



2012 FIRE-RESCUE MASTER PLAN UPDATE

CITY OF BOULDER, COLORADO



FIRE MASTER PLAN

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Executive Summary

The desire to feel safe is a basic human need. Safety from harm, especially immediate physical harm, is the foundation of a community’s ability to go about its daily life. One of government’s first priorities must be safety. Governments at all levels share this responsibility but nowhere is the obligation more deeply felt or regularly fulfilled than in the local agencies that provide emergency services to their communities. The men and women of the Boulder Fire-Rescue Department honor this commitment and work tirelessly to uphold the long tradition of keeping residents and businesses safe.

The Boulder Fire-Rescue Department (BFRD) provides emergency response to fires, medical emergencies, rescues, and hazardous material releases in Boulder. With a 2012 budget of more than \$15.5 million, 104 firefighters, and 12 civilian staff, BFRD responds to all hazards and provides services in fighting structural and wildland fires, fire safety education and inspections, emergency rescue, hazardous material response, and medical emergency response.

The Boulder Fire-Rescue Master Plan is the City of Boulder’s 10-year plan to guide fire-rescue services by building on BFRD’s strengths, addressing existing deficiencies, and plotting a course for maintaining services and improving them where possible. The original Fire-Rescue Master Plan was completed in 1996.

This update to the Fire-Rescue Master Plan takes into consideration current and emerging trends that impact the future of emergency fire and medical response, including a growing and aging population, an increase in emergency medical service (EMS) calls, an expanded wildfire season, and the transformation of the city’s physical fabric through increasing density.

city services. This update to the Boulder Fire-Rescue Master Plan features a new system for evaluating proposed programs and initiatives against Boulder’s sustainability goals and other community priorities. This new system, based on the BVCP policy areas and the city’s Priority Based Budgeting approach, is called the Sustainability Framework and is composed of seven strategy areas:

- Safety and Community Well-Being,
- Community Character,
- Mobility,
- Energy,
- Natural Environment,
- Economic Vitality, and
- Good Governance.

The Fire-Rescue Master Plan is a pilot for use of the framework. The framework will evolve as it is applied in subsequent master plan efforts. (For more details see Chapter 3, beginning on page 13.)

Recommendations: Strategies and Initiatives
BFRD developed a number of strategies within the context of the Sustainability Framework to address the provision of emergency services. Each **strategy** is supported by specific **initiatives**:

Safety and Community Well-Being – Adjust service delivery to efficiently respond to changing community needs. Sample initiatives include: *Expand education and outreach efforts* and *complete comprehensive risk analysis*.

Community Character – Ensure fire and emergency services can serve a denser urban form and mitigate the challenge of living next to open space. Sample initiatives include: *Support collaboration between BFRD and other city departments on area plans and development review projects* and *consider adoption of new codes such as wildland interface code*.

Mobility – Maximize emergency response while leveraging resources and minimizing impact to infrastructure. Sample initiatives include: *Pilot the use of*



Sustainability Framework

As with all city master plans, the Fire-Rescue Master Plan takes its overall policy direction from the Boulder Valley Comprehensive Plan (BVCP). Specifically, the goals and policies of the BVCP provide guidance for delivering



smaller vehicles to respond to medical emergencies and reduce the number of vehicles dispatched to emergency fire and medical calls.

Energy – Reduce energy consumption and greenhouse gas emissions. Sample initiatives include: *Use Leadership in Energy and Environmental Design (LEED) targets in facility development and continue to adjust shift schedules to reduce commuting.*

Natural Environment – Anticipate and prepare for year-round wildfire risk. Sample initiatives include: *Develop a new wildland fire facility at the Fire Training Center and improve BFRD's environmental sustainability efforts through recycling and composting.*

Economic Vitality – Partner with businesses to take preventative actions that minimize economic disruptions during emergency events. Sample initiatives include: *Hire a hazardous materials inspector and create a community-oriented risk management program that includes pre-plans for businesses.*

Good Governance – Model the strategic use of resources and environmental stewardship. Sample initiatives include: *Design and use apparatus that are appropriate for the missions and efficient to operate and expand the use of incident benchmark data to evaluate and improve response.* (For more details see Chapter 4, beginning on page 15.)

Investment Priorities and Funding Options
BFRD receives 99 percent of its funding from the General Fund with the vast majority spent on response to fire and medical emergencies. Over 80 percent of BFRD spending falls into the highest scoring quartile of all programs when scored through the city's Priority Based Budgeting approach. In accordance with the city's business planning methodology, the master plan proposes three spending plans: a **Fiscally Constrained** plan based on 2012 budget targets, an **Action** plan that assumes an increase in revenue to the department, and a **Vision** plan which is not fiscally constrained in any way. All plans focus on supporting programs that have strong community support. The Vision plan in particular focuses on major capital needs such as fire station renovation or replacement. (For more details see Chapter 5, beginning on page 27.)

Performance Measures

Across Colorado and nationally, fire departments increasingly are expected to meet national standards to become partners in state and federal emergency preparedness efforts and to be eligible for grant funding. Overall, BFRD is meeting the performance standards based on data from 2011. Response time is the most common performance measure used by the fire service and the master plan recommends changing the response time standards to a six-minute response 80 percent of the time. The current standard is a six minute response 90 percent of the time. The plan also proposes to measure performance in other categories based on both existing and newly developed indicators. This data will be collected across all programs and used in future program evaluation and budget decisions. (For more details see Chapter 6, beginning on page 31.)

Implementation and Next Steps

Implementation of the plan will take place over a number of years to even out budgetary and other impacts. BFRD is already moving ahead with many of the recommendations in the master plan that do not require additional funding or staff. In the future, BFRD will incorporate new initiatives into the planning and budget processes as city resources allow. With this master plan as a guide, BFRD will use the city's Priority Based Budgeting approach to develop annual budget requests. Progress will be reviewed and accomplishments reflected as part of the annual budget process. Every effort will be made to ensure that BFRD efforts complement City Council and community goals. (For more details see Chapter 7, beginning on page 35.)





Chapter 1: Introduction

What is the Boulder Fire-Rescue Master Plan?

The Boulder Fire-Rescue Master Plan is the City of Boulder's 10-year plan to support public safety services by building on the Boulder Fire-Rescue Department's (BFRD) strengths, addressing existing deficiencies, and defining a future course that ensures continued high-quality and cost-effective emergency response and fire-prevention services.

Originally developed in 1996, the Fire-Rescue Master Plan (formerly referred to as the Fire Master Plan) is being updated to better reflect current and emerging trends including an increasing and aging population, rising demands in Emergency Medical Services (EMS), year-round wildfire risk, and the transition to a more urban community. The master plan is intended to guide BFRD for the next 10 years in addressing the business operations of Fire and EMS delivery in a manner that meets the community's service standards and sustainability goals.

Major Accomplishments since 1996

Since the last master plan was accepted by City Council in 1996, the city has:

- Constructed Fire Station 7 in east Boulder at 1380 55th Avenue.
- Built a new Regional Fire Training Center (FTC).
- Assisted in the development and implementation of shared Office of Emergency Management and new Emergency Operations Center with Boulder County.
- Worked with the University of Colorado (CU) to install automatic sprinklers and educate students about fire safety.
- Hired a seasonal wildland fire mitigation crew.
- Increased public safety education by hiring a full-time employee who focuses on these efforts.

Pride-Integrity-Professionalism

This motto encompasses the pride, integrity and professionalism firefighters strive to consistently demonstrate in their service to the community.

How does the Master Plan fit into Citywide Planning Efforts?

The Boulder Valley Comprehensive Plan (BVCP) provides the city's overall policy framework, including a general statement of the community's long-term desired future. Departmental master plans take the goals and policies of the BVCP and provide specific guidance for delivering city services. Master plans establish detailed policies, priorities, service standards, facility, capital, and system needs and budgeting for the delivery of services.

The updated Boulder Fire-Rescue Master Plan is being restructured within the context of a "Sustainability Framework," a new tool for program and policy analysis built upon the BVCP and the city's Priority Based Budgeting approach. The goal of the Sustainability Framework is to help ensure that each master plan aligns with and advances the goals and priorities of the City Council and community. The Fire-Rescue Master Plan is a pilot for the use of the Sustainability Framework.



This master plan evaluates the Fire and Emergency Response Urban Service Criteria and Standards outlined in the BVCP. It recommends strategies for protecting public safety while responding to growth, and it discusses areas where the department intends to comply with national standards and recognized best practices.

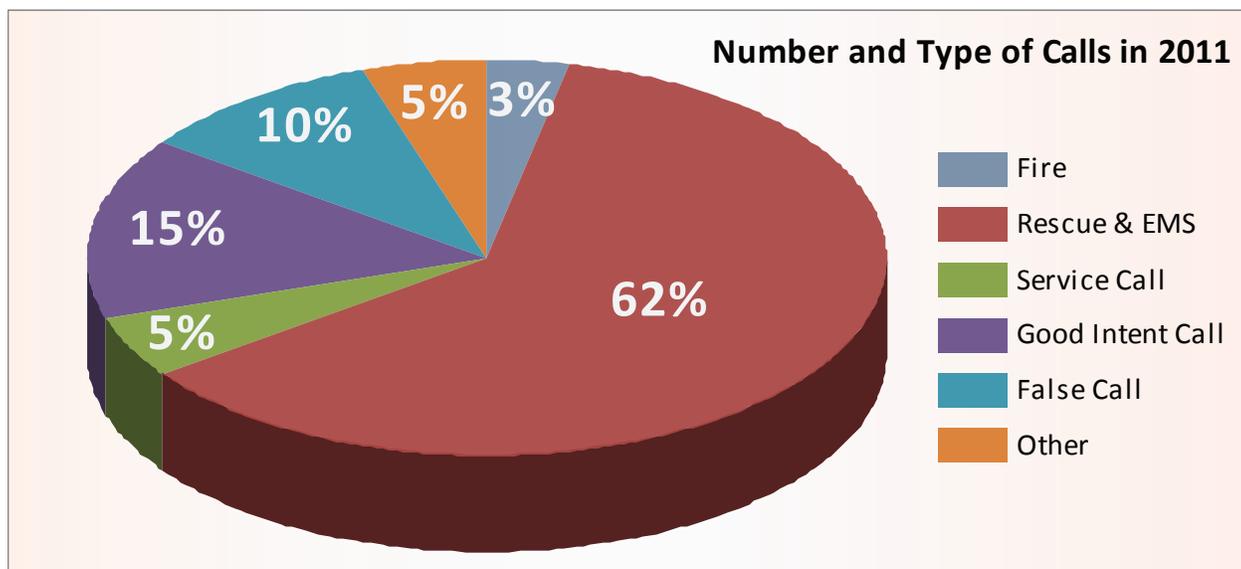


How does the Master Plan affect Daily Life in Boulder?

The master plan defines a future course for providing high-quality and cost-effective emergency services and enhancing public safety education and fire prevention efforts. It also reflects the department’s intent to continue to improve emergency response capabilities, which will benefit everyone who lives, works, and plays in Boulder.

Master Plan Development

To prepare this master plan, BFRD began with a Fire Operation and Management Assessment (2011 Assessment) that was completed in June 2011. This was an opportunity to conduct a comprehensive operation and management assessment of BFRD. (See Appendix B for an executive summary of the report.) The 2011 Assessment, including the data analysis and needs assessment, forms the basis of this updated Fire-Rescue Master Plan. As part of the master plan update process, BFRD reviewed goals and challenges related to funding, staff, training, vehicles, equipment, national and regional standards, growth of the city, and other issues that affect the quality of services. BFRD conducted meetings and interviews with stakeholders in the fire rescue community and staff. Using input from these focus group meetings and recommendations from the 2011 Assessment, a number of strategies and initiatives have been developed as part of the master plan update.





Chapter 2 – Mission and Vision

Overview of Current Operations

The Boulder Fire-Rescue Department (BFRD) provides emergency response to fires, medical emergencies, rescues, and hazardous material releases in Boulder. With a 2012 budget of more than \$15.5 million, 104 firefighters, and 12 civilian staff, BFRD responds to all hazards and provides the following services:

- Fighting structural and wildland fires;
- Responding to medical emergencies, rescue situations, hazardous material releases, as well as natural disasters;
- Providing fire-safety education for the public, from children and youth (preschool through college age) to seniors;
- Working with local businesses and organizations by inspecting buildings and reviewing construction plans for fire prevention;
- Acting as the designated emergency response authority (DERA) for the city for hazardous materials;
- Protecting over \$21 billion dollars worth of property within Boulder, which encompasses 25.8 square miles of land and is surrounded by 70.8 square miles of city Open Space and Mountain Parks (OSMP).

The department currently operates with one ladder truck company and seven engine companies out of seven fire stations. Each company has a staff of three firefighters on duty 24 hours a day, seven days a week. At any given time, there are at least 25 firefighters on duty, including a shift commander. The department also employs five full-time wildland firefighters and four seasonal wildland firefighters.

Two full-time staff members coordinate department training. The department has five full-time employees that cover code enforcement, fire prevention, construction plans review, and public fire-safety education.

To maintain proficiency in a wide variety of emergency services, the department conducts extensive training in all areas, including firefighting, fire prevention, rescue, emergency medical care, hazardous materials clean-up, and public education.

Fire-Rescue Department Core Mission

The Boulder Fire-Rescue Department strives to make Boulder a safe place to live, work, and play. BFRD reduces the human suffering caused by fires, accidents, sudden illnesses, hazardous material releases, or other disasters.

Fire-Rescue Department Vision

To set the highest standard of service through training, teamwork, and technology.

Joint training exercises are conducted with other county agencies. Fire stations are located strategically to meet emergency response service standards. As the population within a service area increases, the number of calls for fire and emergency services also increases. When one fire response unit in a station exceeds 1,500 calls per year, BFRD evaluates whether additional fire engines and staff are needed.

With fire stations located strategically around the city, the department often is the first to arrive on a medical emergency scene. Firefighters provide Basic Life Services (BLS) care until the ambulance arrives to provide Advanced Life Support (ALS) care by paramedics and transports sick or injured people to the hospital. BFRD has some firefighters who are cross-trained to staff four special operations teams. The firefighters on these special operations teams have additional responsibilities in the following specialty areas:



Fire Station 3 circa 1908.

The Boulder Fire-Rescue Department has a long and proud history. In 1871, Boulder’s first fire department consisted of city leaders and every resident available to protect the population of 343 and their 77 dwellings. The Boulder Hook and Ladder Company was organized Feb. 15, 1875, and by the spring of 1876, Boulder had installed 2,180 feet of water main on Pearl Street with four fireplugs. Fire equipment was pulled by hand. By 1898, horses pulled the department’s four-hose companies. That year, Boulder hired its first paid firefighters. By 1913, all equipment was mechanized, and in 1915, the last of the volunteer companies in the city disbanded. The post-World War II era saw a dramatic increase in the city’s population and demand for fire services. In 1958, two new fire stations were dedicated: the Central Station at 13th and Portland, and Station 2 at Baseline and Broadway. In 1965, the city dedicated a third municipal fire station at 30th and Arapahoe streets, which now houses the city’s busiest fire engine company. In June 1978, the Boulder Fire Department hired three women. By 1982, the department employed 5 percent of the paid women firefighters in the nation. Now, women continue to represent 5 percent of the department’s firefighters and 25 percent of the prevention and administration personnel. In the 1980s, the department’s responsibilities expanded to include medical emergency response, water rescue, and hazardous materials response. The department, now called Boulder Fire-Rescue, has increased fire prevention efforts with an emphasis on achieving code compliance through building and fire code administration.



- **Hazmat Team** – responds to hazardous chemical releases, including chemical spills on manufacturing sites and during transport;
- **Wildland Fire Team** – with the help of additional seasonal wildland firefighters, responds to fires in open space and on the edges of the city, including the foothills;
- **Dive Team** – responds to emergencies at the Boulder Reservoir, Boulder Creek, and other bodies of water within the city;
- **Public Education Team** – works with the department’s fire-safety coordinator to provide public education in fire prevention.

Philosophy

Preventing fires before they occur is the department’s priority. Public fire education and fire safety inspections help in this effort. The city emphasizes private sector self-protection through code regulations. Automatic fire sprinkler systems are required for many uses. Municipal fire protection requires a balance between city

Fire-Rescue Department Philosophy

To be effective, firefighters must be well-trained, well-equipped, and arrive in time.

services provided through trained firefighters and services provided by built-in automatic fire protection systems. City-provided protection is designed to

handle fires in non-protected buildings, outside fires, and fires that occur during medical and other emergencies.

BFRD believes in providing diverse equipment on all fire engines and in training firefighters as generalists rather than specialists. Every front-line fire engine has fire-fighting and rescue equipment along with emergency medical supplies. Every firefighter must pass a comprehensive training program, including fire fighting, hazardous materials (hazmat) response, and rescues involving

Mutual Aid

Boulder Fire-Rescue has developed reciprocal mutual aid and cooperative agreements with fire departments in surrounding communities to respond in the case of emergencies that require more fire vehicles and firefighters than are available in the city. The department has cooperative agreements through the State of Colorado and with the federal government in the event of more widespread emergencies such as a major wildfire.

vehicle accidents, fire, water, and ice. Firefighters also are required to earn certification as a State of Colorado Emergency Medical Technician. The department provides Basic Life Support (BLS) services.



Office of Emergency Management

In the event of large-scale natural or technological disasters, the Boulder Fire-Rescue Department works with other agencies and organizations such as the City of Boulder/Boulder County Office of Emergency Management (Boulder OEM). The Boulder OEM coordinates with local, state, and federal partners to facilitate planning and response to emergency situations. Given the importance of emergency response and recovery planning, the city continuously reviews the coordination with Boulder OEM to identify any areas of improvement.

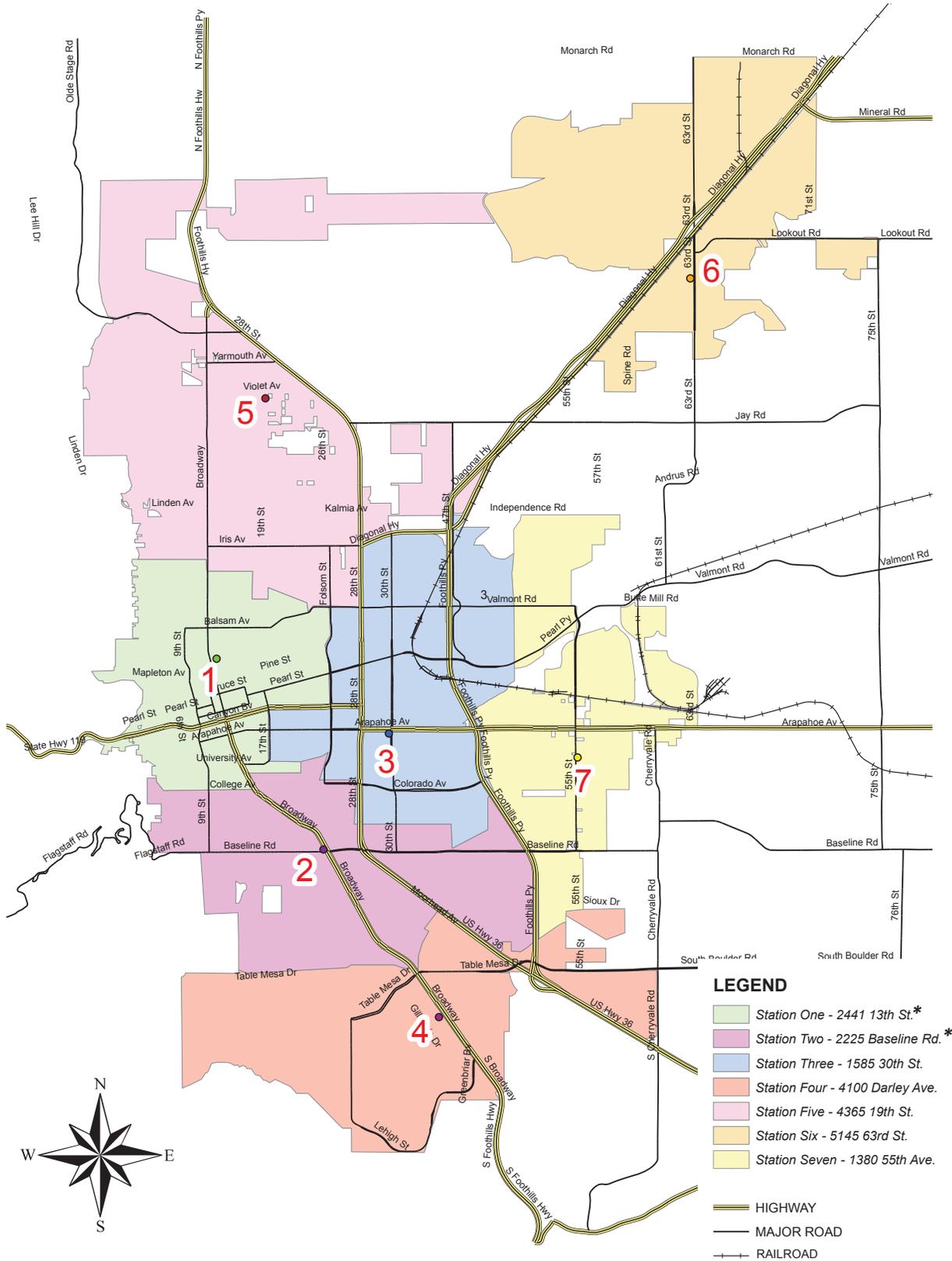


Summary of BFRD Programs

Sustainability Framework	Division	Program Name	Program Description
	Emergency Services	Fire Response, Emergency Medical Response, Rescue, Service Calls, Boulder Emergency Squad (BES)	Provides response to fire and medical emergencies, as well as non-emergency calls. Rescue includes vehicle, swift water, and trapped persons. Service calls includes lockouts, lift assists, water leaks, and alarm shutoffs. Boulder Emergency Squad is contracted by the city to provide services at major fires including refilling breathing air cylinders.
		SWAT Support (for Police Department)	Provides basic medical service to the Police Department’s SWAT Team.
		Departmental Vehicle/ Equipment Maintenance and Replacement	Provides regular service and maintenance to emergency response vehicles which have complicated mechanical systems.
	Hazardous Materials Team	Hazardous Materials Release Response/ Training	Provides specialized response to contain and control hazmat releases with regular on-duty fire fighters who are cross trained.
	Fire Safety	Inspections/Code Enforcement, Fire Investigation, Fire Code Permits	Provides inspection and enforcement services to ensure existing buildings and new construction meet fire and safety code requirements, Investigates fire cause and fire origin determination on all fires causing damage or injury in the community and participates in inspection and permit processing, ensuring fire code and safety compliance for fire protection systems. Also, involved in flammable liquid facilities and special events.
		Public Fire and Safety Education, Juvenile Fire Setter Intervention	Provides fire and safety education including flood and disaster preparedness for at-risk groups in the community. Provides evaluation and intervention for children ages 3 to 18 who have been involved in a fire-setting incident.
	Wildland Coordination	Wildland Operations/ Planning/ Mitigation/ Coordination	Provides initial fire attack for wildland fires occurring on city owned open space. Conducts forest thinning services and coordinates wild fire response with neighboring fire districts.
	Dive Team	Water Search and Rescue/ Recovery/ Training	Provides swift and underwater search and recovery with regular on-duty fire fighters who are cross trained.
	Outside Services	Contracts (Rocky Mountain Rescue Group, Ambulance)	Administers a contract for service from Rocky Mountain Rescue and administers an ambulance contract covering private ambulance response in the city.
		Office of Emergency Management	Provides community education, planning and management for disaster response. The office is operated jointly by city and county, and is the link for the city to access Federal funds for disaster relief.



Fire Response Districts within City Limits



* Stations #1 and #2 also have responsibilities for emergency response on Open Space and Mountain Parks land outside the city limits.



Chapter 3 – Trends and Community Needs



As part of the master plan development, key demographic trends and community needs that have implications for the Boulder Fire-Rescue Department (BFRD) were identified. These factors are viewed through the Sustainability Framework that addresses the ability of BFRD to meet the needs of the community now and in the future.

TRENDS:

Factors Driving the Need for Change

In preparing this master plan, BFRD considered current and emerging trends that have implications for the future of emergency response. These include the following:

- **Aging population (more seniors)** – Boulder’s population is aging, and the county population of age 60 and over is expected to nearly double by 2020. In 2008, 12 percent of Boulder County’s residents were over the age of 60. In 2020, that age group is expected to reach 21 percent.
- **Increase in population** – The City of Boulder’s 2012 population is estimated at 99,100, with projections indicating an increase to 114,000 by 2035. This figure could be even higher as the University of Colorado - with a current enrollment of approximately 30,000 - projects an additional 11,000 students by 2030.
- **Increase in EMS calls** – Calls for emergency medical services (EMS) are on the rise. BFRD experienced an increase of 17 percent in EMS calls between 2006 and 2011. With Boulder’s population and employment projections, EMS incidents are expected to increase, particularly in areas being redeveloped.
- **Year-round wildfire risk** – As highlighted in the 1996 Fire-Rescue Master Plan and the 2011 Assessment, the city is surrounded by open space, which increases the risk of wildfires. Due to changes in climate, the wildfire risk has expanded from one season to all year. The city has recent experience with wildland/

urban interface fires outside the historic fire season. Several of these fires have been significant events requiring intensive application of both internal and external resources.

- **Movement towards a more urban form** – Areas of the city are becoming less suburban and more urban. In the last 10 years, 3,270 dwelling units have been constructed, and more than 5 million square feet of commercial and industrial space have been built, while not significantly expanding the city limits. Current trends and projections indicate that most new housing units will be in higher density multi-unit developments, and Boulder will continue to serve as a regional employment center. In some sections of the city, this creates new challenges for Fire and EMS service delivery because of impacts like increased population density, changes to street size and grid, and public areas designed for pedestrians, not large vehicles.

COMMUNITY NEEDS: Sustainability Framework

The Sustainability Framework is a new tool for departmental master planning in Boulder to help ensure that each plan aligns with and advances the goals and priorities of the City Council and community. The framework will evolve as it is applied in subsequent master plan efforts.

The long-term intent of the framework is to:

- **Inform decisions** made in the master planning process to support integration of community sustainability goals in the city’s master plans and help ensure alignment with community priorities;
- **Summarize master plan priorities and actions** in a consistent manner between all of the city’s master planning efforts; and
- **Support development of a reporting mechanism**, linked to key indicators, allowing the city to better monitor progress in meeting key community objectives.





The categories of the framework build upon the Boulder Valley Comprehensive Plan (BVCP) and the city’s Priority Based Budgeting (PBB) approach: two key initiatives that define long-term community goals and priorities. Both the BVCP and PBB were developed from extensive community input processes and are used to guide long-term decision making as well as the city’s annual budget process.

The Sustainability Framework organizes master plan priorities according to seven strategy areas:



Safety and Community Well-Being –

Protect residents and property from physical harm; promote community and individual health; and foster an atmosphere of social and cultural inclusiveness.



Community Character – Create and

sustain a community that is accessible, connected, creative, inclusive, safe, and socially and economically vibrant, ensuring high quality, livable neighborhoods; vibrant business districts; and accessible and abundant parks and green spaces.



Mobility – Maintain and develop a

balanced transportation system that supports all modes of travel, makes the system more efficient in carrying travelers, maintains a safe system and shifts trips away from single-occupant vehicles.



Energy – Ensure the efficient use of

energy resources and reduce the use of non-renewable resources to the maximum extent possible.



Natural Environment – Promote an

ecologically balanced community and prevent and mitigate threats to the environment.



Economic Vitality – Develop and

maintain a healthy, resilient economy and high levels of services and amenities.



Good Governance – Be a model

steward of the financial, human, information and physical assets of the community by supporting strategic decision making with timely, reliable and accurate data and analysis, and by enhancing and facilitating transparency, accuracy, efficiency, effectiveness and quality customer service.



Chapter 4 – Recommendations: Strategies and Initiatives



Strategies and Initiatives

Sustainability is supported by the Boulder Fire-Rescue Department (BFRD) through appropriate and effective response to real or potential emergency situations. As part of the master plan update process, BFRD has developed a number of initiatives to more strategically provide emergency services while meeting many community goals. While the initiatives are described in this section under a specific sustainability category, the initiatives often impact multiple areas as reflected in the summary table on pages 16 and 17. As part of this focus on sustainability, the master plan challenges staff to provide appropriate and effective services while looking for ways to reduce the carbon footprint and other environmental impacts, as well as examining ways to address the changing and dynamic need of the community. It seeks to directly inform the concept of appropriate and effective service delivery with the fiscal, economic, environmental, social realities and goals of the Boulder community.

This section summarizes BFRD’s strategy and key initiatives for each Sustainability Framework category area.



Safety and Community Well-Being – Adjust service delivery to efficiently respond to changing community needs.

Localized fire disasters negatively impact the neighborhood and surrounding community. BFRD protects homes, local businesses and other neighborhood assets by delivering services equitably, increasing the sense of security, and reducing the potential for death, injury, or displacement of people. Key initiatives related to community well-being include:

→ **Complete a comprehensive risk analysis to identify specific risks and to tailor emergency response.** As recommended in the Assessment, BFRD will conduct a “standard of cover” analysis of the city. The “standard of cover” analysis is intended to:

- 1) Provide a structure for policy makers, staff and the community to have a dialogue about the various challenges in fire-rescue service provision in the city, and
- 2) Facilitate a frank and complete discussion about the variance in risk, service demand, and community characteristics.

Completing such an analysis typically takes a year – whether completed by staff or a consultant and can be expected to present the city with policy choices, such as:

- Should a single response time standard be used throughout the community, or variable ones?
- How should units be staffed?
- Are there specific high-hazard locations that should be considered for alternative responses?

→ **Expand public education and outreach efforts focused on fire and injury prevention through partnerships, traditional methods, and new approaches.** Currently, public education and outreach efforts include programs for preschool, elementary school, and college students. The programs for younger children include general fire safety, familiarity with firefighters and home escape plans. The focus for college is on fire safety and providing information to student leaders (sororities, fraternities, student government) to share with their peers. Fire safety posters and other materials are also distributed to local landlords and property managers. Other outreach efforts include training for businesses on the proper use of fire extinguishers; educating seniors on





SUSTAINABILITY CATEGORIES		Safety and Community Well-Being	Community Character	Mobility	Energy	Natural Environment	Economic Vitality	Good Governance	
STRATEGY		Adjust service delivery to efficiently respond to changing community needs.	Ensure fire emergency services can serve a denser urban form. Mitigate the challenge of living next to open space.	Maximize emergency response while leveraging resources and minimizing impact to infrastructure.	Reduce energy consumption and emissions.	Anticipate and prepare for year-round wildfire risk.	Partner with businesses to take preventative actions that minimize economic disruptions during emergency events.	Model the strategic use of resources and environmental stewardship.	
<i>Red X indicates the primary sustainability category that relates to the initiative.</i>									
INITIATIVES	Physical Planning/Urban Design	Support collaboration between BFRD's and other city departments on area plans and development review projects.	X	X				X	
		Evaluate station needs for redeveloping areas, such as Fire Station #3 (relocation out of floodplain).	X	X					
	Buildings and Code	Consider adoption of new codes such as the wildland interface code and those focused on vegetation mitigation and fire-resistive construction practices.	X	X			X		
		Implement plan to identify remaining wood roofs by end of 2012 so city can work with property owners to facilitate replacement of existing roofs by deadline (Jan. 2014).	X	X			X		
		Evaluate location, size, and design of all BFRD facilities for effectiveness and efficiency.		X					X
		Examine the commercial inspection program and develop more clearly defined performance measures.	X	X				X	X
	Facilities and Capital	Develop a new wildland fire facility at the Fire Training Center site.	X	X			X		
		Develop a fire materials and equipment storage solution.	X	X					
		Maintain a forward looking plan for maintenance and replacement of BFRD capital assets, including fire apparatus.	X					X	X
	Environmental	Perform an environmental baseline assessment and develop an action plan to further implement GHG emission reduction measures.				X		X	X
		Improve BFRD's environmental sustainability efforts through recycling and composting.				X			
		Use LEED targets for facility development.			X	X			
		Pilot the use of smaller vehicles to respond to medical emergencies.			X	X			
		Leverage new dispatch system to reduce number of vehicles responding.			X	X		X	X
	Public Outreach and Education	Expand public education and outreach efforts focused on fire and injury prevention through partnerships, traditional methods, and new approaches.	X						
		Explore new public education programs to expand the reach to include other members of public.	X						
	Personnel - Staffing - Training	Continue to adjust shift schedules to reduce commuting.			X	X			
		Explore mandatory firefighter wellness and fitness program.	X						X
		Shift the deployment of personnel assigned to specialty teams into dedicated stations and pair personnel with their equipment.	X						X
		Continue to replace seasonal wildland fire crews with full-time employees.	X				X		X
Explore ways to improve diversity within BFRD.								X	
Hire a hazardous materials inspector.							X		
Expand and improve training for fire, rescue, and EMS skills with better effort toward incorporating lessons learned in the field.								X	
Establish a training steering committee to guide the training curriculum for BFRD.								X	
Develop a formalized system for succession planning, including leadership development, training, and specialized assignments.							X		
General - Management	Enhance EMS service delivery through improved coordination, use of new technology, and periodic review of delivery model.	X						X	
	Continue to focus on wildland fire planning, mitigation and protection, including more coordination with other city departments and regional partnerships with the Sheriff's Office and service providers.	X				X			
	Create a community-oriented risk management program that includes pre-plans for businesses to allow for more effective emergency response.	X	X				X		
	Design and use apparatus that are appropriate for the missions and efficient to operate.	X		X				X	
	Expand the use of incident benchmark data to evaluate and improve response.	X						X	
	Complete comprehensive risk analysis to identify risks and tailor emergency response.	X						X	
	Revisit turnout times and take necessary steps to improve response times.	X						X	
	Track new performance measures and increase utilization of data in management of BFRD.	X						X	



Firefighter Gear

When firefighters respond to an emergency, they wear 50 pounds of clothing and gear designed to protect them from heat, flames, abrasions, puncture, and other traumatic injury. This includes coats, trousers, boots, gloves, helmets, personal alarm devices, fire shelters, self-contained breathing apparatus (SCBA), and other special equipment issued for exposure protection, such as communicable disease shields.

safety, injury prevention and emergency preparedness; and holding post-fire meetings in neighborhoods that have experienced a recent fire.

BFRD, as well as the Boulder Police Department, recognize that the most efficient way to improve public safety is to mitigate the potential risks in the community. BFRD will work with the Police Department to address opportunities to work cooperatively in the delivery of prevention and public education services.

- **Explore new public education programs to expand the reach to include other members of the public.** BFRD is considering the expansion of existing programs to include those populations within the community that have not historically been reached with prevention initiatives. For instance, as part of the existing public education outreach efforts, BFRD hosts a yearly Greek Academy/Leadership program that familiarizes college-age student leaders with the effects of fires on students and firefighters. Student leaders meet at the Fire Training Center for extinguisher training, search and rescue training, full bunker gear donning, simulated search for victims, smoke tower training, combat challenge training, fire safety and respect for firefighters initiation. This program has become a national model. BFRD is exploring the option of expanding the program to include other members of the public, including elected officials.
- **Shift the deployment of personnel assigned to specialty teams into dedicated stations and pair personnel with their equipment.** In addition to providing fire suppression and EMS response, BFRD is responsible for providing a variety of specialty services, including: hazardous materials response, dive team/swift water rescue and wildland fire response. Currently, these teams are assigned specialized equipment and have specially trained personnel. However, these personnel are not assigned, unless by chance, to the stations where their equipment is located. BFRD intends to shift how personnel are assigned to specialty teams and station locations. This is anticipated to improve response times to emergencies as well as potentially limit

vehicle miles traveled. BFRD will also analyze the compensation philosophy used to encourage special team participation. (See **page 12** for a map of fire station locations and their response districts.)

Community Character – Ensure fire emergency services can serve a denser urban form; and Mitigate the challenge of living next to open

space. – BFRD protects the community's built assets with aggressive fire suppression activities to reduce the costs associated with repairing or rebuilding structures after a fire. BFRD's fire inspection program and code enforcement activities identify and correct fire risks, while BFRD's educational programs empower people to identify and correct their own risks. Key initiatives in this area include:

- **Support collaboration between BFRD and other city departments on area plans and development review projects.** As areas of the community undergo redevelopment to increase density, improve connections and create livable public spaces, BFRD will partner with other city departments during planning, engineering, design and review of plans and projects to ensure that redeveloping areas become quality places with adequate infrastructure and access to facilitate emergency response. It is anticipated that redevelopment will remain the focus for the foreseeable future. For instance, the Boulder Junction and east Boulder area will continue to have revitalization projects with a new transit center, higher density neighborhoods, improved business and industrial districts, transportation improvements and public spaces. As a result, BFRD is collaborating with staff in other city departments to clarify the approach for urban development and redevelopment around fire and EMS service delivery.



- **Implement a plan to identify remaining wood roofs by the end of 2012 so the city can work with property owners to facilitate their replacement by the January 2014 deadline.** In 1994, the city adopted a code change banning the installation of all wood roof covering materials, including wood shakes and wood shingles. The code amendment allows existing wood roofs to be maintained until Jan. 1, 2014, at which time these roofs must be replaced with fire-resistant materials. The community has responded well to this regulation and the number of wood shake roofs has been reduced markedly in the more vulnerable interface areas. BFRD is developing a plan to work with remaining property owners to meet the upcoming deadline.
- **Evaluate station needs for redeveloping areas, such as Fire Station #3 (relocation out of floodplain).** In certain areas, the Boulder community is changing from a suburban pattern to a more urban environment, which changes the density, street network, traffic patterns, as well as uses in buildings and surrounding areas. As redevelopment occurs, BFRD will evaluate the station needs servicing those areas. For instance, as noted in the Assessment, Fire Station #3, which is the third oldest station the city’s busiest, is currently located in the 100-year floodplain. BFRD, in conjunction with the city, will evaluate opportunities to build a new Fire Station #3, including consideration of additional space for administrative staff along with adequate space for records storage. This would enhance the involvement between upper management and line personnel and address administrative space constraints.
- **Evaluate location, size, and design of all BFRD facilities for effectiveness and efficiency.** Many of the city’s existing fire stations are undersized for today’s standards for fire stations and some of the older stations have living quarters adjacent to vehicle bays which can create indoor air quality issues. BFRD intends to assess facilities for opportunities to enhance the overall efficiency of each facility. As part of this effort, BFRD will determine what steps, if any, will need to be taken to accommodate alternative vehicles in

each station and what steps, if any, will need to be taken to accommodate workout facilities and provide adequate living space in each fire station. In addition, the fire stations will be assessed in terms of their ability to support rapid egress for emergency personnel and vehicles in response to calls for service, examining each to determine if it is possible to improve emergency response times.

- **Develop a fire materials and equipment storage solution.** In addition to the fire stations, BFRD faces challenges in storing fire materials and equipment. Currently, some reserve vehicles are stored in fire stations, crowding the effective operations of those buildings. Stocks of supplies to use during hazardous materials incidents are limited to what can be carried on fire engines because of the lack of dry, heated storage space. BFRD will evaluate options for efficiently storing reserve fire apparatus and emergency supplies to determine an appropriate solution.



Mobility – Maximize emergency response while leveraging resources and minimizing impact to infrastructure. BFRD takes advantage of new technologies as vehicles are replaced. BFRD has reduced employee commuting trips by 50 percent with a revision of shift schedules in 2009. Key initiatives related to mobility are explained below. All of the initiatives are designed to improve the efficiency and effectiveness of emergency response while reducing fuel usage and limiting the wear and tear on public infrastructure and BFRD heavy apparatus.

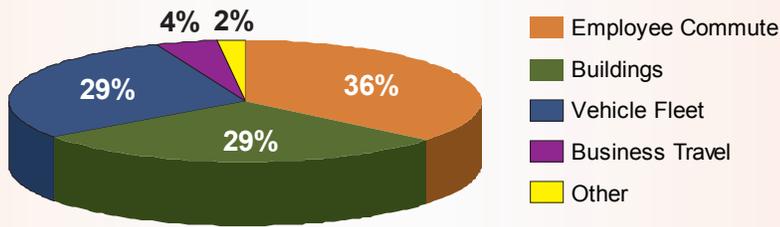
- **Pilot the use of smaller vehicles to respond to medical emergencies.** As medical calls for service make up an ever greater percentage of BFRD’s workload, it will become increasingly unnecessary to respond to every call with a fire engine. In most medical emergencies, the necessary equipment, supplies, and personnel can be transported in a vehicle that is smaller, lighter, more



maneuverable, more fuel efficient, and generally easier and less expensive to operate. Potentially, an additional benefit is the extension of the life of the city’s existing fire engines, which are extremely expensive to replace. BFRD, which anticipates implementing a pilot program in 2013, will use the pilot period to evaluate changes in response times,

units (Type 3 engines) as well as other engine and ladder apparatus. BFRD has been incorporating the newest diesel engine technologies and achieving near-zero emissions for the most recent fire engine purchases. BFRD will continue to consider the necessity of equipment and tools on each unit, and the application of new technologies in an effort to improve the efficiency of the apparatus operated in the city.

2008 BFRD Operations Greenhouse Gas Emissions by Sector



quantify fuel usage and vehicle miles traveled, and determine when and how often it is more effective to deploy a smaller vehicle. Please see **Appendix A** for more details.

→ **Design and use apparatus that are efficient and appropriate for the missions of BFRD.** As mentioned previously, BFRD is committed to evaluating alternative vehicles for EMS response. These vehicles may be smaller or may utilize alternative fuels, or both. In addition, BFRD will continue its efforts to develop vehicle specifications that result in the most appropriate, efficient apparatus for the range of operations. This includes the need to continue to acquire additional wildland firefighting

→ **Leverage new dispatch system to reduce the number of vehicles responding.** Currently, emergency medical calls trigger a response from both the city’s current ambulance provider, American Medical Response (AMR), and BFRD. Since “real-time” GPS information is not accessible in the current dispatch system, BFRD responds based on districts, which means that the closest unit does not necessarily respond. Currently, the city is in the process of implementing a new Computer Aided Dispatch (CAD) system to allow for more sophisticated emergency response. The new system includes a GPS component to track geographic information and a Medical Priority Dispatch System (MPDS) and Fire Priority Dispatch System (FPDS). Through changes in medical dispatching, the proper number and type of emergency personnel can be determined before the dispatcher relays the information. This will potentially result in fewer responses by large fire engines, which will decrease the wear and tear on the apparatus as well as the city infrastructure. It is anticipated that the new dispatch system will be in place by early 2013.



Energy – Reduce energy consumption and emissions.

BFRD participates in the ongoing city program to conserve energy, reduce greenhouse gas (GHG) emissions, use renewable energy, reduce waste and limit toxins in the environment. BFRD’s hazardous materials response limits and contains the release of hazardous materials into the environment. Fire inspections and code enforcement greatly reduce the potential for unanticipated hazardous material releases. The prevention or reduction in number and severity of fires and/or hazardous material releases has positive environmental impacts. A study commissioned by the New Zealand Fire Service Commission estimates greenhouse gas





(GHG) emissions of between 33 and 44 metric tons of CO₂ equivalent with the total loss of a 2,000 square foot structure (including contents¹). BFRD reduces GHG emissions with aggressive fire suppression activities reducing the CO₂ equivalent substantially. BFRD's use of



alternative fuel vehicles, such as biodiesel (B5), helps promote renewable fuels and reduces emissions impacts over conventional fuels. Key initiatives related to energy include:

→ **Continue to adjust schedules to reduce commuting.** According to the recent Assessment, only two BFRD employees live within the city limits. Staff commutes likely result in a significant amount of fuel consumption and GHG emissions. BFRD implemented a change to the work schedule in 2009, which helped reduce these impacts. Previously, BFRD staff worked 24 consecutive hours followed by 24 hours off for five days. On the sixth day, staff would have 96 consecutive hours off and then start the work schedule again. This resulted in double the commuting days compared to the schedule changes to 48 consecutive hours on followed by 96 hours off. As a result, employee annual commutes were reduced by half. BFRD plans to continue the current schedule and maintain the employee commuting data.

→ **Perform an environmental baseline assessment and develop an action plan to further implement GHG emission reduction measures.** In January 2012, BFRD performed an environmental baseline assessment to understand the sources of its GHG emissions. The information from the baseline is now being used to develop

an action plan to guide and prioritize the departmental GHG emissions reduction efforts. As part of this effort, BFRD has established a staff environmental sustainability committee to identify ways the department can reduce its carbon footprint and increase efficiencies while maintaining or improving existing service levels. The committee is working on an internal action plan to achieve zero waste goals, further reductions in employee commuting, more fuel efficient fire department apparatus, deployment and training options to reduce vehicle miles traveled, station improvements, and a variety of other strategies to offset BFRD's carbon footprint. By periodically updating the inventories, creating new baselines, and adding new initiatives to the action plan, BFRD will be able to track and report its progress in protecting the climate and demonstrate reductions in GHG emissions.

BFRD is also actively participating in the Power Education program development as part of the city's energy performance contract, Phase 3. This program will seek to educate employees and modify behavior towards more responsible energy usage.

→ **Improve BFRD's environmental sustainability efforts through recycling and composting.** As part of the city's climate action plan, BFRD's environmental sustainability committee is working on ways to improve recycling and composting efforts as well as considering a time-table to reach a goal



1. Study Report: House Fire GHG Emissions Estimation Tool – A Preliminary Framework by A.P. Robbins, I.C. Page and R.A. Jacques. Funded by the New Zealand Fire Service Commission. 2010.



of zero waste. As part of these efforts, BFRD will install more three-in-one waste stations (which include recycling, compost, and trash receptacles) in facilities along with more training on what is compostable and recyclable. The recycling and composting data will continue to be tracked and evaluated to ensure improved efforts. BFRD is also considering going paperless, which would include documenting field notes and injury reports electronically. Currently, these are paper forms which are transferred to the ambulance provider and used in other routine reports.

- **Use Leadership in Energy and Environmental Design (LEED) targets for facility development.** All fire stations have received energy-efficient lighting and weatherization upgrades as part of the city's Energy Performance Contract. The new Fire Training Center received a LEED gold certification and incorporates a number of green design elements such as using locally available and recycled materials, water-saving fixtures and high-efficiency HVAC systems. As fire stations are redeveloped and upgraded, BFRD will continue to use the LEED targets as supported across the city organization.



Natural Environment – Anticipate and prepare for year-round wildfire risk. The Wildland Division of BFRD is charged with the wildland fuel (flammable vegetation) reduction efforts within city limits. In addition to these mitigation and stewardship efforts, the Wildland Division is also a major contributor in wildland suppression efforts both within city limits and in adjacent unincorporated areas of Boulder County, which together total more than 108,000 acres of open space. BFRD works with the city's Open Space & Mountain Parks (OSMP) Department to ensure the health of forest lands through mechanical thinning, ecological restoration, and the use of prescribed fires to limit the severity of uncontrolled fires on city properties. Key initiatives include:

- **Consider new codes for wildland interface and residential construction practices.** Similar to other communities, BFRD utilizes the code management process to ensure life safety and to regulate construction

practices. Many of Boulder's residential areas are adjacent to open space areas in which there is a higher risk of grass and wildland fires. Currently, Boulder uses provisions of the fire code to address specific wildfire considerations. Recently, some communities have adopted wildland interface codes that specifically address the dangers of wildfire. The International Code Council (ICC) has developed a model wildland interface code that addresses the key aspects of code application related to wildfires. Staff is evaluating how the wildland interface code can be adapted to the City of Boulder. In addition, staff will evaluate potential code changes focused on vegetation mitigation and fire-resistant construction practices for residential areas. These regulatory efforts could help reduce the risk of grass fires near residential structures and reduce the potential for fires to spread to adjacent properties. The adoption of updated building codes is scheduled for council consideration in the fourth quarter of 2012.

- **Continue to focus on wildland fire planning, mitigation and protection, including more coordination with other city departments and regional partnerships with the Sheriff's Office and service providers.** BFRD has embarked on an aggressive effort to improve the planning and mitigation efforts related to wildland/urban interface issues in and around Boulder. This is a multi-agency solution given the borders and land ownership issues involved. Mitigation, prevention and proper planning are the best way to efficiently and effectively handle wildland fires and wildland/urban interface issues. BFRD created the Community Wildfire Protection Plan in September 2007 to analyze fire potential in the interface areas and the impact a fire might have on the community. The plan establishes the priorities for the protection of life, property and critical infrastructure. To ensure that the plan remains current it will be updated every five years, including later in 2012. BFRD also partners with OSMP in mitigation efforts such as those described in the Forest Ecosystem Management Plan and the Grassland Ecosystem Management Plan. The National Fire Protection Association's (NFPA) Firewise Communities program



encourages local solutions for wildfire safety by involving homeowners, community leaders, planners, developers, firefighters, and others in the effort to protect people and property from wildfire risks. BFRD will continue the public education program, particularly in neighborhoods along and near the wildland/urban interface, to include the Firewise program.

→ **Continue to replace seasonal wildland fire crews with full-time employees.**

As noted in the Assessment, the city’s Wildland Division has been a pioneer in the field, receiving national recognition for its comprehensive approach towards forest management. However, due to changes in climate, the wildfire risk has expanded from one season to a year-round concern. BFRD has limited full-time staff to accommodate a year-round season. BFRD has begun to take steps to address these resource issues by converting existing seasonal employees to full time. Replacing seasonal crews with full-time employees is anticipated to be a three-year phase-in process. In addition, BFRD will analyze upgrading the Wildland Fuels Manager and Fire Management Coordinator positions to train line firefighters to respond to wildland fire emergencies and provide organizational parity to similar line positions.

→ **Develop a new wildland fire facility at the Fire Training Center site.** The Wildland Division is currently located in three separate locations. The wildland management staff is located at the Public Safety Building (1805 33rd Street), while the wildland fire crew is housed in a single-family residence at 19th and Violet (1888 Violet) called the “cache.” Trucks and equipment that need to be inside are stored at the “fire barn” at 51st and Jay Road. Not having all of the wildland tools, equipment and vehicles in one place can cause delays in responding during an emergency. On a daily basis, it is also inefficient because fire crews must drive to a separate location to perform equipment checks and routine maintenance. As a result, a new wildland fire facility is being developed at the Fire Training Center site with 2011 capital investment bond funds (see text box for details). It is anticipated that the new wildland facility will be completed by 2015.



Economic Vitality – Partner with businesses to take preventative actions that minimize economic disruptions during emergency events.

Fires in businesses contribute to unemployment, lost income, and the loss of tax revenues for local government. BFRD’s fire inspection program and code enforcement identifies and corrects fire risks to prevent fires. In addition, BFRD’s educational programs help the business community identify and correct their own risks without city intervention. Key initiatives include:

→ **Hire a hazardous materials inspector.**

The science and technology sectors that are an important part of Boulder’s economy often require the handling and management of hazardous materials. The partnership between BFRD and private businesses and institutions in these sectors is essential to the protection of human life and economic activity as well as proper compliance with complex state, federal and local regulations concerning hazardous materials storage and handling. This partnership would be best facilitated by an inspector who focuses on hazardous materials. Hiring a specialized inspector would allow the department to do pre-incident planning, respond more effectively to hazardous material releases, and provide firefighters better access to information concerning their personal health and safety.

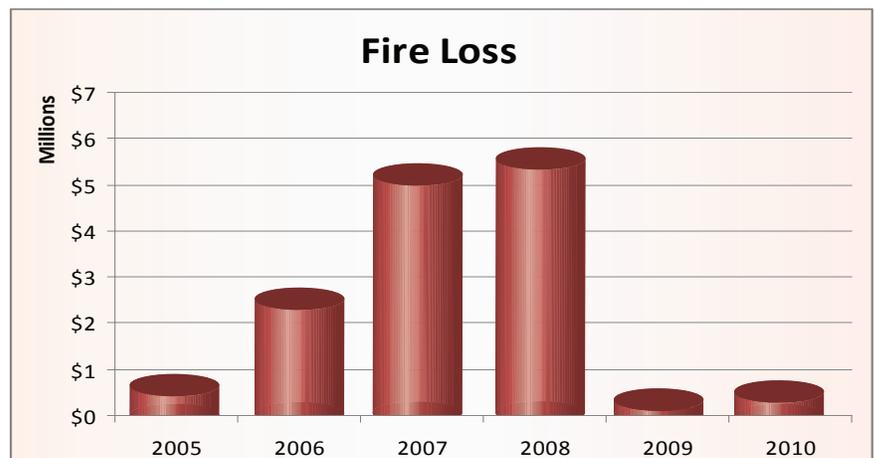
→ **Examine the commercial inspection program and develop more clearly defined performance measures.**

BFRD is responsible for new construction fire-safety plan review and inspection for the city. Additionally, every one of the approximately 6,000 businesses in Boulder is inspected at least every other year. Currently, most of the initial inspections

New Wildland Facility Funding



In November 2011, Ballot Item 2A was approved by the voters. Ballot Item 2A allowed the city to use existing revenue to bond for approximately \$49 million to invest in much needed capital maintenance and improvements. The ballot item did not raise taxes. A new wildland fire operations building and storage facility for vehicles and equipment was included in the bond package. The amount designated from the bond for the new wildland fire facility was \$1,150,000. Per the requirements of the bond, 85 percent of the money must be spent within three years and 100 percent must be spent within five years.





are conducted by the twenty-four emergency crews working out of the fire stations as part of their daily routine. Despite training there is a wide range of expertise. BFRD will evaluate options to provide a more consistent inspection with clearly defined performance measures.

→ **Create a community-oriented risk management program.**

The information from inspections and pre-plans is used to develop risk management programs for each area of the city. Essentially a pre-plan includes a sketch of a building’s external footprint including gas and electrical shutoffs, internal floor plans including room uses (storage, office, etc.), and notes concerning special hazards (chemical storage, large numbers of impaired patrons, etc). An expanded community-oriented risk management program would allow BFRD to more effectively deploy resources on emergency scenes.

BFRD is initiating a community-oriented risk management program that includes pre-plans for individual businesses to allow for more effective emergency response. BFRD currently has a limited pre-planning effort so this would significantly expand the program.



Good Governance – Model the strategic use of resources and environmental stewardship.

Boulder’s sustainability goals recognize that all city functions must operate within prescribed limits. This is where strategy becomes necessary. In the case of BFRD, sustainability is inherently strategic because it requires *both* the highly effective protection of life, property, and economic activity *and* the recognition that financial and environmental resources employed toward that end are fragile and

finite. Every firefighter receives over 100 hours per year of continuing education to ensure peak performance for the community. BFRD embraces new technology in its efforts to provide services in the most cost-effective manner possible. Key initiatives related to good governance include:

- **Maintain a forward looking plan for maintenance and replacement of BFRD capital assets, including fire apparatus.** Prior to 2010, BFRD did not have funding for the replacement of its aging fleet of fire trucks. As a result of a voter-approved measure eliminating Tax Payers Bill of Rights (TABOR) restrictions on property tax revenue in Boulder, BFRD, along with Finance and Fleet Services, developed a funding plan for future fire truck replacement needs. As of 2012, a sustainable funding plan is in place for the replacement of fire apparatus. A similar approach has been developed to address facility needs. Staff has already identified, as part of the Facilities and Asset Management (FAM) master plan update process, citywide funding needs for ongoing operations and maintenance (O&M) as well as major maintenance/facility renovation and replacement (MM/FRR). Staff from BFRD, Finance, and FAM are also developing a funding plan for BFRD facilities maintenance and replacement needs.
- **Adopt a number of fire/rescue best practices to enhance the operations and management of BFRD.** BFRD recognizes that a number of best practices – many identified in the Assessment – are the hallmarks of top performing fire/rescue providers. BFRD will focus on adopting and implementing a number of these best practices including:
 - Establishing internal performance objectives using the benchmark national standards for response time performance, including targets for call processing in the 9-1-1 dispatch center, reaction time in the stations, drive time from the stations to the incidents, and targets for performance once the units have arrived on scene.
 - Utilizing the national incident management system and other incident command tools to improve incident management at all major emergencies, particularly those



involving a large number of units or multiple responding agencies.

- Enhancing BFRD’s ability to track personnel at major emergencies and to improve on BFRD’s ability to account for all personnel, their whereabouts and their assignments at all times.
- Modernizing the fire station alerting system to improve response times. The existing method was designed and installed nearly 30 years ago. Modern station alerting systems sound an alert, as well as turn on lights, turn off cooking equipment, and provide graphic displays of the location of the incident with written information.
- Developing a program by which a safety officer is assigned at all major incidents – the safety officer is intended to be another set of eyes and ears for the incident commander.
- Exploring the development of a mandatory firefighter wellness program, including annual fitness testing.
- Revisiting the analysis of turnout times² and taking the necessary steps to improve them where possible. This could potentially improve the overall performance of response times for BFRD.

→ **Track new performance measures and increase the utilization of data in the management of BFRD.**

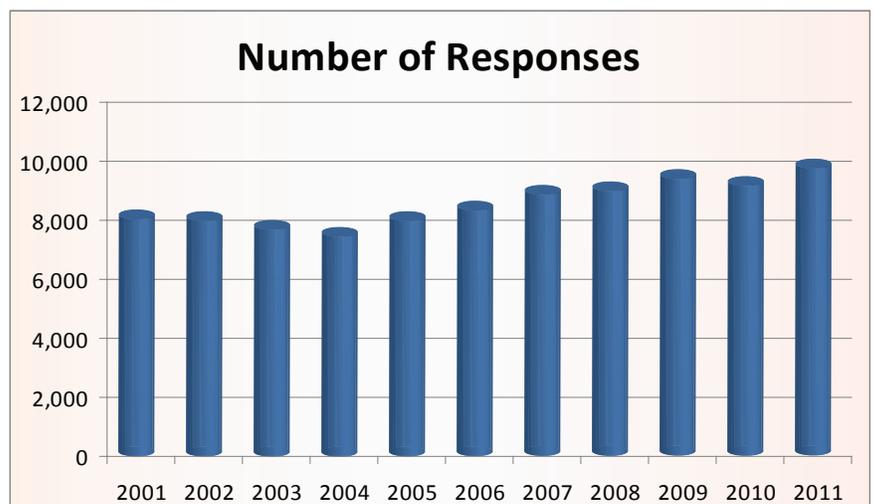
Modern fire/rescue agencies operate with specific operational goals and performance measures against which to assess their service delivery. These can and should span the full range of activities provided by the department. A key element to the successful adoption and utilization of performance measures is that they must be regularly tracked and that management decisions must be made using them. BFRD recognizes that operational improvement and continued high quality service is possible when the results are being measured and when staff and managers are held accountable, or commended, based on the results.

2. Turnout time is measured from the time the dispatcher notifies the fire fighters in the fire station of an emergency until the fire truck begins driving to the scene.



→ **Develop a formalized system for succession planning, including leadership development, training, and specialized assignments.** A majority of BFRD supervisors are eligible for retirement soon. Succession planning requires time and special training for firefighters to become officers and administrators. BFRD will develop a formalized system for succession planning to support leadership development, training, and growth opportunities for staff. To continue to improve the training offered by the city, BFRD will:

- Identify jobs and assignments with special core competencies and deliver training to meet them.
- Identify the skills necessary for effective supervision and management in order to expand this training to appropriate staff.
- Engage in post-incident assessments to document “lessons learned” at all major incidents and at any incident where a firefighter was injured to ensure that BFRD’s training program focuses on priority issues and highlights innovations.





Firefighter Training

Firefighter training is the single most important factor in preparing firefighters to operate in complex, dynamic, and dangerous environments. The paradox of firefighter training is that the more effective a fire department is in preventing fires and other emergencies, the less practiced and proficient firefighters become in responding to actual emergencies. This means training becomes even more important as a means to provide opportunities for practicing basic skills and drills. New employees receive 800 hours of training before being assigned firefighter duties. Each firefighter receives a minimum of 82 hours of training each year, and firefighters serving on specialty teams, such as Wildland, receive an additional 24 to 56 hours of training to stay proficient.

- Establish a Training Steering Committee to take input from post-incident critiques, staff, management and the bargaining unit as well as the medical director and various national and regional trends and work with the training staff to develop the annual curriculum for training in BFRD.
- Study the feasibility of two-way video conferencing to improve availability and frequency of training.
- Expand the Training Division from one division chief and a training captain to two additional staff, including one lieutenant and one captain position.
- of enhanced EMS call screening (emergency medical dispatch or EMD).
- Utilizing emergency medical dispatch (EMD) to better manage the allocation and dispatch of resources to EMS calls, including fire units and ambulance contractor units.
- Improving the performance requirements within the ambulance contract, including additional sanctions for lack of performance.
- Reviewing, periodically, the EMS delivery model to ensure the community is receiving an acceptable level of service.

→ Enhance EMS service delivery through improved coordination, use of new technology, improved management of the ambulance contract, and periodic review of delivery model.

A significant opportunity for improvement is to enhance the way in which the EMS system is managed and coordinated. There are several areas in which this focus could be improved, including:

- Linking medical control and incident review from the time a 9-1-1 call is answered until the patient is delivered to the hospital.
- Identifying an EMS contract administrator (either a dedicated position or as an assigned duty) to oversee the ambulance contract.
- Incorporating EMS first responder compensation into the ambulance fees.
- Utilizing enhancements in the CAD system, including the adoption

→ Explore ways to improve diversity within BFRD.

The city's diversity plan states:

"The city of Boulder believes that a diverse workforce adds quality and perspective to the services that we provide to the public and to the employee's work environment. Therefore, the city strives to provide an inclusive work environment by developing and maintaining a diverse workforce, which values and is sensitive to the differences among employees and the public it serves."

The city policy also directs departments to "plan and implement programs to encourage and support diversity." In the late 1970s, BFRD recognized the value of a diverse workforce and set out to diversify what had been typically a white-male-dominated profession. BFRD is proud of its diversity and has been recognized nationally for efforts to welcome non-traditional employees into the profession. Recently, attrition has eroded earlier gains in diversity so that women and people of color are represented less than would be expected. BFRD is exploring various methods to enhance recruitment efforts and support efforts to help prepare non-traditional candidates to enter the hiring pool and improve their ability to become hired in Boulder.





Chapter 5: Investment Priorities and Funding Options

According to the 2012 budget, the Boulder Fire-Rescue Department (BFRD) currently receives 99 percent (\$15,470,443) of its funding from the General Fund and 1 percent (\$81,184) from Open Space and Mountain Parks. Personnel expenses account for 84 percent (\$13,026,922) of the total budget and fixed expenses such as utilities and replacement fund contributions account for 14 percent (\$2,209,725). This leaves 2 percent (\$314,979) to pay for the daily operational expenses of the department.

As a General Fund department with a majority of its annual appropriation allocated to personnel and fixed expenses, there is little opportunity to enhance existing programs through re-allocation. Specific new appropriation from either the General Fund or other city revenue sources are required for new programs or capital needs.

Departmental master planning is focused on aligning the design of departmental operations, programs, and annual spending plans with stated community priorities. This update to the Fire-Rescue Master Plan pioneers a system to help ensure that planned activities are supporting community priorities and are funded in accordance with those priorities.

The Sustainability Framework described in Chapter 3 serves as the first checkpoint in planning departmental investments. By designing new initiatives to serve the categories within the Framework, BFRD can insure that it is working toward the community's goals. The second checkpoint in planning departmental investments is the

annual Priority Based Budgeting (PBB) score analysis.

PBB is the iterative process of prioritizing city programs in terms of their influence on achieving defined "results" which are the high level, overarching objectives that represent the priorities of City Council and the community.

PBB results were defined as a part of the 2011 budget process, incorporating City Council and community input. One of PBB's primary objectives is to ensure that, through sound fiscal planning, the city achieves an ongoing financial balance between the amount of funding available and the cost of providing services and programs.

PBB contributes to the city's long-term financial sustainability and allows the City of Boulder to serve its residents in the most effective, efficient and fiscally responsible manner possible.

All programs are scored on multiple criteria that determine how valuable they are in

City of Boulder Recent Revenue History

2008

• "Retention of Property Taxes" was passed to pay for necessary city purposes such as fire apparatus and city services. The estimated annual revenue increase for the General Fund is \$1.2 million.

• The indefinite extension on the existing General Fund 0.38 percent City Sales and Use Tax was passed. While not a new revenue source, it generates about \$9.7 million annually for the General Fund.

2009: 0.15 percent Sales and Use Tax extension was passed. While not a new revenue source, it generates about \$3.8 million annually for the General Fund.

2011: Ballot Item 2A passed, allowing the city to use existing revenue to bond for approximately \$49 million in needed capital maintenance and improvements. Specifically, for BFRD, this provides \$1.15 million towards the construction of a new wildland fire facility.

1. Boulder Valley Comp Plan + PBB Results

- Guiding principles based on community input

2. Sustainability Framework

- First Check: Are planned department activities supporting community priorities?

3. PBB Score Analysis

- Second Check: Are annual department expenditures distributed in accordance with community priorities?

4. Fiscally Constrained – Action – Vision

- A tiered spending plan in which all scenarios are maximally aligned with community priorities.



A Safe Community will be achieved if the City of Boulder...

- ...Enforces the law, taking into account the needs of individuals and community values;
- ...Plans for and provides timely and effective response to emergencies and natural disasters;
- ...Fosters a climate of safety for individuals in homes, businesses, neighborhoods and public places;
- ...Encourages shared responsibility, provides education on personal and community safety and fosters an environment that is welcoming and inclusive, and;
- ...Provides safe and well-maintained public infrastructure, and provides adequate and appropriate regulation of public/private development and resources.

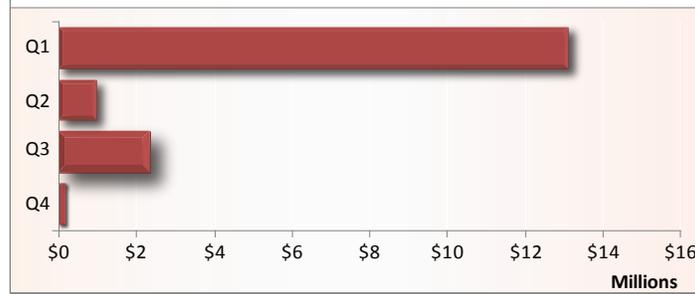


Figure 1: BFRD 2012 Spending by Quartile

meeting community priorities. For the purposes of analysis, all program scores are divided into quartiles that represent four levels of value. The first quartile (Q1) includes programs that scored in the top 25 percent. The second quartile (Q2) includes the next 25 percent of program scores, and so on.

Because emergency response is generally a high priority for the community, the bulk of BFRD spending scores in the top 25 percent of all community programs (Q1) administered by the city (Figure 1). These high scores are largely a result of very strong alignment with the SAFE COMMUNITY result within the PBB approach. (See Sidebar)

Checking future initiatives against current budget priorities is important because it ensures that the city allocates funding to areas that have been broadly embraced as community priorities. More specifically, it ensures that the largest amounts of funding will be matched to the highest priorities.

Funding Plans

In 2006, the city introduced a business plan approach that required each department to imagine a future without increased revenues. This approach acknowledged a tough fiscal reality and led to a continual rebalancing of

priorities and expenditures. The result was a tiered spending plan based on three scenarios, each reflecting different assumptions about available resources: **FISCALLY CONSTRAINED**, **ACTION**, and **VISION** (see page 30, Figure 4 for a complete list of initiatives by funding plans).

As BFRD looks forward to the next 10 years, it is committed to expanding upon, improving, or creating programs that support Boulder’s priorities. The vast majority of proposed initiatives directly support programs that consistently score in the top quartile of PBB. Figure 3 clearly illustrates how the **FISCALLY CONSTRAINED**, **ACTION**, and **VISION** plans distribute spending across broad program categories and the quartiles into which those program categories normally fall. One example is the small vehicle pilot (see **Appendix A**), a one-time cost in the ACTION plan that supports the Emergency Services program. Emergency Services is a first quartile (Q1) program that is a priority for further investment.

The **FISCALLY CONSTRAINED** plan is a prioritized or reprioritized service plan within existing budget targets. The intention of this funding plan is to refocus and make the most of existing resources. The department’s goal in this area is to maintain services. Initiatives in this master plan considered for the Fiscally Constrained Funding Plan are those that are mostly procedural or operational changes that require limited or no funding to accomplish.

The **ACTION** plan delineates the “next step” of service or facility expansion that should be taken when increased funding is available. It assumes increased funding and enhances

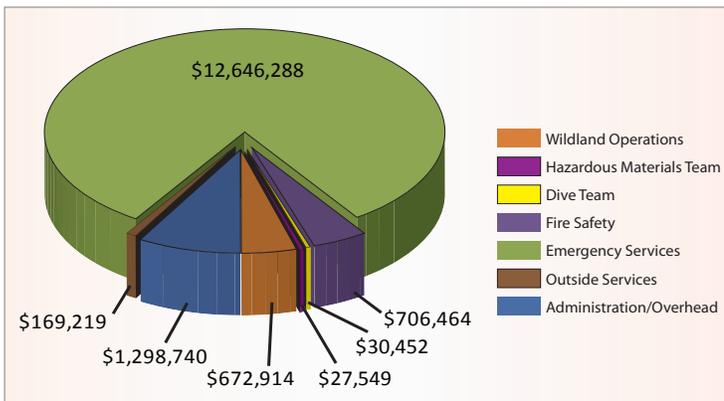


Figure 2: 2012 Boulder-Fire Rescue Budget

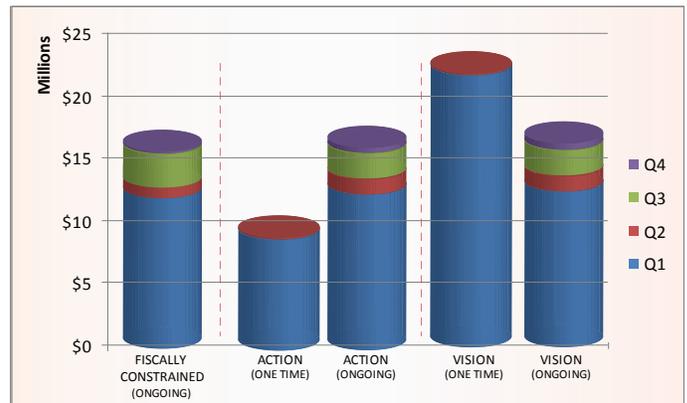


Figure 3: Spending Plans with Quartile Distributions



existing programs or begins new programs. Master plan initiatives listed under Action Plan add new positions, make significant changes to existing programs and require additional operational and capital funding. BFRD, in coordination with the City Manager and the city's Chief Financial Officer, will evaluate and analyze potential sources of additional revenue, including but not limited to capital bond funding, grants, and existing or new taxes.

The **VISION** plan is the complete set of services and facilities desired by the community, with alternative proposals to fund

them. It is fiscally unconstrained but can help provide policy guidance by illustrating the ultimate goals of the community. It is a long-range look to address future needs and deficiencies. In this master plan, initiatives in the Vision Plan address aging facilities to make improvements in operational effectiveness and the environmental sustainability of department facilities. As part of this effort, BFRD stations should serve as models of environmental sustainability. In addition, any replacement fire stations will be sited and designed to support rapid egress for the purpose of improving response times.



Figure 4: List of Proposed Initiatives by Funding Plan

FUNDING PLANS	INITIATIVES	SUSTAINABILITY CATEGORIES
VISION	ACTION	Evaluate location, size, and design of all BFRD facilities for effectiveness and efficiency.  
		Evaluate type of stations for redeveloping areas, such as Fire Station #3 (relocation out of floodplain).  
		Develop a fire materials and equipment storage solution.  
		Pilot the use of smaller vehicles to respond to medical emergencies.  
		Leverage new dispatch system to reduce the number of vehicles responding.    
		Explore new public education programs to expand the reach to include other members of the public. 
		Expand public education and outreach efforts focused on fire and injury prevention through partnerships, traditional methods, and new approaches. 
		Explore mandatory firefighter wellness and fitness.  
		Continue to replace seasonal wildland fire crews with full-time employees.   
		Hire a hazardous materials inspector. 
		Develop a formalized system for succession planning, including leadership development, training, and specialized assignments. 
		Enhance EMS service delivery through improved coordination, use of new technology, and periodic review of delivery model.  
		Design and use apparatus that are appropriate for the missions and efficient to operate.   
		Expand the use of incident benchmark data to evaluate and improve response.  
		Complete comprehensive risk analysis to identify risks and tailor emergency response.  
		Expand and improve training for fire, rescue, and EMS skills with better effort toward incorporating lessons learned in the field. 
		Examine the commercial inspection program and develop more clearly defined performance measures.    
		FISCALLY CONSTRAINED
	Consider adoption of new codes such as the wildland interface code and those focused on vegetation mitigation and fire resistive construction practices.   	
	Implement plan to identify remaining wood roofs by end of 2012, so city can work with property owners to facilitate replacement of existing roofs by deadline (Jan. 2014).   	
	Develop a new wildland fire facility at the Fire Training Center site.   	
	Maintain a forward looking plan for maintenance and replacement of BFRD capital assets, including fire apparatus.   	
	Perform an environmental baseline assessment and develop an action plan to further implement GHG emission reduction measures.   	
	Improve BFRD's environmental sustainability efforts through recycling and composting. 	
	Use LEED targets for facility development.  	
	Continue to adjust shift schedules to reduce commuting.  	
Shift the deployment of personnel assigned to specialty teams into dedicated stations and pairing personnel with their equipment.  		
Create and implement an automatic backfill plan for stations. 		
Explore ways to increase diversity within BFRD. 		
Track new performance measures and increase utilization of data in management of BFRD.  		
Continued focus on wildland fire planning, mitigation and protection, including regional partnerships with the Sheriff's Office and service providers.  		
Create a community-oriented risk management program that includes pre-plans for businesses to allow for more effective emergency response.   		
Revisit turnout times and take necessary steps to improve response times.  		



Chapter 6 – Performance Measures

Performance measurement allows public officials, department managers, and the community to evaluate the effectiveness and quality of public services. Performance measures are used by federal, state, and local governments to respond to increasing demands for accountability and greater interest from public officials concerned with evaluating program effectiveness and allocating resources. Across Colorado and nationally, fire departments increasingly are expected to meet national standards to qualify as partners in state and federal emergency preparedness efforts and to be eligible for grant funding. The expectation that firefighters will be trained and certified is part of this national standards trend.

The City of Boulder complies with national standards for wildland fires, enabling BFRD to participate in a reciprocity program in which other communities provide and receive help when needed. The department also meets national standards for responding to emergencies involving hazardous materials. Compliance with standards related to training and competency of firefighters is voluntary but will become mandatory in the near future. Compliance with other standards related to physical resources, emergency response, firefighter safety, and emergency planning currently are also voluntary.

Response Time Standards

Response time is the most common performance measure used for fire services because it is understood by residents, easy to compute, and useful in the evaluation of end results. The BVCP currently calls for BFRD to: “have response time to location of emergency that is normally six minutes or less.” This goal is supported by the National Fire Protection Association (NFPA) standards, which establishes a six-minute response 90 percent of the time.

This master plan recommends changing the response time standards to a six-minute response 80 percent of the time. This change is based on the more current response standard as recommended by the Center for Public Safety Excellence³ and the City of Boulder’s Fire Operation and Management Assessment (Assessment). As noted in the Assessment, few fire departments across the country are currently meeting or exceeding the NFPA standard. Many communities choose to develop their own response time goals in light of what is realistic versus what it would take to meet the NFPA goal.

BFRD’s recommendation to use 80 percent better aligns the goals with BFRD’s ability to deliver the service to the community. Given the city’s consistently low fire loss⁴ and overall satisfaction with the emergency medical response within Boulder, it would not be cost-effective to meet the 90 percent goal. BFRD will continue to deliver a high level of service to the community with the existing number of fire stations and firefighters in place.

Data Collection

Several of the performance measures in this plan are new and, therefore, data has not been collected. A small percentage of incident data that is collected may be coded inconsistently by those writing the individual incident reports. Changes are needed to report response times to actual emergencies separate from non-emergency complaints. As mentioned in the recommendation section of the master plan, BFRD will establish procedures to collect data for measures not previously used and will enhance training to facilitate consistent reporting. Part of these efforts will also include implementation of technological improvements which will assist in more accurate data collection and increased utilization of data in the management of BFRD.

How are we doing?

Overall, BFRD is meeting the performance standards based on data from 2011 (see table on page 32). The 2011 Boulder Community Survey indicated that about eight in 10 respondents reported they felt at least somewhat safe from structural or house fires, a rating that was similar to the national benchmark and the same as reported in 2007. Nearly six in 10 of those completing the questionnaire felt safe from wildland fires, a decrease from previous years, perhaps due to

Emergency Response Time Components

The five components of response time are:

- 1) *Detection time is the time it takes for a fire or medical emergency to be detected and reported to the 9-1-1 dispatch center. Smoke detectors and alarm systems reduce detection time and increase the chances that occupants can escape.*
- 2) *Dispatch time is the time it takes 9-1-1 operators to notify the department of an emergency.*
- 3) *Turnout time is the time between when the 9-1-1 dispatch center is notified and the engine company leaves the fire station. Factors that influence turnout time include the time required to put on protective clothing and equipment.*
- 4) *Travel time is the time it takes firefighters to arrive at the emergency site. Factors that affect travel time include distance, road conditions, traffic, weather, time of day, and the speed at which fire trucks can travel safely.*
- 5) *Setup time is the time between the arrival of the first engine company and the initial attempts to fight the fire or provide medical treatment. When crews arrive on the scene, they gather information and prepare for a fire attack or medical treatment.*

3. Center for Public Safety Excellence: <http://publicsafetyexcellence.org/about-cpse/cpse-mission-goals.aspx>.

4. Boulder’s fire loss is around \$3.5 million on a rolling five-year average in relation to over \$21 billion worth of property protected.



Sustainability Framework	Division	Performance Measures	
		Standard	2011 Actual
	Emergency Services	Arrival of 1st unit dispatched to an emergency within 6 minutes 80% of the time	78%**
		Arrival of all units dispatched to an emergency within 11 minutes 80% of the time	97%**
		Limit the spread of fire to the room of origin after fire department arrival 90% of the time.	NA
	Hazardous Materials Team	Arrival of 1st unit dispatched to an emergency within 6 minutes 80% of the time.	66%
		Arrival of all units dispatched to an emergency within 11 minutes 80% of the time	88%
		Limit the spread of a hazmat incident into a storm drain or waterway after fire department arrival 90% of the time.	NA
	Fire Safety	Complete assigned annual engine company initial and re-inspections 100% of the time.	100%
		Respond to fire code issues raised by the public 100% of the time.	100%
		Review all plans submitted for permit within 14 days 100% of the time	NA
		Respond to community requests and needs for fire safety education 100 % of the time.	NA
	Wildland Coordination	Arrival of 1st unit dispatched to an emergency within 6 minutes 80% of the time.	56%
		Arrival of all units dispatched to an emergency within 11 minutes 80% of the time.	74%
		Limit the size of a wildland fire to one acre or less 90% of the time, unless the fire is being used as a wildland management technique.	99%
		Treat at least 100 acres of wildland area annually in collaboration with internal and external partners.	100%
	Dive Team	Arrival of 1st unit dispatched to an emergency within 6 minutes 80% of the time.	90%
		Arrival of all units dispatched to an emergency within 11 minutes 80% of the time.	80%
	Outside Services	Arrival of dispatched ambulance to medical emergency within 7 minutes 90% of the time.	90%
		Arrival of dispatched ambulance to medical emergency within 11 minutes 98% of the time.	97%
	General	Maintain a community survey “feel safe” rating above 85% for the fire department	81%

NA indicates that this is a new standard so no data was available for 2011. Data will be collected beginning in 2012.

** indicates that service calls were not included in the calculation.



people’s experience of the Four Mile Canyon fire in 2010. Ratings for fire response and EMS were up slightly from 2007 and were similar to ratings in other communities.

In some instances, the performance measures are not being met. The data in these areas is being further evaluated to identify areas for improvement. One of the initiatives discussed in the recommendations section of the master plan and identified in the Assessment is a review of turnout times. The department plans to begin the evaluation of turnout times⁵ early in 2013 following the implementation of the new computer aided dispatch (CAD) system.

Another area where the performance measures are not being met includes hazardous material response and wildland fire response. Based on an initial analysis, the delay for hazardous material response may be attributed to the special apparatus and assembling a specialized crew. The initiative recommended in the master plan to shift the deployment of personnel assigned to

specialty teams into dedicated stations with their equipment may improve the response. For wildland response, the additional time is often due to the fact that the incident is located near the city boundaries or outside the city limits on open space. The new wildland fire facility initiative will help to reduce the time to assemble the equipment and crew. An increase in wildland personnel will also contribute to improved performance. Going forward, the department will continue to investigate the reasons for these performance issues and implement changes as appropriate. In addition, the performance measures will continue to be evaluated as part of the annual citywide budget process.



5. Turnout time is measured from the time the dispatcher notifies the fire fighters in the fire station of an emergency until the fire truck begins driving to the scene.



Chapter 7 – Implementation and Next Steps

With the adoption of this master plan, BFRD commits to the initiatives contained in the fiscally constrained plan (within existing budget) and to actively pursue the funding and resource leveraging needed to implement the action plan.

Implementation of the plan will take place over a number of years to even out budgetary and other impacts. BFRD is already moving ahead with many of the recommendations in the master plan that do not require additional funding or staff. Examples include work on a BFRD environmental sustainability plan to complement the city's overall goals; incorporation of the latest technologies to reduce exhaust emissions when purchasing new equipment; and the building of a new wildland fire facility.

In the future, BFRD will incorporate new initiatives into the planning and budget processes as city resources allow. Examples in this category include the pilot program to introduce smaller response vehicles into the system (part of the 2013 recommended

budget); the relocation of Fire Station #3 out of the 100-year flood plain; and the purchase of software and training to prioritize emergency responses in an effort to reduce the number of vehicles dispatched to various emergencies.

With this master plan as a guide, BFRD will use the city's Priority Based Budgeting approach to develop annual budget requests. Performance measures will be used to monitor service and progress toward the master plan strategies. Progress will be reviewed and accomplishments reflected as part of the annual budget process. Every effort will be made to ensure that BFRD efforts complement and contribute toward achieving City Council and community goals.



APPENDIX A: Boulder Fire Rescue Department Light Response Vehicle Pilot Program



Example of Possible Pilot Program Vehicle Type

March 2012

Light Response Vehicle Pilot Program Overview

Background

In June, 2011, the TriData Corporation completed an Operational and Management Assessment of the Boulder Fire-Rescue Department (BFRD). One of the recommendations included in the report was consideration of incorporating 2-person rescue vehicles at the busiest fire stations to respond to medical emergencies. The recommendation stemmed from the fact that heavy fire apparatus use fuel inefficiently, need to be preserved due to their immense cost, and are often unnecessary for the medical calls to which they respond.

Currently, when the communications center receives a call for help at a medical emergency, it notifies the ambulance company and BFRD and both respond. If a fire engine is busy, the ladder truck will respond. The engine is staffed by three firefighters.

BFRD proposes a pilot project incorporating a Light Response Vehicle (LRV) at Fire Station #1. This station is currently the busiest station in the system running over 3,000 emergency responses per year. Medical emergencies account for 54% of the total responses. The comparison between existing standard procedure at Fire Station #1 and the new approach under the pilot will inform the analysis of the program.

Project Goals

The goals of the Light Response Vehicle Pilot Program are:

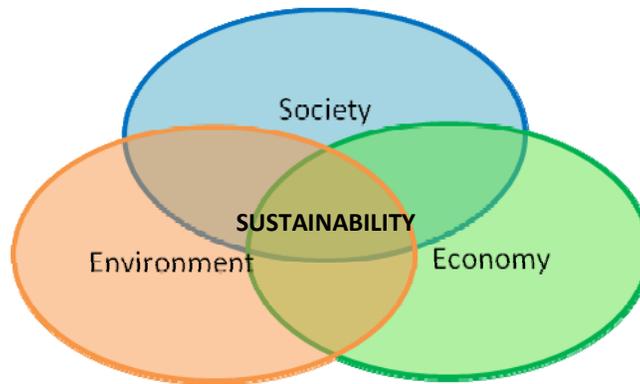
- Reduce fuel consumption and greenhouse gas emissions
- Reduce damage and deterioration to the city's streets and roads
- Extend the life of the city's fire engines through decreased usage
- Increase maneuverability of response vehicles



Fire Station #1, 2441 13th Street (Across the street from Casey Middle School)

Analysis

BFRD will evaluate the pilot using a Triple Bottom Line analysis. To be sustainable, the program should reduce the department's carbon footprint in a cost effective manner without adversely impacting the service that BFRD provides.



Over the course of the pilot period, BFRD will:

1. Identify the number of responses that will be able to divert from the larger fire apparatus.
2. Determine the actual mileage reduction on the larger fire apparatus.
3. Evaluate fuel savings.
4. Evaluate the impact on response times to medical emergencies in Station #1's district.
5. Evaluate the operational impacts of the vehicle on the overall emergency response system.
6. Evaluate the costs associated with the new program.

Detailed Cost

A vehicle has not been selected yet for the pilot program. One example of a light response vehicle is the Chevrolet Tahoe Response Vehicle:

- From 2012 State of Colorado Bid, Chevrolet offers a flex fuel model at \$30,575 or a hybrid model at \$47,767.
- Rescue tools, equipment, radios, lights, sirens, etc, cost \$46,000.
- Necessary fire station modifications may cost approximately \$12,000 to accommodate the new vehicle.
- Ongoing annual cost of vehicle replacement, assuming a 13-year replacement cycle, is between \$6,500 and \$7,200 depending on the selected vehicle.

It is anticipated that the total start-up cost for the pilot will range from \$100,000 to \$120,000 assuming the vehicle costs between \$30,000 and \$50,000.

Timing and Design of Pilot

BFRD will take immediate steps to begin the pilot. Funding has been identified in the 2012 budget that will allow the vehicle to be available for a January 1, 2013 start. It is anticipated that the pilot period will be two to three years. This will allow the department to collect and analyze multiple years of data.

Following the conclusion of the pilot period, BFRD will produce a written program evaluation.

APPENDIX B

Executive Summary of the Fire Operation and Management Assessment Report (June 2011)

TriData, a division of System Planning Corporation (SPC), was contracted to conduct a comprehensive operation and management assessment of the Boulder Fire Rescue Department (BFRD). BFRD protects over 100,000 residents, many businesses, a major university (University of Colorado), and the foothills of the Rocky Mountains. To accomplish its mission, 112 personnel are assigned to staff and manage seven stations that deploy seven engines and one ladder. Fire units are available 24/7. The Wildland Division is an important part of the BFRD and includes 3 additional full time personnel and a 5 person seasonal crew, during 10 months out of the year.

Overview

The BFRD is a good department, operationally sound and well trained in the basics. It is a philosophically aggressive department in its approach to fighting fire and is quite competent in its ability to implement operations. The operations and response procedures of the BFRD are sound. Response times are good. The current configuration of fire stations provides good coverage and station locations are fairly ideal. The protocols with regard to fire suppression and EMS response are solid and exceedingly professional, and there is an abiding department-wide pride in providing professional service to the Boulder community. The structure and size of the BFRD serve to effectively meet the department's mission. There is an appropriate span of control and the structure has created a functional organization, particularly at the administrative level.

The BFRD has an excellent mutual and automatic aid system. There is seamless cooperation between the BFRD and every fire protection agency across the county and state in no small part attributable to the fire chief's leadership in this arena.

The city also receives a very high quality of pre-hospital emergency medical services. All emergency response personnel from the fire department are trained as Colorado Emergency Medical Technicians (EMTs). Wildland fire suppression and mitigation efforts are also very good. The city's wildland division is considered a pioneer in the field. The fire prevention division of the department has an excellent public education program. The training division provides a comprehensive program, is an excellent resource and few departments can match the quality of the recently completed and state-of-the-art training facility. The Boulder Office of Emergency Management is

professional, well run and well organized. The city has an advantageous fleet maintenance and replacement program for fire apparatus.

In summary, the Boulder community can be assured that on the street level, competent fire emergency services are being delivered. It is important to highlight that the City of Boulder has significantly fewer fires, dollar loss, civilian fire injuries and civilian fire deaths per capita than the average of U.S. communities of similar size.

Findings and Recommendations

Organization and Management – The BFRD provides competent and sound service when responding to emergencies in the City of Boulder and the surrounding area where wildfires are a natural hazard. However, in some areas the BFRD has become stagnant. Labor-management relations and internal communications are areas to improve. While fire personnel's input on contractual matters is important, as represented by the International Association of Firefighters (IAFF) Local #900 union, there needs to be better communication and mutual respect between labor and management in the final decision-making process. With regard to management, there is a lack of leadership and a perceived powerlessness in the ability to implement needed change because of poor labor management relations and union influence. The Wildland Division and the union do not get along and this needs to improve. There is virtually no succession plan for future leadership.

While internal communications within the department need improvement, external communications with outside partners and stakeholders are excellent. In fact, it is one of the best we have seen in the country. Every outside agency we spoke to express an excellent working relationship and communication between their respective agencies and the BFRD.

Negotiated firefighter compensation seems to have had an indirect effect on the operational budget. The City of Boulder is fortunate to experience a relatively good financial state, while many cities are negotiating and exacting needed concessions to keep essential emergency services viable. It is incumbent upon the City to continue to shift towards establishing a more pragmatic balance between its positioning of fair bargaining and basic operational needs for the department.

Recommendations to improve the BFRD include:

- The proposed addition of an Administrative Battalion Chief position to the organizational structure, and

- A proposed plan for enhancing leadership and communications training department wide, including a focus on Oversight and Planning, Leadership, Communication, Employee Development and Support and Community Education and Outreach. (Appendix A includes a detailed list of training programs.)

Risk and Demand/Station Location – The Boulder team was particularly responsive to all of our data requests. In fact, this was one of the best data collection experiences we have had with any of our clients. There are few gaps in Boulder’s use of data or its completeness. However, there are some areas that could use improvement.

A significant finding is that only the demand for emergency medical service (EMS) is increasing. EMS calls increased from 4,828 in 2005 to 5,384 in 2010 accounting for an 11 percent increase. With Boulder’s population and employment projections, EMS incidents are expected to increase, particularly in areas being redeveloped. Boulder has significantly fewer fires, dollar loss, civilian fire injures, and civilian fire deaths per capita than the averages for communities of similar size in the United States.

Response times were found to be good, but slightly higher than national standards. Areas for the improvement of response times, particularly with respect to turnout times, are identified in this report. Citywide travel times are approximately 20 seconds longer than the National Fire Protection Association (NFPA) 1710 recommendations at the 80th percentile level and 80 seconds longer at the 90th percentile level. Total response times are approximately 30 seconds longer than the NFPA 1710 recommendations at the 80th percentile level and 90 seconds longer at the 90th percentile level.

Although BFRD should continue to reduce the travel time to emergencies, it is not realistic to achieve the 6 minute total response time NFPA goal 90 percent of the time. A better approach is to improve call processing and turnout times to compensate for slightly longer travel times.

Recommendations for slight station location improvements include:

- The proposed relocation of Station 3 to the north and out of the floodplain, and

Long-term recommendations include:

- The proposed relocation of Station 5 closer to the intersection of Iris Avenue and Broadway Street.

Fire Operations – As a fire department, BFRD is operationally sound. The residents and businesses of Boulder can be assured that competent fire emergency services are being provided at the street level. The city’s Wildland Division has been a pioneer in the field, receiving well deserved national recognition for its comprehensive approach towards forest management. For EMS, the city uses a combined and integrated service network that initiates care from an enhanced 911 emergency call center operated by the city’s Public Safety Communication Center. First responder services are rapidly initiated from each of the City’s seven fire stations operated by BFRD.

Recommendations to improve these areas include:

- The proposed use of a 2-person rescue vehicle in its busiest fire stations, running in tandem with fire apparatus. This recommendation is also intended to address environmental concerns related to greenhouse gas emissions and fuel usage.
- The continuation of the 48/96 work schedule for the immediate future, while monitoring the use of sick leave and overtime.
- Reclassifying the Wildland Fuels Manager and Fire Management Coordinator positions in order to align position titles and pay scales with other fire response positions.
- Adopting the International Wildland-Urban Interface Code.
- The proposed purchase by BFRD and Open Space and Mountain Parks (OSMP) of two Type-3 engines (one per department) to be added to the wildland response fleet.
- Exploring options to transition the BFRD’s current seasonal crew members to a full-time fuel crew.

Environmental Sustainability – Environmental sustainability is a major concern and initiative in the City of Boulder. BFRD is currently engaged in these efforts, but objectives could be more clearly defined and communicated in the department. There are a number of significant opportunities for BFRD to improve its sustainability practices by working more closely with the city’s sustainability staff in order to help the city meet its sustainability goals. Examples of sustainability initiatives are highlighted in the report, such as the United Kingdom’s deployment of fire bikes specifically equipped to fight

fires and the use of domesticated animals (such as goats) to help prevent and mitigate wildfires. In addition to the recommendation mentioned previously for smaller EMS response vehicles, recommendations include:

- Further implementing basic sustainability practices such as recycling, energy conservation, employee commuting reduction, fuel conservation, and employee awareness at all facilities.
- Working with city sustainability staff to perform an environmental baseline assessment and developing a department sustainability plan.
- Designating an internal sustainability program leader.
- Developing a firefighter green team.
- Tracking sustainability actions and reporting the results to the city sustainability staff and City Council.
- City sustainability staff providing training to BFRD leadership to reinforce the City's sustainability program, goals and expectations.

Support Services – Under the heading of Support Services, this study also reviewed fire prevention activities; training and professional development; fleet and facilities; health, wellness and fitness programs; and emergency communications. It should be noted that BFRD's Fire Prevention Division is one of the best run in the department, and implements some of the best programs in the entire area. Its public education efforts with the University of Colorado (CU) program in particular, have become a national model. Recommendations to improve areas in Support Services include:

- Enhancing clerical support to the fire training division.
- Establishing a training steering committee to guide the training curriculum and to provide input on the content and delivery methods.
- Continuing the use of wildland team members for out-of-area assignments and expanding the number of personnel who maintain National Wildfire Coordination Group (NWCG) credentials.
- Examining the expansion of wildland fire training opportunities, offered through the Wildland Division and the Front Range Fire Consortium, for Front Range communities urban and rural fire districts inside and outside the state.

- Evaluating a reduction in BFRD's participation in the delivery of fire academy instruction by its training division personnel in order to focus resources on department needs.
- Taking an aggressive approach in implementing a mandatory wellness and fitness program for all emergency response personnel, especially related to annual physicals.
- Reconsidering the current fire apparatus replacement strategy by extending the replacement cycle for engines from 10 to 15 years, while accelerating the replacement of the current brush truck fleet.
- Modifying the current computer aided dispatch (CAD) system to track and report on call handling time for all 9-1-1 calls.