Accreditation Report

Boulder Fire-Rescue
3065 Center Green Drive
Boulder, Colorado, 80301
United States of America (USA)

This report was prepared on January 19, 2020
by the
Commission on Fire Accreditation International

This report represents the findings
of the peer assessment team that visited
Boulder Fire-Rescue
on October 27-October 31, 2019

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EXECUTIVE REVIEW

<u>PREFACE</u>

Boulder Fire-Rescue (BFR) recently received candidate status. On July 15, 2019, the agency asked the Commission on Fire Accreditation International (CFAI) for a site visit to determine if it could be recommended for accreditation. The peer assessment team leader approved the agency's documents for a site visit on September 27, 2019. The peer assessment team conducted an on-site visit of Boulder Fire-Rescue on October 27-31, 2019.

In preparation for the onsite visit, each team member was provided access and reviewed the self-assessment manual, community risk assessment-standards of cover (CRA-SOC), and strategic plan posted by BFR on the Center for Public Safety Excellence (CPSE) SharePoint site. This documentation represented a significant effort by the staff of the agency and other community agencies. The agency did not use a consultant to assist it with completing the documents required for accreditation.

<u>SUMMARY</u>

The CFAI has completed a comprehensive review and appraisal of Boulder Fire-Rescue based upon the ninth edition of the *Fire & Emergency Service Self-Assessment Manual (FESSAM)*. The commission's goals are to promote organizational self-improvement and to award accreditation status in recognition of good performance. The peer assessment team's objectives were to validate the agency's self-assessment study, identify and make recommendations for improvement, issue a report of findings, and conclude if the agency is eligible for an award of accreditation.

The peer assessment team followed CFAI processes and Boulder Fire-Rescue demonstrated that its self-study accreditation manual, CRA-SOC, and strategic plan met all core competencies and criteria. The peer assessment team recommends accredited agency status for Boulder Fire-Rescue from the Commission on Fire Accreditation International.

The agency's success in meeting expectations is strongly tied to integrated processes for its standards of cover, strategic plan, and capital improvement plan. The CRA-SOC processes have evolved, and appropriate adjustments have been made through the implementation of necessary improvements to match available resources to the fire and non-fire risks and related expectations in the community. The CRA-SOC appropriately identifies that the city has an urban population density. There are appropriate benchmark goals and actual baseline performance statements in place that identify and measure all components of the total response time continuum.

Following a detailed assessment and analysis, the peer assessment team believes by consensus that the alarm handling time, turnout time, and travel time for the first-due and effective response force components of the total response time continuum, as contained in the CRA-SOC, are in line with community expectations and do not constitute a gross deviation. It is clear the agency is committed to taking steps to meet the expectations of the community.

The peer assessment team identified opportunities for improvement that are captured in the recommendations section and in the observations and performance section of the report. These recommendations flowed from discussions, interviews, and a review of agency-supplied

documentation to support its self-assessment conclusions. The agency demonstrated its keen desire to immediately implement plans to address opportunities for improvement. The best example is the implementation of changes recommended in a deployment study conducted in 2019.

The peer assessment team observed a strong commitment by the agency to the CFAI accreditation process and, in particular, to ensuring appropriate succession training for the accreditation manager position. The current accreditation manager is an active peer assessor and has a support team; one of its members will be selected as her replacement for the next accreditation in five years. The fire chief and a deputy chief regularly serve as team leaders for CFAI. These approaches ensure continuity, more direct access to quality improvement with similar organizations, and the engagement of a broader spectrum of the agency.

The peer assessment team had meetings with the city manager, the fire chief, and the president of the firefighters' association. Individually and collectively they expressed a long-standing interest in the process, having been engaged and involved from the outset of the agency's journey towards accreditation. There is clearly a commitment to continue to follow and support the implementation of identified opportunities for improvement. It can be anticipated that all representatives will be strong supporters and network participants as the full benefits of going through the self-assessment process are realized and built on in the future.

The peer team noted three practices of the agency that are worth discussion here. The first is an outreach/risk assessment program initiated by the wildland division and the city's information technology (IT) division. The goal of the effort is to identify the risk level for those dwellings located in the urban interface areas of the community. The IT division has developed a phone-based app that allows a member of the wildland program staff to conduct a street level assessment of each structure by identifying key data points such as the address, width of the defensible space, roof covering material, landscaping, and the like. Once saved, data is uploaded to a server that supports a publicly accessible dashboard depicting assessed properties by one of four color-coded risk levels. Homeowners can print a report from the website for their property. Surveys can be initiated by the wildland staff or requested by the homeowner via the website. To date, the program has surveyed more than 600 properties and is seeing an uptick in requests from residents asking that a survey be completed.

The second initiative is the creation of "service level agreements" between the fire department and two city departments; fleet maintenance (FM) and IT. The agreements identify the scope of service the city departments will provide to the fire department and the responsibility the fire department has in return. Critical measures included in the agreements are cost, availability of staff, hours of operation, notification process, decision flow charts, and dispute resolution. The model, when first introduced, received the support of the city manager and is being considered by other city departments. A third agreement is in development with the city department that manages the upkeep and replacement of city facilities and opportunities exist for using the same process with other internal departments.

The third initiative is a program that assigns budgetary management and decision-making responsibility for each station to a station captain. This has had the effect of reducing delays in repairing and maintaining fire stations typically caused when coordinating such tasks with administration. The station captain program has worked very well in removing bureaucratic delays and has resulted in a high level of ownership by station personnel.

Composition

Boulder was incorporated as a city in 1871 and is the county seat for Boulder County. The history of the fire service dates back to its roots as a hook and ladder company established in 1875. A number of other volunteer companies developed over the years, but the agency was formally organized in 1915 and changed to paid status when the last of the volunteer companies disbanded.

The most recent census data indicates Boulder has a population of 108,500 and the county has a population of 326,000.

Boulder had a large population influx from 1950 to 1970 and experienced significant growth in residential housing and commercial property construction. Boulder sits at an elevation of 5,430 feet at the base of the foothills of the Rocky Mountains 25 miles northwest of Denver. Boulder is a hub for federal research and higher education, being the home of the University of Colorado and its 34,000-plus students.

The city is known for its environmental consciousness. In 1959, voters approved what is termed the Blue Line at 5,750 feet elevation, above which the city is prohibited from providing water and sewer services; the city purchased thousands of acres of open surrounding green space starting in 1967 to establish an urban growth boundary; and instituted a building height restriction ordinance in 1972. These policies confine growth and have had the consequence of making property values in the city up to one-and-a-half times higher than the rest of the Denver metro area. The result is that few BFR members and employees are able to live in the community. This creates heavy traffic patterns each morning and evening. In-flow and out-flow traffic negatively influences travel times. Moreover, the urban growth boundary surrounding Boulder geographically isolates the city. Thus, mutual aid rather than automatic aid is utilized to obtain assistance.

The agency responded to a total of 11,905 emergencies in 2018 including: 218 fire calls (1.83 percent); 9,881 emergency medical service (EMS) calls (83 percent); and 1,806 miscellaneous calls (15.17 percent). Servicing these calls in 2018 resulted in a total of 14,490 unit movements.

In 2015, the Insurance Services Office (ISO) visited the city to rate its public protection classification. The outcome of the visit was a lowering of the public protection classification from Class 4 to Class 3/3X.

<u>Government</u>

Council-Manager form of government
Mayor and 8 Council seats (mayor rotates among the 9 council members)
City Manager
Fire Chief

<u>Fire Department</u>

7 fire stations
1 dedicated wildland station
124 uniformed and 8 civilian personnel
3 shift system

<u>Staffed Resources</u>

5 engine companies
2 quints
1 ladder company

<u>Cross-staffed Resources</u>

2 wildland units
1 water rescue unit
1 combination heavy rescue and hazardous materials unit

<u>Non-staffed Units</u>

3 wildland units
Multiple ready reserve apparatus

Daily minimum staffing (all stations): 25
Number of personnel dedicated to Community Risk Reduction/Public Fire Education: 7
Number of personnel dedicated to fire training: 3

CONCLUSIONS

The self-assessment manual produced by Boulder Fire-Rescue was of high quality. The manual represented a significant effort by the staff of the agency to produce and present a quality document.

- Boulder Fire-Rescue demonstrated that all core competencies were met and received a credible rating.

- Boulder Fire-Rescue demonstrated that all applicable criteria were met and received a credible rating.

- The peer assessment team recommends accredited agency status for Boulder Fire-Rescue from the Commission on Fire Accreditation International.

RECOMMENDATIONS

The peer assessment team conducted an exit interview with the agency consisting of the fire chief and most of the staff that participated in the self-assessment study. The purpose of the meeting was to review the team's findings and recommendations. The agency was given an opportunity to respond to any errors in findings of fact.

Strategic Recommendations

Strategic recommendations were developed from information gathered from the on-site assessment visit and the evaluation of the criteria and core competencies.

Category II – Assessment and Planning
Criterion 2C: Current Deployment and Performance

Core Competency

2C.4   A critical task analysis of each risk category and risk class has been conducted to determine the first-due and effective response force capabilities, and a process is in place to validate and document the results.

It is recommended the agency and the communications center adjust the deployment of resources to match the level of risk.

Category V – Programs
Criterion 5B: Public Education Program

Core Competencies

5B.2   The program has sufficient staff with specific expertise to meet the public education program goals, objectives and identified community risks.

It is recommended the agency develop the capacity to disseminate relevant and timely information to the public.

5B.3   The agency conducts a formal and documented appraisal, at least annually, to determine the impacts of the public education program and its efforts in risk reduction based on community assessment, standards of cover, and measures performance.

It is recommended the agency expand the use of data analysis in its formal program appraisals and decision making. This recommendation also applies to the following core competencies: 5C.5 (Fire Investigation, Origin and Cause Program).

Criterion 5C: Fire Investigation, Origin and Cause Program

Core Competency

5C.3   The program has sufficient staff with specific expertise to meet the fire investigation, origin, and cause program goals, objectives, and identified community risks.

It is recommended the agency increase the number of certified investigators from among existing members and evaluate success of the program in order to meet the goals of the agency.

Criterion 5H: Hazardous Materials (Hazmat)

Core Competency

5H.1   Given the agency's standards of cover and emergency deployment objectives, the agency meets its staffing, response time, station(s), apparatus, and equipment deployment objectives for each type and magnitude of hazardous materials incident(s).

It is recommended the agency identify and incorporate a method for capturing times from the hazmat authority into the agency's data in order to capture effective response force (ERF) for high-risk hazardous materials incidents in the city.

Criterion 5K: Wildland Fire Services

Core Competency

5K.4   The agency conducts or participates in a wildland fire training and certification/qualification program that meets wildland fire services operational needs and complies with local, state/provincial, and national/international standards.

It is recommended the agency determine the level of training and number of education hours appropriate for the level of wildland fire risk in the community.

Category VI – Physical Resources
Criterion 6B: Fixed Facilities

Core Competency

6B.3   Facilities comply with federal, state/provincial, and local codes and regulations at the time of construction, required upgrades for safety are identified, and where resources allow, addressed. For those items that warrant further attention a plan for implementation is identified in the agency's long term capital improvement plan (i.e. fire alarm systems, sprinkler system, seismic, vehicle exhaust system, asbestos abatement, etc.)

It is recommended the agency and facility asset management (FAM) work to ensure all facilities meet current life safety expectations found in nationally accepted codes and standards.

Criterion 6F: Safety Equipment

Core Competency

6F.1   Safety equipment is identified and distributed to appropriate personnel.

It is recommended the agency assess the efficacy of the current distribution of wildland personal protective ensemble (PPE) for only on duty personnel.

Category IX – Essential Resources
Criterion 9B: Communication Systems

Core Competency

9B.10 A formal and documented appraisal is conducted, at least annually, to determine the effectiveness of the emergency communications system and its impact of meeting the agency's goals and objectives.

It is recommended the agency share its formal appraisal format with the staff of Boulder Police and Fire Communications Center (BPFCC) to assist them in the development of a formal process that measures overall performance.

Category X – External Systems Relationships
Criterion 10B: External Agency Agreements

Core Competency

10B.1 External agency agreements are reviewed on an annual basis and revised as necessary to meet objectives.

It is recommended the agency establish a service level agreement with Boulder Police and Fire Communications (BPFCC) that includes, but is not limited to, service expectations, performance measures, data access, support of deployment changes based on community risk, access for periodic in-center observation by a fire agency representative, and quarterly meetings to review agreed performance metrics.

Specific recommendations were developed from the appraisal of performance indicators in each of the ten categories.

Category II – Assessment and Planning
Criterion 2C: Current Deployment and Performance

Performance Indicator

2C.3   Fire protection systems and detection systems are identified and considered in the development of appropriate response strategies.

It is recommended the agency consider the presence of fire protection systems in the development of appropriate response strategies.

Criterion 2D: Plan for Maintaining and Improving Response Capabilities

Performance Indicator

2D.9   On at least an annual basis, the agency formally notifies the AHJ of any gaps between current capabilities, capacity, and the level of service approved by the AHJ.

It is recommended the agency be provided opportunities to deliver presentations directly to the authority having jurisdiction (AHJ) that facilitates further discussions and planning efforts between the agency and the AHJ.

Category V – Programs
Criterion 5F: Emergency Medical Services (EMS)

Performance Indicators

5F.6   The agency has a quality improvement/quality assurance program (QI/QA) in place to improve system performance and patient outcomes.

It is recommended the agency create an internal quality improvement/quality appraisal (QI/QA) process that reviews the medical care provided by BFR personnel and identifies opportunities for improvement.

5F.8   The agency has developed a plan or has already implemented a cardiopulmonary resuscitation (CPR) and public access defibrillation program for the community.

It is recommended the agency initiate a program that provides for community CPR-Automatic External Defibrillation (AED) instruction and establish a public access defibrillation program that includes early community notification of cardiac arrest events in public places.

Criterion 5G: Technical Rescue

Performance Indicator

5G.2   The agency establishes minimum training and operational standards; compliant with local, state/provincial, and national standards, and that all personnel who function in the technical rescue program meet training and operational standards.

It is recommended the agency establish minimal training standards for the technical rescue program.

Category VI — Physical Resources
Criterion 6B: Fixed Facilities

Performance Indicators

6B.1   Each function or program has adequate facilities and storage space (e.g., operations, community risk reduction, training, support services, and administration).

It is recommended the agency and city take the steps necessary to ensure the storage space used for safety equipment is secure, dry, heated and protects equipment from damage by vermin that can have an impact on the overall operations of the agency.

6B.2   Buildings and outbuildings are clean and in good repair, and the surrounding grounds are well kept. Maintenance is conducted in a systematic and planned manner.

- It is recommended the agency work with the facility asset management (FAM) division to develop an agreed process that allows the agency access to the FAM records management system (RMS) for the purpose of tracking agency-initiated work orders.

- It is recommended the agency develop a directive, guideline, or policy that ensures housekeeping is conducted in the same manner across all shifts and facilities.

Category IX – Essential Resources
Criterion 9B: Communication Systems

Performance Indicator

9B.7   The agency has established time-based performance objectives for alarm handling. These objectives are formally communicated to communications center managers through direct report, contracts, service level agreements, memorandums of agreement, etc.

It is recommended that Boulder Police and Fire Communications Center (BPFCC) formally adopt a time-based performance objective for alarm handling for fire and emergency medical services (EMS) requests.

9B.11   The dispatch process utilizes a formal and recognized Emergency Medical Dispatch (EMD) system that allows for pre-arrival instructions and adequate triaging of medical calls for service.

- It is recommended the agency share the alarm handling data it develops to aid the emergency medical dispatch (EMD) program manager in assessing the efficacy of the program.

- It is recommended the agency work with the emergency medical dispatch (EMD) program to identify opportunities to reduce EMD alarm handling times, such as modifying the interrogation process, and work with the medical director to implement those changes.

OBSERVATIONS

Category I — Governance and Administration

The city of Boulder is located northwest of Denver, Colorado at the base of the foothills of the Rocky Mountains. The city was incorporated on November 3, 1871 and in 1875 the Boulder Fire Department was formally established. Boulder is a home-rule city with a council-manager form of government. As a home rule municipality, Boulder has broad latitude in conducting its affairs, including the provision of public safety. A nine-member at-large elected city council sets city policies and appoints the city manager. Council members select one of the nine for one-year rotations as mayor. The city manager works with subordinate department directors to execute the city council's policy priorities.

The fire agency is managed by a fire chief appointed by the city manager. The organizational structure reflects and supports the agency's mission, goals, and objectives. Boulder Fire-Rescue (BFR) is divided into two divisions, each headed by a deputy chief: administrative support and operations. The deputy chiefs supervise program managers within their respective divisions.

The governing body and/or agency manager is legally established to provide general policies to guide the agency, approve programs and services, and appropriate financial resources. Title 2, Chapter 5 of the Boulder Municipal Code authorizes the fire agency to provide all-hazards prevention and response activities. It authorizes the fire chief and the fire agency without limitation to suppress and extinguish fires, provide rescue and emergency medical services, manage hazardous materials incidents, conduct fire prevention activities and fire inspections, and plan for and respond to disasters and emergencies. Annual approval of the agency's services and programs is provided through council adoption of the annual budget in October of each year.

BFR's primary governing documents are the city charter, the municipal code, the city manager's policies, and the collective bargaining agreement with Local 900 of the International Association of Fire Fighters (IAFF). The city's legal and human resources departments help ensure that the agency complies with all applicable state and federal workforce and intergovernmental laws. The agency demonstrated that it consistently complies with all applicable local, state, and federal government requirements.

The organizational structure aligns with or supports the agency's mission, purposes, goals, strategies, and objectives. The administrative support and operations divisions are each managed by a deputy chief, who in turn, supervises program managers for each of the agency's programs. Programs include training, wildland, hazardous materials, water rescue, community risk reduction, and safety. Managers of programs may be a company officer or chief officer, depending on the program in question.

In the last three years, a safety officer, fiscal administrative officer, medical director, and data analyst/project manager were added to better reflect the agency's size and complexity. A station captain program has been instituted to allow for managerial, budgeting, and decision making for stations at that level rather than wait for coordinated assistance from administration. The station captain program has worked very well, resulting in personnel at the station level taking ownership of their respective stations.

Category II — Assessment and Planning

Boulder Fire-Rescue (BFR) protects over $21 billion worth of property within the city limits, which encompasses 27 square miles of land and is surrounded by 71 square miles of open space and mountain parks protected by other fire agencies. BFR is a full-service fire agency, responding to more than 11,000 incidents annually. The agency provides fire and life safety education to preschool children, college students, senior citizens, and works with local businesses and organizations through a building inspection program and development plan reviews for fire code compliance.

BFR identifies and assesses the nature and magnitude of all hazards and risks within its jurisdiction. The methodology for assessing risks within the jurisdiction is documented in the agency's community risk assessment-standard of cover (CRA-SOC) document. The CRA-SOC is utilized as the primary planning document for evaluating the agency's deployment effectiveness and response performance.

The agency collects and analyzes data specific to the distinct characteristics of its legally defined service area(s) and applies the findings to organizational services and services development. BFR's service area consists of five planning zones. The agency groups buildings by similar risk levels, and then uses jurisdictional boundaries and major arterial roadways to determine planning zones. There are also 31 sub-zones within the five planning zones to aid in data analysis of specific areas. Additionally, the agency identifies risk assessment levels in each planning zone and sub-zone.

The agency utilizes census bureau data to determine population densities and obtain other demographic information. The city's population density is classified as urban. Population densities have also been determined by planning zone and mapped in the CRA-SOC. The agency utilizes population demographics, specifically age range, to identify vulnerable populations. Vulnerable populations include those who have a lesser ability to prepare for and recover from disaster, who are under the age of 5 and over 65, are living with a disability, have low education attainment, are economically disadvantaged, and/or experience language isolation.

The agency identifies and assesses the nature and magnitude of all hazards and risks within its jurisdiction. Risk categorization and deployment impacts consider such factors as cultural, economic, historical, environmental values, and operational characteristics. BFR collects and analyzes data specific to the distinct characteristics of its jurisdiction. The nature and magnitude of fire, medical, technical rescue, hazardous materials, and wildland fire hazards and risks are categorized and classified. Agency personnel assess each building in the jurisdiction to determine separation of buildings and construction type, life safety issues, access, extent of built-in fire protection systems, economic impact, building use, building height/size, and whether or not it's located in the wildland urban interface (WUI). Each of these is applied a numerical value, which are aggregated to determine the categorization of risk: low, moderate, high, and special.

The agency utilizes its risk assessment methodology to categorize the jurisdiction into risk assessment zones. A list of addresses within each planning zone and sub-zone and its corresponding risk assessment categorization is documented in the agency's CRA-SOC.

The agency identifies and documents the nature and magnitude of the service and deployment demands within its jurisdiction. Based on risk categorization and service impact considerations, the agency's deployment practices are consistent with jurisdictional expectations and with industry research. Efficiency and effectiveness are documented through quality response measurements that

consider overall response, consistency, reliability, resiliency, and outcomes throughout all service areas. The agency develops procedures, practices, and programs to appropriately guide its resource deployment.

BFR assigns a program manager to all of its programs, including emergency response programs. The agency holds quarterly program manager meetings to review program performance and measure it against service levels expected by the community. Corrective action is determined at these meetings when gaps in service are identified. Additionally, program managers are able to review response time performance monthly and can adjust response strategies as needed.

The agency closely monitors performance of each station and reports the information to the governing body and community through an on-line dashboard. Alarm handling, turnout, first-due and effective response force (ERF) travel, and first-due and ERF total response times are monitored to evaluate the quality of BFR's emergency response performance. Response time performance is published daily on the city's web-based open data catalog and monthly on the agency's MySidewalk-based fire performance dashboard.

A critical task analysis for each class and category of risk determines the resources necessary for first-due units and ERF. As part of the annual CRA-SOC update, revisions are identified that can impact the deployment of resources. BFR is a member of the ten-agency Boulder Valley Fire Consortium (BVFC) and is coordinating the alignment of deployments to be consistent with other BVFC agencies. The agency has discovered that it is often sending too many resources to certain incidents because deployments are not modified by the Boulder Police and Fire Communications Center (BPFCC) based on the level of risk. For example, whether a fire incident involves a moderate-risk or high-risk building, the response is the same. It is recommended the agency and the communications center adjust the deployment of resources to match the level of risk.

BFR measures and documents in its CRA-SOC three components that make up total response time: alarm handling, turnout, and travel. The agency's practice is to document alarm handling as the time interval from when the alarm is acknowledged at the primary public safety answering point (PSAP) until the beginning of the transmission of response information via voice or electronic means to emergency response facilities or the emergency response units in the field. Turnout time is the measure from transmittal of response information to when the unit is enroute to the scene of the incident. Travel time is from the time the unit is enroute to the scene to the time it arrives at the scene of the incident.

Response time benchmarks have been established by the agency and performance is monitored and documented daily, weekly, quarterly, and annually. Daily turnout reports are sent to command staff via e-mail to identify incidents that require immediate follow-up with crews. Performance measures are documented, and gaps are identified in quarterly program appraisals and reviewed at quarterly program manager meetings. Annual performance since 2016 is documented and updated annually in the agency's CRA-SOC.

Though the agency assesses commercial buildings for the presence and extent of fire protection and detection systems, these systems are not considered in determining the appropriate deployment of resources. It is recommended the agency consider the presence of fire protection systems in the development of appropriate response strategies.

The agency has assessed and provided evidence that its current deployment methods for emergency services appropriately address the risk in its service area. Its response strategy has evolved to ensure that its deployment practices have maintained and/or made continuous improvements in the effectiveness, efficiency, and safety of its operations, notwithstanding any outside influences beyond its control. The agency has identified the impacts of these outside influences to the authority having jurisdiction.

Baseline and benchmark response times are documented in the agency's CRA-SOC and are based on an urban population density. Benchmarks establish the agency's goals for alarm handling, turnout, travel, and total response times. The agency compares its current performance (baselines) to its benchmarks. When significant deviations are noted, the data and analytics project manager provides additional review and analysis to determine the probable cause and recommends corrective action.

The agency analyzes the city's population trends, housing trends, and non-residential development growth annually. The CRA-SOC is updated with this information and used for planning purposes. The Boulder Valley Comprehensive Plan includes the city's Urban Service Criteria and Standards, which are a prerequisite for new urban development. The standards provide a basis for linking the phasing of growth to the planned provision of a full range of urban services, including fire protection and emergency response.

The agency identifies performance gaps quarterly with program appraisals and program manager meetings. Response times are evaluated monthly and turnout times are evaluated daily. Review and documentation of performance gaps are found in the CRA-SOC, which is updated annually.

A continuous improvement plan was instituted by the agency in 2018. The plan includes the establishment of quarterly reporting of program performance measures to identify gaps and take corrective action. The plan also incorporates performance-based budgeting practices, which is based on the relationship between program funding levels and expected outcomes from that program.

The agency submits a council action guide (CAG) annually to the city council to inform them of gaps that prevent BFR from providing the level of service approved by the authority having jurisdiction (AHJ). This one-way communication process is not conducive to triggering further discussions and planning efforts between the agency and the AHJ. It is recommended the agency be provided opportunities to deliver presentations directly to the authority having jurisdiction (AHJ) that facilitates further discussions and planning efforts between the agency and the AHJ.

Category III — Goals and Objectives

Boulder Fire-Rescue (BFR) refers to its strategic plan as a "master plan." The master plan is the primary document governing the agency's activities and priorities. The latest version was completed in December 2019 and has a five-year planning window. The plan is linked to the budget and is the highest level of guidance consulted during annual budget development.

The agency ensures that the mission, vision, and values are incorporated into the master planning process through involvement of the city's elected officials, executive city staff, and fire agency members. In addition, resident feedback was an integral part of the process of building relevant goals and objectives. Program managers within the agency manage goals and objectives of their respective programs and report progress quarterly and annually.

The agency has established general goals and specific objectives that direct the agency's priorities in a manner consistent with its mission and appropriate for the community it serves. The agency's master plan was published in December of 2019 and will be updated every five years. Prior to publication, the plan was reviewed by the master plan executive steering committee and the city's master plan committee, and then forwarded to the city manager's office for review to ensure it accurately reflected the agency's and city's missions. Finally, the plan was reviewed and accepted by the city council. The plan is available electronically and in print.

The agency's general goals and specific objectives direct its priorities in a manner consistent with its mission and appropriate for the community it serves. The agency's strategic plan contains overarching goals with corresponding objectives. The plan considers industry and community trends, including an aging population, rising demand for emergency medical services (EMS), increasing risk of wildfire, and an increasingly built-up urban environment.

The agency uses a management process to implement its goals and objectives. BFR utilizes a program-based budgeting framework to ensure that agency goals and objectives are managed, and progress tracked at the program level. Each program manager is delegated the responsibility of overseeing their assigned program areas and ensuring that goals and objectives are accomplished through specific, quantifiable performance measures for each program.

Overall plan accomplishment is the responsibility of the fire chief. High level goals are assigned to one of the two deputy chiefs who assign program level objectives to program managers. Program managers lead implementation of goals and objectives. Quarterly program manager meetings are held to review progress and assess the effectiveness of programs.

Processes are in place to measure and evaluate progress towards completion of specific objectives and overall system performance. The goals and objectives are re-examined and modified periodically. BFR utilizes quarterly program managers' meetings and the annual budget preparation process to examine and modify goals and objectives outlined in the master plan. During quarterly meetings, program managers, along with the executive team of the agency review program performance and accomplishments. The city's budget process requires departments to request funding through the lens of the strategic plan.

Program manager appraisals assess administrative and operational processes for change or modification in order to increase efficiency towards aiding program achievement of organizational objectives. The agency also uses response time performance measures and program-based budgeting to help identify necessary improvements in administrative support and operational processes.

Category IV — Financial Resources

The city of Boulder funds Boulder Fire-Rescue (BFR) operations and capital investment through a series of restricted funds that designate revenues and expenditures for specific voter-approved purposes. BFR and the city of Boulder conduct financial and resource allocation planning. The finance office determines the city's projected economic and financial condition for the upcoming budget year and governs long-term strategic and financial goals with input from the agency.

At the agency level, financial and resource planning is program-based. The budget is separated into areas of primary responsibility and nineteen individual budget programs. Each program has goals, objectives, and performance measures that align with the goals and objectives outlined in the

agency's master plan and community risk assessment-standards of cover (CRA-SOC). The annual budget is used as a tool to address priorities and meet goals as set by the community and enacted by city council. The budget is in alignment with long-term financial strategies and takes into consideration changing economic and financial conditions.

Agency planning involves broad staff participation that includes financial planning and resource allocation. The agency's plan for financing reflects sound strategic planning and a commitment to its stated goals and objectives. The agency deems financial support for programs and services adequate to maintain the quantity and quality of personnel and other operational costs.

The city's central budget office establishes and oversees budget preparation guidelines, policies, and calendar. A budgeting module in the city's financial enterprise system functions as the budget and transactional record for operating and capital budgeting. Budgeting policies, guidelines, and calendars are clearly articulated to BFR, and cohesively ensure that budgets are developed in accordance with the Boulder revised code, Colorado regulatory requirements, and the city's strategic and budget action plans.

Financial management of the agency exhibits sound budgeting and control, proper recording, reporting, and auditing. The peer assessment team confirmed that the city is in receipt of the most currently available Certificate of Achievement for Excellence in Financial Reporting (certificate) from the Government Finance Officers Association of the United States and Canada (GFOA) for its Comprehensive Annual Financial Report (CAFR). The agency has submitted its most recent GFOA certificate and CAFR as prima facie compliance with this criterion.

Financial resources are appropriately allocated to support the established organizational mission, the stated long-term plan, goals and objectives, and maintain the quality of programs and services. Despite recent reductions in the agency's budget and conservative fiscal management, the agency is maintaining adopted levels of service. In addition to budget reductions in 2018 and 2019 the city has adopted a more robust revenue projection method. Some of the agency's expense controls have included consolidation of some administrative functions and streamlining duplicated functions. The agency is also evaluating the need to put a tax increase on the ballot to ensure adequate funding for essential public services.

Category V — Programs

Criterion 5A – Community Risk Reduction Program

Boulder Fire Rescue's (BFR) Community Risk Reduction (CRR) Division consists of the chief fire marshal, deputy fire marshal, two fire inspectors, one fire protection engineer, two fire and life safety educators and one administrative assistant. The CRR division is responsible for the enforcement of the adopted fire code, issuing construction permits for new and remodeled fire protection systems, and conducting final acceptance tests of new or remodeled fire protection systems.

The agency operates an adequate, effective, and efficient program to manage community risks as identified in the community risk assessment and standards of cover. The approach is comprehensive and includes both prevention and mitigation strategies such as life safety, hazard risk reduction, plan review, code compliance, and the detection, reporting and control of fires.

The city follows the 2012 International Fire Code (IFC), International Building Code (IBC), International Mechanical Code (IMC), International Plumbing Code (IPC), International Residential Code (IRC), and International Wildland Urban Interface Code (IWUIC). Previous code updates took place in 1988, 1991, 1994, 1997, 2003, and 2006. In cooperation with the chief building official, recommendations are made to city council for adoption of all codes as a set. Input for IFC adoption, with amendments, is given by the chief fire marshal. Upon approval by city council, the adopted fire code is codified as a municipal ordinance. Currently, the agency is working through the process to adopt the 2018 codes with amendments. Final approval is expected by the city council in December 2019 and implementation on April 1, 2020.

All development and construction documents are reviewed and approved, and permits issued, for any work that involves fire protection systems. Inspections are conducted on permitted work at various stages of construction and enforcement is based on the adopted fire code.

Existing buildings are inspected by an engine company officer, a fire code inspector, or deputy fire marshal. Frequency of inspections varies depending on the type of occupancy and the level of risk associated with the building. Buildings that are considered to be high hazard (large square footage or occupant load, hospitals, education facilities, and fraternal occupancies) are inspected annually. Lower risk occupancies, such as business and mercantile, are inspected every other year.

Properties that have identified deficiencies are sent a notification of the issues within 24 hours of the inspection. CRR has experienced a 95 percent success rate with the initially mailed violation notice. Follow-up of engine company inspections are handled by a fire inspector or fire marshal.

Staffing for the program consists of the chief fire marshal, deputy fire marshal, two fire code inspectors, two life safety educators, and one fire protection engineer. The two life safety educators and the fire protection engineer are civilian employees in the agency. The chief fire marshal, deputy fire marshal, fire code inspectors, and fire protection engineer may also serve as fire investigators. Staff has observed that the workload in these programs has been increasing in recent years, with both development activity and the demand for public education services increasing.

The peer team has verified and validated that the agency has established the framework for formal and documented appraisals. Program managers are asked to define the CRR mission and goals and develop performance measures for their program. In April 2019, the first formal program appraisal for each program area was completed. The process in place going forward is to complete a program appraisal quarterly. Measures tracked in quarterly appraisals include reducing fire code violation-to-remedy time by 10 percent and increasing inspections of hood and sprinkler systems by 5 percent.

Criterion 5B – Public Education Program

Boulder Fire-Rescue (BFR) has a public education program that focuses on young children, car seat installations, and University of Colorado students. The program is staffed by two dedicated civilian personnel and augmented by sworn personnel. The agency conducted over 130 car seat inspections in 2019 and had almost 3,100 total contacts related to public education with individuals in the community.

A public education program is in place and directed toward reducing specific risks in a manner consistent with the agency's mission and as identified within the community risk assessment-standards of cover (CRA-SOC). BFR utilizes demographics to develop public education programs for

specific at-risk populations. Two programs target the student population at the University of Colorado: the Resident Advisor (RA) Academy and the Greek Leadership Fire Academy. The agency also targets children from pre-K to third grade. BFR has limited data to help identify specific risks, behaviors, and audiences or to determine the effectiveness of its programs.

The agency has two full-time public safety educators supplemented with on and off duty sworn suppression personnel. They are currently meeting the needs of the agency; however, to expand programs and develop personnel, additional resources are required. BFR recognizes the need for continuing education for life safety educators and staff that supplement them to increase their expertise. The agency has struggled to release information and safety messages to the public that is relevant and timely and has identified this as a critical shortcoming. It is recommended the agency develop the capacity to disseminate relevant and timely information to the public.

BFR has recently started appraising the public education program and its impact on community risk reduction. Program appraisals are conducted quarterly and include an overview (budget, year-to-date expenditures, and responsible staff), agency goals and objectives related to the program, inputs (resources) committed, outputs, outcomes, previous and current quarter accomplishments, and plans for the next quarter. It is recommended the agency expand the use of data analysis in its formal program appraisals and decision making.

Criterion 5C – Fire Investigation, Origin and Cause Program

Boulder Fire-Rescue (BFR) is the authority having jurisdiction (AHJ) for investigating fire origin and cause. Investigations are initiated at the engine company level. If a company officer is unable to determine cause and origin, a fire investigator is requested. The lead investigator is the fire marshal and is supported by three other investigators. BFR works closely with Boulder Police Department (BPD) for assistance with the criminal aspect of fire investigations.

The agency operates an adequate, effective, and efficient program directed toward origin and cause investigation and subsequent classification of fires, explosions, and other emergency situations that endanger life or property.

BFR is authorized by the Boulder Revised Code, Section 10-8-2. This code gives the fire code official the authority to investigate all fires that occur in the city limits. Program guidelines are contained in an operational directive, *Investigation Origin and Cause*, Series 2700.

BFR utilizes National Fire Protection Association 921, *Guide for Fire and Explosion Investigations*, (NFPA 921) and NFPA 1033, *Standard for Professional Qualifications for Fire Investigators*. Compliance with these standards provide a consistent approach using the scientific method for investigation of fire cause and origin.

The agency has four investigators working during regular business hours (Monday through Friday). They share and rotate on-call responsibility. BFR has two investigators who have attended the National Fire Academy Fire and Arson Investigation course and one Certified Fire and Explosion Investigator (CFEI). It is recommended the agency increase the number of certified investigators from among existing members and evaluate success of the program in order to meet the goals of the agency.

BFR recently started appraising the fire investigation, cause and origin program and its impact on community risk reduction. The program appraisal includes: quarterly investigation count, time of

arrival for investigator, and conclusions from each quarter. Data availability for appraising the program is limited. It is recommended the agency expand the use of data analysis in its formal program appraisals and decision making.

Criterion 5D – Domestic Preparedness, Planning and Response

The Boulder Office of Emergency Management (OEM) manages an all-hazards preparedness program. OEM maintains multi-agency plans for mitigation, preparedness, response, and recovery from disasters. OEM analyzes the effectiveness of plans through table-top drills, exercises, and online web EOC activations.

The agency operates an all-hazards preparedness program that includes a coordinated multi-agency response plan designed to protect the community from terrorist threats or attacks, major disasters, and other large-scale emergencies occurring at or in the immediate area.

OEM operates as a combined county and city department. The office reports to a board consisting of stakeholders. OEM publishes a hazard mitigation plan (HMP) every five years and emergency operations plan (EOP) every three years. The last HMP was published 2018. The current EOP was published in 2016 and will be updated in 2020. Both plans clearly define roles and responsibilities of participating agencies and are comprehensive for an all-hazards approach to emergency management.

Criterion 5E – Fire Suppression

Boulder Fire-Rescue (BFR) responds from seven fire stations using automatic vehicle location (AVL) for closest unit dispatching. Apparatus is distributed throughout the city; front-line equipment is as follows: four engines, two quints (75' straight), one 105' ladder, and one battalion chief's truck. A daily minimum staffing of 25 is maintained on each shift. Staffing has historically proven to be adequate and effective for the mitigation of fire incidents. Operating directives, policy and procedures, and the incident command system (ICS) form the basis for fire extinguishment operations.

The agency operates an adequate, effective, efficient, and safe fire suppression program directed toward controlling and/or extinguishing fires to protect people from injury or death and reduce property loss.

The agency uses ICS at all incidents for which it has management responsibility. All members are trained in the National Incident Management System (NIMS) and are required to maintain a minimum certification level of NIMS 100, *Introduction to the Incident Command System*; NIMS 200, *Basic Incident Command System for Initial Response*; and NIMS 700, *An Introduction to the National Incident Management System*. All job descriptions include requirements for NIMS certification based on the current position and rank within the agency.

The agency also uses the Blue Card Hazard Zone Incident Commander certification program (BCHZ) as an ICS training, certification, and evaluation platform for all supervisory ranks. All officers and acting officers are required to complete the initial BCHZ certification program which consists of a combination of online didactic instruction and simulation labs. Additionally, each certified member must meet annual continuing education and simulation training requirements to re-certify as BCHZ Type IV/V incident commanders. All mutual aid partners within the county use BCHZ which

provides seamless integration of the ICS system for all mutual and automatic aid incidents, as well as training evolutions.

BFR established the framework for formal and documented appraisals in 2018. Program managers are asked to define the program's mission and goals and develop performance measures. In April 2019, the first formal appraisal for each program was completed. The process in place going forward is to complete a program appraisal quarterly.

The agency's response and deployment standards are based upon the urban population density, and the fire suppression demands of the community. Seven fire stations provide citywide coverage; agency staffing is based upon station location, incident type, and frequency. The targeted service level objectives in the standards of cover benchmark statements are based on industry standards and with community expectations, as identified earlier in this report in Category II – Assessment and Planning. The objectives have been approved and adopted by agency management and the city council. The benchmark service level objectives are as follows:

> For 90 percent of all fire suppression incidents, the total response time for the arrival of the first-due unit, staffed with 2 firefighters and 1 officer, shall be: 6 minutes. The first-due unit shall be capable of: providing 500 gallons of water and 1,500 gallons per minute (gpm) pumping capacity; initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 gpm; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations shall be done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

> For 90 percent of all moderate-risk fire suppression incidents, the total response time for the arrival of the effective response force (ERF), staffed with 19 personnel shall be: 8 minutes. The ERF shall be capable of: establishing incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment with a minimum of one member dedicated to this task; establishing a safety officer and emergency medical services (EMS) crew; establishing an uninterrupted water supply of a minimum of 1,000 gpm with supply lines maintained by the driver/operator; establishing an effective water flow application rate of 300 gpm from two hand-lines, each of which has a minimum flow rate of 150 gpm with each hand-line operated by a minimum of two members; one team of two members conducting search and rescue; at least one team of two members to raise ground ladders and perform ventilation; establishing an on-deck crew consisting of a minimum of three members; and if an aerial device is used in operations, one member to function as an aerial operator to maintain primary control of the aerial device at all times.

> For 90 percent of all high-risk fire suppression incidents, the total response time for the arrival of the ERF, staffed with 19 personnel shall be: 8 minutes. The ERF shall be capable of: establishing incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment with a minimum of one member dedicated to this task; establishing a safety officer and EMS crew; establishing an uninterrupted water supply of a minimum of 1,000 gpm with supply lines maintained by the driver/operator; establishing an effective water flow application rate of 300 gpm from two hand-lines, each of which has a minimum flow rate of 150 gpm with each hand-line operated by a minimum of two members; one team of two members conducting search and rescue; at least one team of two members to raise ground ladders and perform ventilation; establishing an on-deck crew consisting of a

minimum of three members; and if an aerial device is used in operations, one member to function as an aerial operator to maintain primary control of the aerial device at all times.

The agency's baseline statements reflect actual performance during 2016 to 2018. The agency does not rely on the use of automatic aid from neighboring fire departments to provide its effective response force complement of personnel. The actual baseline service level performance is as follows:

For 90 percent of all moderate-risk fire suppression incidents, the total response time for the arrival of the first-due unit, staffed with 2 firefighters and 1 officer, is: 7 minutes and 2 seconds in urban areas. The first-due unit is capable of: providing 500 gallons of water and 1,500 gpm pumping capacity; initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 gpm; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all high-risk fire suppression incidents, the total response time for the arrival of the first-due unit, staffed with 2 firefighters and 1 officer, is: 7 minutes and 5 seconds in urban areas. The first-due unit is capable of: providing 500 gallons of water and 1,500 gpm pumping capacity; initiating command; requesting additional resources; establishing and advancing an attack line flowing a minimum of 150 gpm; establishing an uninterrupted water supply; containing the fire; rescuing at-risk victims; and performing salvage operations. These operations are done in accordance with departmental standard operating procedures while providing for the safety of responders and the general public.

For 90 percent of all moderate-risk fire suppression incidents, the total response time for the arrival of the ERF, staffed with 19 personnel is: 21 minutes and 57 seconds. The ERF is capable of: establishing incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment with a minimum of one member dedicated to this task; establishing a safety officer and EMS crew; establishing an uninterrupted water supply of a minimum of 1,000 gpm with supply lines maintained by the driver/operator; establishing an effective water flow application rate of 300 gpm from two hand-lines, each of which has a minimum flow rate of 150 gpm with each hand-line operated by a minimum of two members; one team of two members conducting search and rescue; at least one team of two members to raise ground ladders and perform ventilation; establishing an on-deck crew consisting of a minimum of three members; and if an aerial device is used in operations, one member to function as an aerial operator to maintain primary control of the aerial device at all times.

For 90 percent of all high-risk fire suppression incidents, the total response time for the arrival of the ERF, staffed with 19 personnel is: 22 minutes and 6 seconds. The ERF is capable of: establishing incident command outside of the hazard area for the overall coordination and direction of the initial full alarm assignment with a minimum of one member dedicated to this task; establishing a safety officer and emergency medical services (EMS) crew; establishing an uninterrupted water supply of a minimum of 1,000 gpm with supply lines maintained by the driver/operator; establishing an effective water flow application rate of 300 gpm from two hand-lines, each of which has a minimum flow rate of 150 gpm with each hand-line operated by a minimum of two members; one team of two members conducting search and rescue; at least one team of two members to raise ground ladders and perform ventilation; establishing

an on-deck crew consisting of a minimum of three members; and if an aerial device is used in operations, one member to function as an aerial operator to maintain primary control of the aerial device at all times.

The team also reviewed the available 2019 response time data and confirmed it is consistent with the provided information for 2016-2018.

Fire Moderate Risk 90th Percentile Times Baseline Performance			2016-2018	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	1:38	1:38	1:38	00:58
Turnout Time	Turnout Time 1st Unit	Urban	2:03	2:23	1:46	1:33
Travel Time	Travel Time 1st Unit **Distribution**	Urban	5:03	5:06	4:50	4:20
	Travel Time ERF **Concentration**	Urban	12:35	14:14	10:03	8:07
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	7:02	7:33	6:50	5:40
			N=16	N=6	N=5	N=5
	Total Response Time ERF **Concentration**	Urban	21:57	18:32	17:03	26:21
			N=16	N=6	N=5	N=5

Fire High Risk 90th Percentile Times Baseline Performance			2016-2018	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	1:14	1:08	1:23	0:56
Turnout Time	Turnout Time 1st Unit	Urban	1:50	1:25	1:49	1:32
Travel Time	Travel Time 1st Unit Distribution	Urban	4:07	4:05	4:00	2:24
	Travel Time ERF Concentration	Urban	9:48	6:06	11:59	5:44
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	7:05	6:28	6:24	4:31
			N=12	N=4	N=6	N=2
	Total Response Time ERF Concentration	Urban	22:06	20:40	18:33	10:22
			N=12	N=4	N=6	N=2

Criterion 5F – Emergency Medical Services (EMS)

Boulder Fire-Rescue (BFR) provides non-transport basic life support (BLS) services to the citizens and visitors of the city. Over 80 percent of all BFR calls are related to emergency medical services (EMS). BFR plays an active role in caring for these patients and is an important first piece of the system's response model.

Chapter 5 of the Boulder Municipal Code vests "the provision of rescue and emergency medical services" with the fire agency. To discharge this assignment, BFR uses a system of BLS and advanced life support (ALS) response/patient transport. All sworn field personnel are required to maintain minimum certifications as firefighter and emergency medical technician (EMT). BLS operations are provided from seven fire apparatus (four engines, two quints, and one ladder company), as well as one battalion chief's unit.

The second level of EMS response in Boulder are ambulances staffed with one EMT-Basic and one EMT-Paramedic. ALS is subcontracted to American Medical Response (AMR), a licensed, third-party provider. Every one to five years the contract for ALS care and transport is renegotiated. All revenue generated through patient billing goes to the third-party provider to pay for operations. Furthermore, the city pays an additional "living wage" subsidy of $535,000 to AMR to continue operating in Boulder.

National standards and BFR's community risk assessment-standards of cover (CRA-SOC) document establishes staffing, apparatus, and response time performance goals. Therefore, the contract between AMR and BFR requires the ambulance company to meet minimum response standards. AMR is out of compliance when an ALS ambulance is not on scene within 11 minutes total response time.

Monthly reports are sent to BFR to review and confirm compliance with response standards as set forth in the contract.

The agency operates an EMS program with a designated level of out-of-hospital emergency medical care that meets the needs of the community. The Code of Colorado Regulations (specifically 6 CCR 1015-3, Chapter 2, *Rules Pertaining to EMS Practice and Medical Director Oversight*) establishes the scope of practice for EMS providers. Colorado's Department of Public Health and Environment regulates provider compliance with 6 CCR 1015-3. Protocols are initially developed and approved annually by the Denver Metro EMS Medical Directors (DMEMSMD) group. They are further revised by the Boulder County Protocol Committee and Boulder County EMS Physicians to meet the specific needs of Boulder County EMS providers. Protocols define the standard of care for EMS providers in Boulder County and establish the expected practice, actions, and procedures to be followed.

On-line medical control is provided through the on-duty emergency department physician at Boulder Community Health (BCH). Field personnel can employ on-line control if they have questions or issues surrounding patient care in the field. The need for on-line control is outlined in the county EMS protocols. Access to on-line medical control is through direct telephone contact on a recorded line. As a secondary means of communication, BCH may be accessed via radio. Off-line medical control is provided by BFR's medical director through pre-authorized standing orders.

BFR uses its records management system (RMS) to produce an electronic patient care report (ePCR). The RMS ePCR meets Colorado's EMS data collection requirements but is not compliant with the National EMS Information System (NEMSIS). The RMS system is used internally and restricted from public access and viewing.

The agency does not meet the definition of a covered entity as defined by the Health Insurance Portability Act (HIPAA) because it does not bill for EMS or transmit medical information electronically in connection with a transaction. However, the agency restricts personal health information (PHI) to those identified in HIPAA as having a legal need. Electronic patient records are password protected and cannot be printed without an additional password.

In 2018, BFR developed a process for formal and documented appraisals of its programs. The first EMS program appraisal was in April 2019 and is conducted quarterly. EMS program appraisals include an overview (budget, year-to-date expenditures, responsible staff), agency goals and objectives related to the program, inputs (resources) committed, outputs, outcomes, previous and current quarter accomplishments, and plans for the next quarter. The agency reports that quarterly program appraisals have brought additional awareness to program managers about the importance of data management and performance measures.

The agency does not have a formal quality improvement/quality assurance program (QI/QA) in place. Patient care reports are reviewed to ensure completion by a battalion chief in the RMS. BFR has relied on AMR and BCH for QI/QA. The agency's medical director evaluates patient contacts in coordination with AMR. Alerts and emergent concerns by BCH are evaluated by its EMS outreach coordinator. If issues are noted, BFR's medical director is contacted directly. It is recommended the agency create an internal quality improvement/quality assurance (QI/QA) process that reviews the medical care provided by agency personnel and identifies opportunities for improvement.

Community cardiopulmonary resuscitation (CPR) instruction is provided by AMR and BFR upon request, but there are no regularly scheduled classes. Hands-only CPR is provided annually during

World CPR Day. The agency also does not have a public access defibrillation program in place. The agency has attempted to connect the community to PulsePoint, which notifies registered users and certified providers (off-duty emergency responders) of cardiac arrest events occurring in a public place if an individual is within a specified distance from the event. However, the current computer aided dispatch (CAD) system at Boulder Police and Fire Communications Center (BPFCC) has not been integrated with the notification service. Extensive research has shown that early CPR and external defibrillation are most critical in maximizing survivability of victims of cardiac arrest. It is recommended the agency initiate a program that provides for community CPR-Automatic External Defibrillation (AED) instruction and establish a public access defibrillation program that includes early community notification of cardiac arrest events in public places.

The agency's response and deployment standards are based upon the urban population density and the emergency medical demands of the community. Seven fire stations provide citywide coverage; agency staffing is based upon station location, incident type, and frequency. The targeted service level objectives in the standards of cover benchmark statements are based on industry standards and with community expectations, as identified earlier in this report in Category II – Assessment and Planning. The objectives have been approved and adopted by fire agency management and the city council. The agency's benchmark service level objectives are as follows:

> For 90 percent of all EMS incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of 2 personnel, shall be: 6 minutes. The first-due BLS unit shall be capable of: providing incident command and producing related documentation; completing patient assessment; providing appropriate treatment; performing automatic external defibrillation (AED) operations; and initiating cardiopulmonary resuscitation (CPR).

> For 90 percent of all moderate-risk EMS incidents, the total response time for the arrival of the effective response force (ERF), staffed with 5 personnel, shall be: 6 minutes. For moderate acuity incidents, a third-party ambulance is used to accomplish the ERF. During these events, there is a high likelihood the patient will need ALS intervention. The ALS unit shall be capable of providing appropriate treatment, providing intravenous (IV) access, and medication administration.

> For 90 percent of all high-risk EMS incidents, the total response time for the arrival of the ERF, staffed with 5 personnel, shall be: 8 minutes. For high acuity incidents, a third-party ambulance is used to accomplish the ERF. During these events, there is a high likelihood the patient will need ALS intervention. The ALS unit shall be capable of providing appropriate treatment, providing IV access, and medication administration.

The agency relies on AMR, a third-party provider, to complete the effective response force transport component of its EMS program. The initial arriving fire unit shall have the capabilities of providing first responder medical aid including AED, until the third-party provider arrives on scene. If the third-party provider unit arrives on scene first, its personnel shall initiate care and the staff from the initial fire unit shall provide support as needed.

The agency's baseline statements reflect actual performance during 2016 to 2018. The agency does not rely on the use of automatic aid or mutual aid from neighboring fire departments to provide its effective response force complement of personnel. The agency's actual baseline service level performance is as follows:

For 90 percent of all moderate-risk EMS incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of 2 personnel, is: 8 minutes and 12 seconds. The first-due BLS unit shall be capable of: providing incident command and producing related documentation, completing patient assessment, providing appropriate treatment, performing AED operations, and initiating CPR.

For 90 percent of all high-risk EMS incidents, the total response time for the arrival of the first-due unit, staffed with a minimum of 2 personnel, is: 7 minutes and 19 seconds. The first-due BLS unit shall be capable of: providing incident command and producing related documentation, completing patient assessment, providing appropriate treatment, performing AED operations, and initiating CPR.

For 90 percent of all moderate-risk EMS incidents, the total response time for the arrival of the ERF, staffed with 5 personnel, is: 10 minutes and 11 seconds. For moderate acuity incidents, a third-party ambulance is used to accomplish the ERF. During these events, there is a high likelihood the patient will need ALS intervention. The ALS unit shall be capable of providing appropriate treatment, providing IV access, and medication administration.

For 90 percent of all high-risk EMS incidents, the total response time for the arrival of the ERF, staffed with 5 personnel, is: 9 minutes and 4 seconds. For high acuity incidents, a third-party ambulance is used to accomplish the ERF. During these events, there is a high likelihood the patient will need ALS intervention. The ALS unit shall be capable of providing appropriate treatment, providing IV access, and medication administration.

The agency relies on AMR, a third-party provider, to complete the ERF component of its EMS program. The initial arriving fire unit has the capabilities of providing first responder medical aid including AED, until the third-party provider arrives on scene. If the third-party provider unit arrives on scene first, its personnel initiate care and the staff from the initial fire unit provide support as needed.

The team also reviewed the available 2019 response time data and confirmed it is consistent with the provided information for 2016-2018.

EMS Moderate Risk 90th Percentile Times Baseline Performance			2016-2018	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	2:54	3:12	3:08	3:00
Turnout Time	Turnout Time 1st Unit	Urban	1:50	1:38	1:40	1:377
Travel Time	Travel Time 1st Unit **Distribution**	Urban	4:43	4:55	4:40	4:41
	Travel Time ERF **Concentration**	Urban	6:31	6:58	6:30	6:30
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	8:12	8:09	8:01	7:53
			N=8253	N=2921	N=3015	N=2317
	Total Response Time ERF **Concentration**	Urban	10:11	10:20	9:59	9:59
			N=8253	N=2921	N=3015	N=2317

EMS High Risk 90th Percentile Times Baseline Performance			2016-2018	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	2:26	2:13	2:39	2:14
Turnout Time	Turnout Time 1st Unit	Urban	1:36	1:34	1:34	1:39
Travel Time	Travel Time 1st Unit **Distribution**	Urban	4:37	4:33	4:47	4:28
	Travel Time ERF **Concentration**	Urban	6:19	6:10	6:33	5:04
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	7:19	6:59	7:27	7:10
			N=204	N=65	N=70	N=69
	Total Response Time ERF **Concentration**	Urban	9:04	8:23	9:47	8:00
			N=204	N=65	N=70	N=69

Criterion 5G – Technical Rescue

Boulder Fire-Rescue (BFR) has adequate equipment and personnel capable of handling technical rescue incidents. Dive, ice, and swift water disciplines of the program are well established, while trench rescue capabilities are still being enhanced via training and equipment acquisition. All members participate in ongoing basic levels of training for structural collapse, trench and excavation, confined space, and rope rescues. Several members have extensive backgrounds and training in specialized rescue disciplines.

The agency is working with its partners in the Boulder Valley Fire Consortium (BVFC) to build a defined technical rescue response model across the consortium area for structural collapse, confined space, trench/excavation collapse, and rope rescue incidents.

The agency operates an adequate, effective, efficient, and safe program directed toward rescuing trapped or endangered persons from any life-endangering cause (e.g., structural collapse, vehicle accidents, swift water or submersion, confined space, cave-in, trench collapse, fire).

In 2018, the agency began developing a framework for conducting quarterly formal and documented appraisals for the technical rescue program. During the development phase, the program manager defined the program's mission and goals and developed performance measures. The first formal program appraisal for technical rescue was conducted in April of 2019. The technical rescue quarterly appraisal process provides the agency a tool to determine the effectiveness of the program and progress towards meeting goals and objectives.

The agency has established operational standards and conducts technical rescue training on a regular basis. The training is consistent with the agency's goals and objectives; however, BFR has not established minimum training standards for the program. It is recommended the agency establish minimal training standards for the technical rescue program.

The agency's response and deployment standards are based on the urban population density, and the technical rescue demands of the community. Seven fire stations provide citywide coverage; agency staffing is based on station location, incident type, and frequency. The targeted service level objectives in the standards of cover benchmark statements are based on industry standards and with community expectations, as identified earlier in this report in Category II – Assessment and Planning. The objectives have been approved and adopted by agency management and the city council. The agency's benchmark service level objectives are as follows:

> For 90 percent of responses to all technical rescue incidents, the total response time for the first-due unit, staffed with 2 firefighters and 1 officer, shall be: 6 minutes. The first-due unit shall be capable of incident command and accessing the patient.

> For 90 percent of responses to moderate-risk technical rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 9 personnel, shall be: 8 minutes. The ERF shall be capable of providing incident safety, extrication, stabilization, and patient triage.

> For 90 percent of responses to high-risk technical rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 12 personnel,

shall be: 8 minutes. The ERF shall be capable of providing incident safety, extrication, stabilization, patient triage, rigging/hauling, and rehabilitation.

The agency's baseline statements reflect actual performance during 2016 to 2018. The agency does not rely on the use of automatic aid or mutual aid from neighboring fire departments to provide its effective response force complement of personnel. The agency's actual baseline service level performance is as follows:

> For 90 percent of responses for moderate-risk technical rescue incidents, the total response time for the first-due unit, staffed with 2 firefighters and 1 officer, is: 6 minutes and 33 seconds. The first-due unit is capable of incident command and accessing the patient.

> For 90 percent of responses to moderate-risk technical rescue incidents, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 9 personnel, is: 8 minutes and 7 seconds. The ERF shall be capable of providing incident safety, extrication, stabilization, and patient triage.

> It was verified and validated by the peer assessment team that the agency did not have sufficient high-risk technical rescue incidents, which required a first-due or an effective response force to be assembled for 2016-2018, to provide a sufficient data set to study. Therefore, no baseline service level performance statements are provided for the high-risk response in this report.

The team also reviewed the available 2019 response time data and confirmed it is consistent with the provided information for 2016-2018.

Technical Rescue Moderate Risk 90th Percentile Times Baseline Performance			2016-2018	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	1:37	1:24	1:33	2:14
Turnout Time	Turnout Time 1st Unit	Urban	1:47	1:25	1:52	1:53
Travel Time	Travel Time 1st Unit Distribution	Urban	4:33	3:37	4:41	3:38
	Travel Time ERF Concentration	Urban	5:58	4:31	6:02	6:13
Total Response Time	Total Response Time 1st Unit on Scene Distribution	Urban	6:33	4:44	6:45	6:47
			N=60	N=22	N=23	N=15
	Total Response Time ERF Concentration	Urban	8:07	6:47	8:33	8:58
			N=60	N=22	N=23	N=15

Criterion 5H – Hazardous Materials (Hazmat)

Boulder Fire-Rescue (BFR) is one of five members that participate in the Boulder County Hazardous Materials Response Authority (authority). The agencies that form the authority are the cities of Boulder, Longmont, Louisville, Lafayette, and Boulder Rural Fire Protection District. The authority is governed by a four-member board of directors and an advisory board. The board develops policy and oversees the legal and financial responsibilities of the authority. The advisory board consists of one representative from each participating agency.

The agency operates an adequate, effective, efficient, and safe hazardous materials program directed toward protecting the community from the hazards associated with the uncontrolled releases of hazardous and toxic materials.

The agency developed the framework for conducting quarterly formal and documented appraisals for the hazardous materials program in 2018. During the development phase, the program manager defined the program's mission and goals and developed performance measures. The first formal program appraisal for the hazardous materials program was conducted in April 2019. The hazardous materials program's appraisal provides the agency a tool to determine program effectiveness and to track progress on goals and objectives.

The agency's response and deployment standards are based on the urban population density and the hazardous materials response demands of the community. Seven fire stations provide citywide coverage; agency staffing is based upon station location, incident type, and frequency. The targeted service level objectives in the standards of cover benchmark statements are based on industry standards and best practices, as identified earlier in this report in Category II – Assessment and Planning. The objectives have been approved and adopted by agency management and the city council. The agency's benchmark service level objectives are as follows:

> For 90 percent of responses to all hazmat incidents, the total response time for the first-due unit, staffed with 2 firefighters and 1 officer, shall be: 6 minutes. The first-due unit shall be capable of incident command, and containing, controlling, and isolating any spilled product.

> For 90 percent of responses to moderate-risk hazmat incidents, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 7 personnel, shall be: 6 minutes. The ERF shall be capable of incident safety, identifying the product, and decontamination. . For 90 percent of responses to high-risk hazmat incidents, within the vicinity east of Broadway/Hwy 93/U.S. 36, north of Hwy 128, south of Hwy 66, and west of East County Line Road, the total response time for the arrival of the effective response force (ERF), staffed with a minimum of 13 personnel, shall be: 90 minutes. The ERF shall be capable of assessing safe entry routes to the incident; identifying a defensive perimeter, operational area, and staging area; directing defensive operations; and initiating a site-specific written action plan. The ERF shall also be capable of preparing for and initiating offensive hazmat operations, decontamination operations, and property conservation operations.

> For 90 percent of responses to high-risk hazmat incidents, outside of the area defined above, the total response time for the arrival of the effective response force (ERF), with a minimum of 13 personnel, shall be: 120 minutes. The ERF shall be capable of assessing safe entry routes to the incident; identifying a defensive perimeter operational area, and staging area; directing defensive operations; and initiating a site-specific written action plan. The ERF shall

also be capable of preparing for and initiating offensive hazmat operations, decontamination operations, and property conservation operations.

The agency's baseline statements reflect actual performance during 2016 to 2018. The agency relies on the use of automatic aid from the hazmat authority to provide its effective response force complement of personnel. These resources are immediately available as part of a seamless response system. The agency's actual baseline service level performance is as follows:

For 90 percent of responses to moderate-risk hazmat incidents, the total response time for the first-due unit, staffed with 2 firefighters and 1 officer, is: 8 minutes and 47 seconds. The first-due unit is capable of incident command and containing, controlling, and isolating any spilled product.

For 90 percent of responses to moderate-risk hazmat incidents, the total response time for the ERF, staffed with a minimum of 7 personnel, is: 12 minutes and 52 seconds. The ERF is capable of incident safety, identifying the product, and decontamination.

It was verified and validated by the peer assessment team that BFR did not have sufficient high-risk hazardous materials incidents, which required a first-due or an ERF to be assembled for 2016-2018, to provide a sufficient data set to study. Therefore, no baseline service level performance statements are provided for these responses in this report.

For high-risk hazmat incidents requiring the assembly of an ERF, the agency has no process in place to capture response times from hazmat authority units and, therefore, has no accurate records of such. It is recommended the agency identify and incorporate a method for capturing times from the hazmat authority into the agency's data in order to capture effective response force (ERF) for high-risk hazardous materials incidents in the city.

The team also reviewed the available 2019 response time data and confirmed it is consistent with the provided information for 2016-2018.

Hazmat Moderate Risk 90th Percentile Times Baseline Performance			2016-2018	2018	2017	2016
Alarm Handling	Pick-up to Dispatch	Urban	2:29	2:34	2:26	1:56
Turnout Time	Turnout Time 1st Unit	Urban	2:18	2:18	2:14	2:07
Travel Time	Travel Time 1st Unit **Distribution**	Urban	5:16	5:33	4:31	4:21
	Travel Time ERF **Concentration**	Urban	9:37	9:41	8:33	6:24
Total Response Time	Total Response Time 1st Unit on Scene **Distribution**	Urban	8:47	9:05	7:55	7:37
			N=167	N=70	N=73	N=24
	Total Response Time ERF **Concentration**	Urban	12:52	13:12	11:41	9:24
			N=167	N=70	N=73	N=24

Criterion 5K – Wildland Fire Services

Boulder Fire-Rescue (BFR) has a division dedicated to managing the wildland program. All BFR station personnel hired since 2005 are required to maintain National Wildfire Coordinating Group (NWCG) requirements for basic wildland firefighting. The agency maintains a specialized wildland team of 15 to 20 members who are NWCG engine boss qualified; are advancing through NWCG's level 200 coursework; and participate in local, regional, and national wildfire deployments.

The division is made up of eight management positions that manage facets of the wildland program. This group is comprised of the program manager, one wildfire administrator, and six wildfire operations specialists. All are qualified to the Type-4 incident commander and task force leader levels. This group provides oversight of wildfire services, such as outreach and education, fuels reduction, wildfire and incident management training, and provides overhead and management to extended attack or complex wildfires.

The agency operates an adequate, effective, and efficient program directed toward a wildland fire. Historically, the wildland division has conducted an annual summary of incidents, deployments, and training hours. Wildland incident deployment information includes the number and type of responses from frontline units as well as after-hours wildland division response. The program also tracks time for personnel and equipment that are sent on regional and national deployments. Training delivered to internal and external personnel is tracked by student hours. The mitigation portion of the program is measured by acres treated.

The agency has established a formal and documented appraisal process. Program managers were asked to define the program's mission and goals and develop performance measures for their program. In April 2019, the first formal program appraisal for the wildland program was completed

and, like other programs, will be appraised on a quarterly basis to ensure the agency meets the expectations of its stakeholders. The peer team verified and validated the use of the appraisal format.

The wildland division trains to the level defined by the National Incident Management System's (NIMS) Wildland Qualifications System Guide 310-1 and NWCG. The division tracks and ensures all wildland fire training meets or exceeds NWCG standards agency-wide.

Wildland division staff believe the current practice has been effective; however, additional training is needed to increase operational capacity throughout the agency. Currently, NWCG training is prioritized for wildland specialty team members. However, staff has concluded that not enough wildfire specific training is being offered to all line firefighting positions. It is recommended the agency determine the level and number of education hours appropriate for the level of wildland fire risk in the community.

The agency's response and deployment standards are based on the NWCG. Its guidance is used to identify the necessary elements of its wildland firefighting program including, but not limited to, training requirements, vehicle familiarization, pre-fire planning, and special hazards that enable firefighters to extinguish fires safely and efficiently. The objectives have been approved and adopted by agency management and the city council. The agency's benchmark service level objectives are as follows:

> For 90 percent of all wildland fire incidents, the total response time for the arrival of the first-due unit, staffed with 2 firefighters and 1 officer, shall be: 6 minutes. The first-due unit shall be capable of: establishing command; assessing the situation; requesting additional specialty resources; directing evacuation; and, if possible, beginning hazard mitigation.

> For 90 percent of all moderate and high-risk wildland fire incidents, the total response time for the arrival of the effective response force (ERF), staffed with 5 firefighters and officers, shall be: 20 minutes. The ERF shall be capable of: establishing command; appointing a site safety officer; assessing the situation; requesting additional specialty resources; directing evacuation; and, if possible, application of extinguishing agents.

The agency's baseline statements reflect actual performance during 2016 to 2018. The agency relies on the use of automatic aid from neighboring fire departments to provide its effective response force complement of personnel for high-risk incidents. These resources are immediately available as part of a seamless response system.

It was verified and validated by the peer assessment team that the agency did not have sufficient moderate or high-risk wildland fire incidents, which required a first-due or effective response force to be assembled for 2016-2018, to provide a sufficient data set to study. Therefore, no baseline service level performance statements are provided for these responses in this report.

Category VI — Physical Resources

Boulder Fire-Rescue (BFR) operates seven fire stations to provide services to the community. The staff has used several data elements to assess such items as service life, functionality, and service delivery to the community. The agency is in the process of relocating Station 3 based in part on response data and anticipate this will improve overall system performance. The agency has a formal process to assess current facilities to determine if repairs or upgrades are needed in conjunction with

the city's facility asset management division (FAM) which has a master plan that contains several goals that are pertinent to the planning and future development of BFR facilities. Competing community needs has caused needed funding to be diverted, thus allowing issues to become more pronounced for the agency.

A vehicle replacement schedule is in place with funding provided through an annual budget contribution to a capital replacement fund. Apparatus and vehicles are designed to meet safety and performance standards found in National Fire Protection Association (NFPA) 1901: *Standard for Automotive Fire Apparatus*. The replacement schedule is primarily based on the age of the vehicle and informed by the condition of the vehicle, and agency needs. The deployment of apparatus supports the goals, objectives, and stated level of service of the agency.

It was verified that procedures for the repair, maintenance, and emergency repair of all apparatus and staff vehicles are in place and followed. An administrative battalion chief oversees apparatus maintenance and repair, working with the city fleet maintenance division (FMD) to ensure units are repaired or serviced in a timely manner. Testing of fire pumps, ground ladders, and aerial ladders are performed annually. The division employs an emergency vehicle technician (EVT) who performs maintenance and repairs of apparatus.

Development and use of physical resources is consistent with the agency's established plans. A systematic and planned approach to the future development of facilities is in place. Planning for the agency's physical facilities is outlined in the 2019 five-year master plan, which was approved by city council. The document called for an assessment for development of new facilities in redeveloping areas; evaluate current locations, size, and design of all BFR facilities for effectiveness and efficiency; and develop a fire materials and equipment storage solution. A space needs assessment was conducted in 2015 from which the city council approved the relocation of Station 3 as it sits in the 100-year flood zone and in the city's high-hazard flood zone. A new site has been acquired and the city is in the process of releasing a request for qualifications for design services.

The agency designs, maintains, and manages fixed facility resources that meet the agency's goals and objectives. In the course of the accreditation process BFR determined that its facilities comply with all building codes and fire codes adopted by the city of Boulder in effect at the time of their construction. All stations are equipped with vehicle exhaust systems, but not all stations have been equipped with fire detection systems or fire sprinklers. In 2019, a process began to retrofit all stations with smoke alarms and carbon monoxide detectors. All facilities are inspected annually by agency staff to ensure they meet required standards and codes.

The peer team verified that the direct capture vehicle exhaust systems are approximately 25 years old and have had no major upgrades to the hardware and structure available. Agency staff reports that the equipment is outdated and expensive to maintain. Over the last three years, the agency has spent between $10,000 to $14,000 annually to maintain and repair these systems. Moreover, there is currently only one vendor in the area that services the type of system the agency operates. It is recommended the agency and facility asset management (FAM) work to ensure all facilities meet current life safety expectations found in nationally accepted codes and standards.

Additionally, the team noted that in the instances of Stations 4 and 2 there is inadequate separation provided between the residential areas and the vehicle storage area. Any emissions escaping from apparatus can filter into the residential areas. Moreover, residential, administrative, and storage space in the facilities is limited to the point as to interfere with operations.

FAM, a division of the city government, developed a plan in 2005 that outlines several objectives related to BFR facilities. Unfortunately, much of the work has not been funded by the city council. FAM is charged with the responsibility to ensure city facilities comply with applicable codes and regulations; provide for inspection and periodic renovation of buildings and major components when they reach the end of their expected service life; and properly prioritize facility maintenance, renovation, and replacement needs to best utilize available resources.

The team verified the agency uses a rented space for the storage of spare and replacement equipment that is shared with a private entity which stores feed hay for a sheep operation. This material attracts common vermin such as mice which can and does damage the stored safety equipment. It is recommended the agency and city take the steps necessary to ensure the storage space used for safety equipment is secure, dry, heated and protects equipment from damage by vermin that can have an impact on the overall operations of the agency.

Station captains are charged with responsibility for identifying needed facility upkeep, notifying FAM as well as the administrative battalion chief, and completing a work order to document the request. The administrative battalion chief follows up on the orders when he becomes aware of them as he does not have direct access into the FAM RMS to track the requests. It is recommended the agency work with the Facility Asset Management (FAM) division to develop an agreed process that allows the agency access to the FAM records management system (RMS) for the purpose of tracking agency-initiated work orders.

During onsite surveys of the facilities the team noted that despite the age of some of the buildings, good general housekeeping appears to be in place. However, the team also determined there is no formal guidance in place to ensure each facility receives the same level of basic attention with respect to housekeeping. It is recommended the agency develop a directive, guideline, or policy that ensures housekeeping is conducted in the same manner across all shifts and facilities.

Apparatus resources are designed, purchased, maintained to adequately meet the agency's goals and objectives. Apparatus used by the agency meets the needs of the city as identified in the community risk assessment. BFR has eight front-line apparatus and one command vehicle. Specialized equipment and vehicles are stored at several fire stations. This equipment includes a dive van, hazardous materials truck and trailer, a confined space trailer, two Type 3 wildland trucks, two Type 6 wildland trucks, a reserve command vehicle, and three reserve apparatus.

An apparatus design committee is utilized to develop specifics of each fire apparatus needed based on such factors as pump capacity, horsepower, suspension type, axle size, and compartmentation. The committee was recently reconfigured to add a representative from FMD to provide input on critical systems the division will be expected to maintain over the life of the unit.

The inspection, testing, preventive maintenance, replacement schedule, and emergency repair of all apparatus are well established and meet the emergency apparatus service and reliability needs. Apparatus maintenance is completed by FMD trained and certified technicians who conduct apparatus maintenance, preventative maintenance, inspection, testing, and emergency repair in accordance with manufacturer's recommendations, as well as with federal and state requirements.

The agency has an established program to address the needs of preventative maintenance into which the agency contributes annually. The EVT assigned to maintaining agency apparatus incorporates an inspection of the entire truck into every vehicle repair and preventative maintenance service. Over the

course of the last five years, either an agency engineer or EVT was assigned responsibility for completing annual pump testing. Other testing, such as on hydraulic extrication equipment ground ladders, self-contained breathing apparatus, and aerial devices is completed by third-party services.

Equipment and supplies are adequate and designed to meet the agency's goals and objectives. Maintenance, testing, and inspection of equipment has been performed in accordance with manufacturer's recommendations. Apparatus operators are responsible for determining the operational readiness of all tools and equipment at the beginning of each shift. If a piece of equipment is found to be damaged, broken, or missing, the company officer is required to contact the battalion chief. The agency currently uses a paper-based daily apparatus checklist that is to be completed by the oncoming shift each day. A contract has recently been signed with a vendor to provide a cloud-based system that will include inventory tracking as well as daily vehicle checks.

Agency personnel maintain small engines, including chainsaws and rotary saws. Annual hose testing is completed by line personnel and annual pump testing is conducted by FMD with the assistance of firefighters.

Safety equipment is adequate and designed to meet agency goals and objectives. Safety equipment is distributed to all firefighters and consists of two sets of structural firefighting bunker gear, a helmet, hood, gloves, and boots. Basic wildland equipment is provided to on-duty members only, which includes boots, pants, shirt, and gloves. The remainder of the ensemble (helmet, shelter, line pack) are provided for each position on apparatus. Given the increase in the number and scope of wildland incidents across the country, agencies with wildland responsibility are continually assessing their capabilities. It is recommended the agency assess the efficacy of the current distribution of wildland personal protective ensemble (PPE) for only on-duty personnel.

Category VII — Human Resources

Boulder Fire-Rescue (BFR) works closely with the city's human resources (HR) department to ensure that appropriate policies and procedures are in place. With a competitive salary and excellent benefits, BFR is successful in recruiting and retaining employees. BFR provides an initial 16-week academy for new members and provides training on new processes, procedures, and equipment. Initial medical and fitness evaluations are provided to new members prior to employment as well as regular medical evaluations based on the International Association of Fire Fighters/International Association of Fire Chief (IAFF/IAFC) Wellness Fitness Initiative. The agency provides rehabilitative medical evaluations through occupational health providers and the city's worker's compensation program.

General human resources administration practices are in place and are consistent with local, state, and federal statutory and regulatory requirements. The agency's designated HR manager is the director of HR for the city. The HR director oversees and coordinates all HR functions for BFR. BFR has a business partner assigned to it that serves as the primary contact for day-to-day human resources issues. In addition, the deputy chief of support serves is the primary liaison to and provides strategic coordination of HR functions in the agency.

Systems are established to attract, select, retain, and promote qualified personnel in accordance with applicable local, state, and federal statutory requirements. For recruitment and selection of initial and lateral candidates, the agency utilizes an online application process that is facilitated by HR. The application has been reviewed to ensure legal standards to Equal Employment Opportunity

Commission (EEOC) statutes are followed. Proposed change to the application process must be reviewed by HR and the city attorney. The selection process is coordinated with the HR business partner to ensure legal compliance. BFR utilizes the candidate physical agility test (CPAT) for fitness testing, which is independently verified for compliance with applicable law. Agency promotional processes are also carefully monitored and overseen by the HR partner to ensure legal compliance.

Management non-union employees undergo a nine-month probationary process while members of the collective bargaining unit are placed in probationary status for 12 months. Probationary periods, requirements, and expectations for collective bargaining members are well defined in the collective bargaining agreement (CBA) while probationary expectations for non-union employees are less clear. The agency and HR recognize that the probationary process may have room for improvement and have plans to use an HR consulting firm to better evaluate the agency's onboarding process for all positions.

Personnel policies and procedures are in place, documented, and guide both administrative and personnel behavior. Agency personnel policies, procedures, and rules are communicated and are readily available to all personnel. New members are introduced to policies and procedures during the orientation phase and are available via the internet and via BFR's SharePoint site. Personnel are required to sign off on policies, procedures, and rules when promulgated or updated. In the case of BFR policy updates or additions, a process known as a "general order" is initiated that formally communicates the change and/or policy to all employees through email and the SharePoint site. All agency issued advisories and general orders are reviewed each year by a policy advisory group.

The city of Boulder has a policy in place that prohibits unlawful employment discrimination and harassment as prohibited by Title VII of the Civil Rights Act of 1964 and other applicable federal, state, and local laws. In addition to policy, the CBA strictly prohibits any stipulation or clause to be in violation of state and federal law. Routine training is provided to members on these topics and associated policies.

Human resources development and utilization is consistent with the agency's established mission, goals, and objectives. The agency recognizes two primary classification categories: management/non-union and IAFF Local 900. The city has partnered with Gallagher Consulting to review and assess the city's classification and compensation system in an effort to audit all positions in the city. Local 900 pay grades are linked to rank structure and collectively bargained every two years. While the classification of these positions is considered a management right, all changes to this system is done collaboratively with the union.

A system and practices for providing member compensation are in place. BFR publishes compensation rates for members through the CBA and the management/non-union pay matrix, which is available to all employees. Local 900 employees are classified in specific rank-based positions that are subject to collective bargaining. Management/non-union positions are compensated in ranges related to specific management levels. Employee pay and compensation information is also found on the city's internal website.

The agency's occupational health, safety, and risk management programs protect the organization and personnel from unnecessary injuries or losses from accidents or liability. The agency provides initial employment training that consists of a 16-week academy. The academy includes general safe work practices and skills training. Ongoing health and safety training continues for members as they are assigned to new roles or promoted. General safe practice skills are utilized as an evaluation tool for

promotions. To address fitness, peer fitness trainers work with members on a quarterly basis to address techniques in fitness, conditioning, strength, and nutrition.

BFR has a full-time health and safety captain. The health and safety captain is a 40-hour per week position assigned to the agency's training division. The position reports to the deputy chief of support. The health and safety captain responds to incidents while on duty and serves as incident safety officer, primarily to structure fires, high complexity incidents, and multi-unit responses. After hours, a battalion chief from the county who has taken the county safety officer class is dispatched to serve in this role. The health and safety officer may be called in off-duty to conduct investigations of accidents, perform safety functions on an incident, and provide support services. The health and safety captain is responsible for implementation of occupational health, safety, and risk management programs.

The agency has a wellness/fitness program for recruit and incumbent personnel. The agency specifies and communicates the provisions if employees/members do not comply with the wellness/fitness program. The agency provides medical and fitness evaluations for all new members prior to employment. Regular medical evaluations based on the IAFF/IAFC Wellness Fitness Initiative for incumbent personnel are mandatory and rehabilitative medical evaluations are performed though occupational health providers. Incumbent personnel receive post-injury rehabilitative fitness evaluations through the worker's compensation program.

Category VIII — Training and Competency

Boulder Fire-Rescue (BFR) operates a well-equipped training facility. The facility includes classrooms and staff offices, a burn building, extrication area, tower, propane props, confined space props, driver training area, and roof simulator. The props and facility are well maintained. The training division evaluates training hours and certification maintenance and demonstrates a commitment to the development of its personnel.

The agency has established general goals and specific objectives that direct the agency's priorities in a manner consistent with its mission and appropriate for the community it serves. BFR has created a task book-based program to track the knowledge, skills, and abilities (KSA) and job performance requirements (JPR) of its members. Company officers deliver minimum standards training at the station level. BFR has identified opportunities to evaluate crew performance that assists with identifying training needs.

Training and education programs are provided to support the agency's needs. The agency evaluates individual performance through KSAs, JPRs, and task books. BFR evaluates crew performance though time- and performance-based measures. The agency plans for the training division and fire data analyst to develop methods to analyze performance-based measures on incident responses.

Training and education resources, printed and non-printed library materials, media equipment, facilities, and staff are available in sufficient quantity, relevancy, diversity, and are current. The agency's training facility provides for and supports all-hazards training. The facility has two classrooms that seat 100 students each. The drill ground is 10 acres and contains a five-story tower, class A burn building, propane props, vehicle extrication and stabilization area, roof ventilation prop, confined space training area, wildland fire training area, emergency vehicle driving area, and a pumping area. When the training division needs a pumper, they utilize a reserve unit.

BFR requires all personnel who can act as a lieutenant to be Instructor I-certified. The captain in the training division is required to hold an Instructor II certification, and the battalion chief is required to hold Instructor III certification. All live burn trainings are instructed by qualified and certified instructors per National Fire Protection Association 1403: *Standard on Live Fire Training Evolutions*. All certified instructors are tracked in TargetSolutions software system.

The agency evaluates training materials annually to make updates based on policy changes, fire service trends, and changes to the promotional process and requirements. The collective bargaining agreement (CBA) sets the promotional materials. The training division works regularly with the collective bargaining unit to evaluate promotional material.

Category IX — Essential Resources

Criterion 9A – Water Supply

The water supply resources are reliable and capable of distributing adequate volumes of water and pressures to all areas of agency responsibility. All areas meet fire flow requirements in accordance with applicable fire flow criteria. The city of Boulder's water distribution system has over 400 miles of piping that is divided into three zones. The system has the ability to pump water across all three zones from three reservoirs and two water treatment facilities that provide the community's water supply. The system includes almost 5,000 fire hydrants and delivers over 20 million gallons of water daily.

Boulder Fire-Rescue (BFR) requires new suppression systems to be flow tested in a manner consistent with the requirements and design of the suppression system. New developments and construction must follow the Colorado Code of Regulations (CCR); specifically, 8 CCR 1507-11, which establishes the state's fire suppression program. The purpose of the program is to ensure that life safety systems in commercial and residential occupancies are installed, tested, and maintained properly.

Public works maintains 4,800 hydrants in the city's water distribution system. Twenty-two million gallons of water is consumed daily, but the system has a capacity of 35 million gallons. Hydrants flow up to 4,000 gallons per minute (gpm) at 20 pounds per square inch (psi) residual; less than one percent of hydrants flow less than 1,500 gpm at 20 psi residual. Flow testing of fire hydrants follow National Fire Protection Association 291, *Recommended Practice for Fire Flow Testing and Marking of Hydrants*. The city's water utilities department performs repairs, annual hydrant flushing, and flow tests every five years.

Criterion 9B – Communication Systems

The Boulder Police and Fire Communications Center (BPFCCC) operates a VHF radio and communications system, paired with an extensive dispatcher training program that ensures the integrity of fire and emergency medical services delivered to the citizens of Boulder.

The BPFCC serves as the primary public safety answering point (PSAP) within the city limits of Boulder. The center answers all of its own non-emergency calls as well as emergency 911 calls for police, fire, and medical. The agency's response is enhanced by computer-aided dispatch (CAD) software, which was replaced in 2012. The current CAD system allows for closest unit dispatching,

which assists with recommending the appropriate and closest apparatus to the incident. Automatic aid response areas and spawning calls to adjacent jurisdictions allows for quicker dispatching times.

The public and the agency have an adequate, effective, and efficient emergency communications system. The system is reliable and able to meet the demands of major operations, including command and control within fire/rescue services during emergency operations, and meets the needs of other public safety agencies having the need for distribution of information.

The communications center has a voice and data radio network that is licensed and in compliance with Federal Communications Commission (FCC) rules and regulations. The VHF radio system is monitored by the radio system project manager as well as several radio technicians. BPFCC has multiple radio tower sites with voice and data repeater capability as well as transmitters and repeaters placed throughout the city.

In the event of a center evacuation, partnerships exist with other PSAPs located within Boulder County. BPFCC utilizes the same CAD system, radio frequencies, phone systems, and other critical infrastructure as these agencies. Personnel can be moved, and systems switched over to the county PSAP to continue operations. Additionally, emergency scene communications inside buildings or below-grade locations are equipped with bi-directional amplifiers to help improve communications in most areas. Radios are also set-up to have the two operational channels utilize a mix of duplex and simplex channels.

Boulder Fire-Rescue (BFR) has identified a lack of coverage with their operations channel. In response to the situation, the simplex and duplex channels were combined as a workaround for first responders. Using the simplex channel, field units can communicate with each other inside buildings and structures. Combining the duplex repeated channel to the simplex channel allows incident command to hear communications from interior companies. The radio system is currently being updated to a 700 MHz digital network with new infrastructure to address the issue.

Monthly quality assurance checks are conducted on each employee regarding handling radio traffic, dispatching calls, and answering and processing incoming emergency and non-emergency calls. Quality assurance checks and phone statistic reports have helped to determine effectiveness in connection with the agency's goals and objectives. However, these processes do not consider the overall performance of the center in meeting the expectations of its client agencies and their customers, the citizens of Boulder. It is recommended the agency share its formal appraisal format with the staff of Boulder Police and Fire Communications Center (BPFCC) to assist them in the development of a formal process that measures overall performance.

During onsite interviews, the staff of BPFCC indicated they follow a general objective of processing all 911 calls within 60 seconds. However, the peer team was unable to verify that staff has formally adopted this as a benchmark measure for the purpose of evaluating alarm handling performance. It is recommended that Boulder Police and Fire Communications Center (BPFCC) formally adopt a time-based performance objective for alarm handling for fire and emergency medical services (EMS) requests.

BPFCC processes each call for medical assistance utilizing the emergency medical dispatch (EMD) system from Priority Dispatch Consultants. The system contains information gathering and pre-arrival instruction scripts specific to various medical emergencies including cardiac arrest, automatic external defibrillator (AED) support, childbirth, and choking (heimlich) instructions. A staff member

from the center manages the program and the supporting quality assurance process, which audits a random selection of dispatched emergency medical services (EMS) requests.

The peer team noted the aggregate alarm handling time for the years of 2016 to 2018 for EMS incidents was 3 minutes and 7 seconds for low-risk EMS incidents and 2 minutes and 54 seconds for moderate-risk EMS incidents. During the onsite interviews the peer team learned the program does not receive feedback on the impact of the EMD process on alarm handling times. It is recommended the agency share the alarm handling data it develops to aid the emergency medical dispatch (EMD) program manager in assessing the efficacy of the program.

It is recommended the agency work with the emergency medical dispatch (EMD) program to identify opportunities to reduce EMD alarm handling times, such as modifying the interrogation process, and work with the medical director to implement those changes.

Criterion 9C – Administrative Support Services and Office Systems

Boulder Fire-Rescue (BFR) employs three full-time administrative professionals that provide administrative support to the agency and one information technology analyst charged with maintaining the agency's software and hardware systems and providing training to BFR members. Support is also provided by the city's information technology department (IT), human resources (HR), city clerk's, and city attorney's offices.

Administrative support services and general office systems are in place with adequate staff to efficiently and effectively conduct and manage the agency's administrative functions, such as organizational planning and assessment, resource coordination, data analysis/research, records keeping, reporting, business communications, public interaction, and purchasing.

Administration and support services are commensurate with the size of the agency and the functions its members perform. There are occasions when staff must prioritize critical functions due to periods of increased work load. BFR has commissioned a classification and compensation study that will analyze options and task assignments for administrative staff.

BFR reviews and updates (as needed) policies, operational directives, and general orders annually. A policy advisory group provides revisions, edits, and updates of procedures to agency leadership for approval. The group is also charged with ensuring that all general orders issued in a calendar year are properly incorporated into the agency's policy manual and any outdated references are updated.

Category X — External Systems Relationships

There are 22 recognized fire departments in Boulder County including Boulder Fire-Rescue (BFR), which is centrally located in the county. The agency maintains relationships with these departments and various public and private entities that provide support to operations. Some of these include, but are not limited to, Boulder County Sheriff's Office, the Boulder Emergency Squad, Rocky Mountain Rescue, and the Boulder County Office of Emergency Management.

The agency's operations and planning efforts include relationships with external agencies and operational systems that affect or may influence its mission, operations, and/or cost effectiveness. BFR actively participates in several associations and relationships with outside entities that support its mission. These include the Boulder County Fire Chief's Association, the Boulder Valley Fire

Consortium, the Denver Metro Chiefs, and the Front Range Fire Consortium. The team verified that agency staff members are active participants in these organizations and, in some cases, serve in leadership roles.

The agency maintains current agreements with those external agencies which support the identified programs. All external agency agreements required to be maintained in support of any program are current, reviewed and/or updated within the accreditation period and adopted by the appropriate governing bodies.

Agreements are in place with several external agencies and two internal departments to support the operations of the agency. Historically, the agreements have been enacted on an as needed basis and were generic in nature. Growth in Boulder Valley has increased the need for agreements that support the ability of partner agencies to meet more diverse risks faced by the community. An example of this is the hazardous materials authority agreement that ensures technician level responses can be provided in a cost-effective manner. While specialty responses have been codified through comprehensive agreements, the rapid growth of the communities around Boulder has posed challenges for partner agencies to respond with agreements that are reflective of some of the current operational needs. The peer team verified that the agency has developed a catalogue of all agreements, stores them in a central electronic repository, and is tracking them to ensure they are reviewed at least annually.

The agency has also established "service level agreements" with the city fleet maintenance (FMD) and information technology (IT) divisions that specify the scope of services each provides and their responsibilities with respect to chain of command, decision process, and cost management.

The agency has daily interactions with Boulder Police and Fire Communications Center (BPFCC) through dispatch operations and administrative staff communications. Much of what BPFCC does on a daily basis has a direct impact on the BFR's ability to meet its stated levels of service found in the standards of cover document, which is based, in part, on input from the community. A service level agreement between the two entities could serve to clarify service expectations, performance measures, data access, and support of deployment changes based on community risk and data analysis. It is recommended the agency establish a service level agreement with Boulder Police and Fire Communications Center (BPFCC) that includes, but is not limited to, service expectations, performance measures, data access, support of deployment changes based on community risk, access for periodic in-center observation by a fire agency representative, and quarterly meetings to review agreed performance metrics.

Organizational Chart

Boulder Fire-Rescue

```
Boulder Fire-Rescue
Department
Fire Chief
│
├── Administrative Assistant
│
├── Support Services Division
│   Deputy Fire Chief
│   │
│   ├── Administrative Division
│   │   Battalion Chief
│   │
│   └── Training Division
│       Battalion Chief
│
└── Operations Division
    Deputy Fire Chief
    │
    ├── Wildland Division
    │   Battalion Chief
    │
    ├── Community Risk Reduction
    │   Division
    │   Chief Fire Marshal
    │
    └── Emergency Services
        Battalion Chief (3)
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City of Boulder

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                            ┌──────────────┐
                            │  Community   │
                            └──────┬───────┘
                                   │
                            ┌──────┴───────┐
                            │ City Council │
                            └──────┬───────┘
                                   │
         ┌─────────────────────────┼─────────────────────────┐
  ┌──────────────┐         ┌──────────────┐          ┌──────────────┐
  │Municipal Judge│        │ City Manager │          │ City Attorney│
  │ Linda Cooke  │         │Jane Brautigam│          │   Tom Carr   │
  └──────────────┘         └──────────────┘          └──────────────┘
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| Director of Parks & Recreation, Community Vitality — Yvette Bowden | Interim Director of Open Space & Mountain Parks — Dan Burke | Police Chief — Greg Testa | Director of Housing & Human Services — Kurt Firnhaber | Fire Chief — Michael Calderazzo | Director of Climate Initiatives — Steve Catanach | Interim Director of Planning — Chris Meschuk | Policy Advisor — Carl Castillo | Chief Financial Advisor — Bob Eichem | Deputy City Manager — Tanya Ange | Deputy City Manager, Interim Director of Public Works — Mary Ann Weideman |

Under Interim Director of Planning — Chris Meschuk:
- City Clerk — Lynette Beck
- Court Administrator — James Cho

Under Deputy City Manager — Tanya Ange:
- Chief Financial Officer — Cheryl Pattelli
- Director of Human Resources — Abbie Poniatowski
- Director of Innovation & Technology — Julia Richman
- Director of Communication — Patrick von Keyserling
- Director of Library & Arts — David Farnan

Under Deputy City Manager, Interim Director of Public Works — Mary Ann Weideman:
- Director of Public Works – Utilities — Jeff Arthur
- Interim Co-Director of Public Works for Transportation — Kathleen Bracke
- Interim Co-Director of Public Works for Transportation — Bill Cowern

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