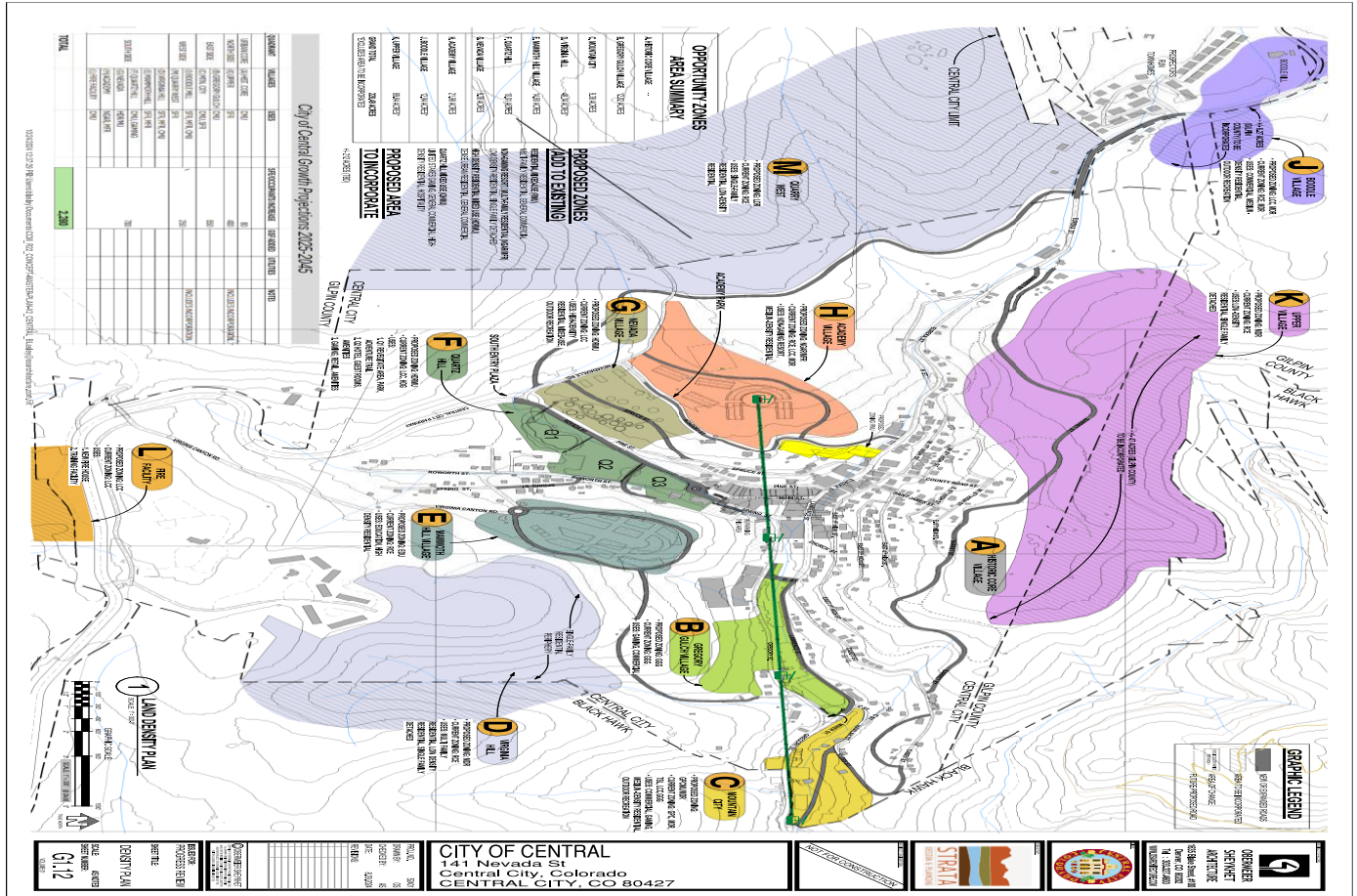
This opportunity should be explored by local entities in collaboration with DFPC to assess its feasibility. Additionally, it is worth noting that the DFPC already has resources, such as the James Peak Module, positioned in or near Gilpin County.



Options for Cost Recovery/Avoidance

One potential strategy for cost recovery and avoidance is reducing the fleet size, as suggested in Recommendation 1-C. This would lead to lower capital replacement costs and a reduction in maintenance and insurance expenses.

Appendix 'A' - Growth Map





Appendix ‘B’ – Table of Figures

Figure 1. Central City Community Profile 11

Figure 2. Organizational Chart..... 14

Figure 3. Salary Ranges 21

Figure 4. Current Part-Time Pay Rates per Hour 22

Figure 5. Staffing Residence Breakdown 25

Figure 6. Initial Full Alarm Assignment for Residential Structure Fire..... 27

Figure 7. Initial Full Alarm Assignment for Strip Shopping Center 28

Figure 8. Initial Full Alarm Assignment in a Three-Story Apartment Building 28

Figure 9: Revenue Summary (FY20 to FY24)..... 31

Figure 10. Expenditure Summary (FY20 to FY24)..... 32

Figure 11. Fire Protection Expenditures Breakdown (FY20 to FY24)..... 32

Figure 12. Revenue vs. Expenditures (FY20 to FY24) 33

Figure 13. General Fund Ending Balance (FY20 to FY24)..... 34

Figure 14. Public Safety Fund Ending Balance (FY20 to FY24)..... 34

Figure 15. Capital Improvement Fund Ending Balance (FY20 to FY24) 35

Figure 16. Salary Ranges 35

Figure 17. Current Part-Time Pay Rates per Hour 36

Figure 18. Clear Creek Fire Authority (CCFA) Salary Comparables 36

Figure 19. Timberline Fire Protection District (TFPD) Salary Comparables..... 36

Figure 20. Foothills Fire Protection District (FFPD) Salary Comparables..... 37

Figure 21. Black Hawk Fire Department (BHFD) Salary Comparables 37

Figure 22. Central City Fire vs. Comparables..... 38

Figure 23. Current Part-Time Pay Rates as Full-Time Salary (2,912 hours)..... 39

Figure 24. Capital Improvement Plan (FY24 to FY28)..... 39

Figure 25. ESCI Facility Rating Criteria..... 41

Figure 26. Facility Information and Condition Worksheet – Fire Station #1 42

Figure 27. Facility Information and Condition Worksheet – Fire Station #2 43

Figure 28. Central City Fire Department Apparatus Assessment 46

Figure 29. Apparatus Life Expectancy and Replacement Costs..... 49

Figure 30. Apparatus Replacement Financial Requirements – Current Apparatus 50

Figure 31. Apparatus Replacement Financial Requirements – Minimized Fleet 51

Figure 32. NFIRS Incident Series..... 54

Figure 33. CCFD Service Demand by NFIRS Series, 2019–2023 55

Figure 34. CCFD Service Demand by NFIRS Series, 2019–2023 56

Figure 35. CCFD Service Demand by Month, 2019–2023 57

Figure 36. CCFD Service Demand by Day, 2019–2023 57

Figure 37. CCFD Service Demand by Hour, 2019–2023 58

Figure 38. Central City Population Density, 2024..... 59



Figure 39. CCFD Incident Density (All Incidents), 2019–2023 60

Figure 40. CCFD Incident Density (EMS), 2019–2023 61

Figure 41. CCFD Incident Density (Fire), 2019–2023 62

Figure 42. CCFD Engine Distribution per ISO Criteria 63

Figure 43. CCFD Station Distribution per ISO Criteria 64

Figure 44. CCFD Hydrant Distribution per ISO Criteria..... 65

Figure 45. NFPA 1720 Response Time Standard 66

Figure 46. CCFD Resource Concentration..... 67

Figure 47. NFPA 1710 ERF Recommendations Based on Risk 68

Figure 48. CCFD Effective Response Force 69

Figure 49. Commitment Factors as Developed by Henrico County (VA) Division, 2016 70

Figure 50. CCFD Commitment Time (Station 1), 2019–2023 71

Figure 51. CCFD Commitment Time (Station 2), 2019–2023 71

Figure 52. CCFD Commitment Time (Command/Other), 2019–2023 71

Figure 53. CCFD Alarm Handing Time Performance, 2019–2023 72

Figure 54. NFPA 1720 Response Time Standard 73

Figure 55. CCFD Response Time Performance, 2019–2023 73

Figure 56. CCFD Aid Agreements..... 74

Figure 57. CCFD Mutual Aid Station Locations 74

Figure 58. CCFD Aid Given/Received, 2019–2023..... 75

Figure 59. CCFD Population, 2010–2023..... 77

Figure 60. CCFD Population Based on Compounded Annual Growth Rate, 2023–2050 78

Figure 61. CCFD Population Based on Planned Growth, 2023–2050 78

Figure 62. CCFD Projected Service Demand by Population Change (Historical), 2025–2050 79

Figure 63. CCFD Projected Service Demand by Population Change (Based on Planned Growth), 2025–2050 80

Figure 64. Three-Axis Calculation Method Example 82

Figure 65. Example of Critical Task Staffing Analysis (Firefighters Needed) Based on Risk .. 83

Figure 66. Example of Tasks and Staff Required as defined from NFPA 1710 84

Figure 67. Changes in the Fire Environment & Effect on Fire Dynamics..... 87

Figure 68. Fire Growth vs. Reflex Time 88

Figure 69. Loss Rates by Fire Spread, Home Structure Fires (2012–2016)..... 89

Figure 70. Cardiac Arrest Event Sequence..... 90

Figure 71. Measuring System Effectiveness 92

Figure 72. CCFD 4-Minute Travel Area (Current)..... 93

Figure 73. Single Station Scenario A..... 94

Figure 74. Single Station Scenario B..... 95

Figure 75. Single Station Scenario C..... 96

Figure 76. Two Station Scenario A/C 97

Figure 77. Two Station Scenario B/C 98



Figure 78. Single Station Scenario Summary..... 99

Figure 79. Two-Station Scenario Summary 99

Figure 80. IAFC Indicators for Change..... 106

Figure 81. Example 48/96 Schedule Layout..... 114

Figure 82. Example 48/96 Schedule Layout w/ Addition of Recommendation 3-B and 3-C 120

Figure 83. Estimated 2025 Fire Station Construction Costs 122

Figure 84. Recommendation 1-B Cost Projections 123

Figure 85. Recommendation 1-K Cost Projections 123

Figure 86. Recommendation 2-A Cost Projections 124

Figure 87. Recommendation 3-A Cost Projections 125

Figure 88. Recommendations 3-B and 3-C Cost Projections 125

Figure 89. Area Fire Department Mill Levy Rates 128